

WIN!
Ultimate A3000
Animation Contest-p. 97

AMIGA

WORLD

May 1992
U.S.A. \$3.95
Canada \$4.95
UK £2.80

ACCENT ON OUTPUT!

AMIGA ART

5 Techniques For
Gallery-Quality Results

PRINTERS

Essential Buying Tips

PUBLISHING

Multi-Platform DTP

PLUS!

- Hidden Power
In Workbench 2.0
- "Trekking" w/DPaint
- Post-Production Tricks
For Video Special Effects
- Imagine 2.0 vs. Real3D Pro



An IDG
Communications
Publication

COMPLETE PACKAGE FOR THE AMIGA

NEW: SupraFax Software!

- Auto/manual FAX transmission
- Easy-to-use phonebook entries
- Convert faxes to/from IFF files
- Custom cover sheets
- Fax printer driver
- Group broadcast
- and more!

Supra Quality, Supra Prices, Supra

Modems



SupraFAXModem V.32bis
\$399.95 Retail

14,400 S/R FAX
14,400 DATA



SupraFAXModem V.32
\$299.95 Retail

9600 S/R FAX
9600 DATA



SupraFAXModem Plus
\$199.95 Retail

9600 S/R FAX
2400 DATA

Stand-alone prices shown; add \$80 to
include SupraFax software.

Introducing three great
new fax/data modems from
Supra — the 2400 bps SupraFAX-
Modem™ Plus, the 9600 bps SupraFAX-
Modem V.32, & the 14,400 bps SupraFAXModem
V.32bis! All three modems feature V.42bis &
MNP (2-5, 10) data compression & error
correction, plus they work with nearly all
popular telecommunications programs,
including BaudBandit™, JRComm, A-Talk
III™, & many others. With telecom
software & your
SupraFAXModem, you can access
computers close to home &
around the world, where you'll find
everything from airline schedules & stock
quotes to technical help & free software.
Computer-based faxes are just as easy.
All SupraFAXModems are compatible with
Group 3 fax machines & Class 1 & 2 fax
commands. Just add our versatile new
SupraFax software (or the program of your
choice)!



Supra Corporation

1-800-727-8772

SUPRA CORPORATION • 7101 Supra Drive SW, Albany, Oregon 97321 • 1-800-727-8772 • 503-967-2410 • 503-967-2401 Fax
SUPRA GmbH • Rodderweg 8, 5040 Brühl, Germany • (49) 02232/22002 • 02232/22003 Fax

Gold Disk Authorized Software Centers

Gold Disk products are available at most Amiga dealers. The following dealers have qualified as Gold Disk Authorized Software Centers and carry a complete range of Gold Disk products. See one today!

Alaska: Best Electronics, Anchorage (907) 278-2378 **Alabama:** Alabama Computers, Huntsville (205) 837-9324 **California:** Century Computer Systems, La Habra (310) 697-6977; Computer Guild, Mission Viejo (714) 951-1355; Computer Showcase, San Francisco (415) 563-1953; Creative Computers, Lawndale (310) 542-2292; Creative Computers, Santa Monica (310) 394-7779; Dataphile, Watsonville (408) 724-3322; HT Electronics, Sunnyvale (408) 737-0900; KJ Computers, Granada Hills (818) 366-9120; Transnational Electronics, Anaheim (714) 630-8711; Winners Circle, Berkeley (415) 845-4814 **Florida:** Amazing Computers, Tampa (813) 977-6511; Commodore Country, Pinellas Park (813) 576-5242; Computer Lane, Pembroke Pines (305) 435-1118; Computers Plus, Jacksonville (904) 268-2359; Computers Plus, Daytona Beach (904) 252-6442; Creative Equipment, Miami (305) 266-2800; Eagle Computers, Melbourne (407) 253-1805; New Age Electronics, Largo (813) 530-4561 **Georgia:** Ampex Systems, Inc., Norcross (404) 263-9190; B F J Enterprises, Roswell (404) 998-8251 **Illinois:** Intuitive Computers, Normal (309) 452-7434; Micro Ed Enterprises, Chicago (312) 245-0066 **Indiana:** CPU Inc., Indianapolis, (317) 577-3677 **Kentucky:** Expert Services, Florence (606) 371-9690 **Maryland:** Buried Treasure, Rockville (301) 770-6778; Professional Micro Services, Baltimore (301) 366-0010; Software Advantage, Rockville (301) 424-3024 **Michigan:** Computer Link, Garden City (313) 522-6005; Slipped Disk, Madison Heights (313) 546-3475 **Nebraska:** Double E Computers, Omaha (402) 334-7870 **New Hampshire:** Digital Connections, Dover (603) 742-2233 **New Jersey:** Golden Hedge, Cherry Hill (609) 354-1500 **New York:** Amagination, New York (212) 727-3290; Microworks, Buffalo (716) 873-1856 **North Carolina:** SBS, Durham (919) 469-3391 **Oregon:** Clackamas Computers, Clackamas (503) 650-0701 **South Carolina:** Computer Port, Spartanburg (803) 574-9679 **Texas:** Computer-Ease, Corpus Christi (512) 882-2275; Metropolitan Computers, Dallas (214) 702-9119; Microsearch, Houston (713) 988-2818; The Edge Computers & Video, Dallas (214) 392-7447; The Edge Computers & Video II, Irving (214) 570-1300; The Station, Austin (512) 459-5440 **Washington:** Nybbles & Bytes, Tacoma (206) 475-5938; Omni International Trading, Seattle (206) 620-2925 **CANADA:** **Alberta:** A Plus Computers, Edmonton, (403) 448-0632; Computer Works, Edmonton (403) 424-0011; Desktop Computing-Int, Red Deer (403) 342-4444; Software Supermart, Edmonton (403) 425-0691; The Computer Shop of Calgary (403) 243-4356 **British Columbia:** Conti Computers, Vancouver (604) 734-0606; M.L.C. Computers, Kelowna (604) 861-5520; Nu-Tek Computers, Vancouver (604) 435-0113 **Manitoba:** Adventure Software, Winnipeg (204) 942-4752 **Ontario:** Computer Variables, Richmond Hill (416) 771-6807; Comspec, Toronto (416) 633-5605; Electronics 2001, Willowdale (416) 223-8400; Leppert Business Systems, Hamilton (416) 522-9029; Lynx Technical Services, Orleans (613) 830-8396; Lynx Technical Services, Ottawa (613) 237-4701; Neutron Computers, Kitchener (519) 742-9821; Oby's Amiga Computing, Sudbury (705) 673-8520; Software Zone, Brampton (416) 791-6500; Thornhill Computers, Thornhill (416) 886-2494; Wrathborne Software, London (519) 457-3714 **Quebec:** Software House, Montreal (514) 374-3614; Soft Wares, Montreal (514) 737-5865 **Saskatchewan:** Memory Lane Computers, Saskatoon (306) 242-4000

SO ADVANCED IT EVEN CREATES YOUR PAGES FOR YOU!

1 Just Press Our New Genie Button Or Select Page Genie From The Menu...



2 Then Simply Choose From a Variety of Automated Layouts or Other Functions Like Envelope Addressing and More...

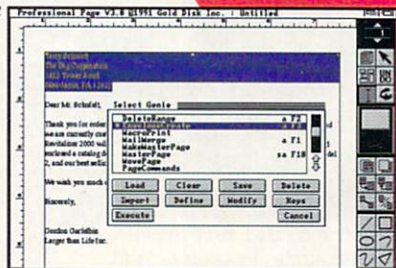


Table	1st Quarter	2nd Quarter	3rd Quarter
Envelopes	580,000	400,043	525,333
Labels	339,232	234,354	290,367
Books	471,011	367,911	589,298
Unpublished			
Labels	239,905	338,223	225,364
Books	327,101	367,099	234,06



3 And In No Time You Have a Quick Professional Layout Designed to Your Specifications, or an Automatic Table From Your Spreadsheet, or a Mail Merge From Your Database, or an Addressed and Printed Envelope, or...

PROFESSIONAL PAGE

Introducing GENIE, more than 30 great reasons to move up to Professional Page 3.0. With Genie you don't have to be a pro to design like one. Just click on our new Page Genie option and Professional Page will ask you some simple questions, then automatically design a custom professional layout for you. Press the Function Genie button and Professional Page will automatically address and print your envelopes, create beautiful tables from your spreadsheet data, perform complex mail merges for you (a FIRST for any DTP program on any platform), and much more! You can even create your own Genies using our 300 AREXX functions. But the new features don't stop there, you get 7 high quality scalable typefaces, type sizes in .125 point increments, support for Adobe Type 1 fonts, a new Undo button, new text import filters, improved color separation and much much more. So if you want to be the best, it's time to buy the best. Step up to Professional Page 3.0, it couldn't be easier.

New Features:

- Page Genies: 6 different styles of Automatic Page Generation, including newsletters, ads, flyers, brochures, more.*
- Function Genies: over 25 time saver Genies like Automatic Envelope Addressing, Automatic Table Creation, Automatic Mail Merge, Drop Caps, Small Caps & Super/Sub Script, Automatic Grid Creation, Pop Up Units Converter, HotLink to Art Department Pro, and many more.*
- Total Programmability: Using over 300 AREXX commands you can take complete control of Professional Page.*

- Type 1 font support for access to thousands of high quality fonts
- Undo for correcting mistakes
- New Color Separation Algorithms with improved undercolor removal
- 5 New AGFA Compugraphic Scalable Typefaces
- Type sizes in .125 point increments
- Professional Draw Hot link so you can instantly link to Professional Draw, edit your drawings or clip art, and send them right back!***
- New text import filters for Pro-Write, QuickWrite, Excellence
- Auto-tiling for printing large pages

Now's the time!

Even if you've never done desktop publishing before, you can with Professional Page 3.0 and our exclusive Page Genies. And power users will delight in the sophisticated array of Function Genies that speed your work like never before. Plus you get the benefits of 5 new typefaces, improved color separations, Type 1 font support, and more. So what are you waiting for? Step up to the most advanced desktop publishing package for the Amiga.

See your dealer today or call us at:

1-416-602-4000

And you get Purchase Protection: If you purchase Professional Page 2.1 between January 1 and March 31, 1992, you'll receive version 3.0 free.**

UPGRADES: Registered owners, call for information on upgrading to 3.0.



GOLD DISK

PROFESSIONAL PAGE 3.0 It Couldn't Be Easier.

Circle 154 on Reader Service card.

*Genies require AREXX. AREXX comes with Workbench 2.0 or can be purchased separately. **Just send in your dated sales receipt with your registration card. ***Hot Link requires Professional Draw 3.0 (available soon). Professional Page is a registered trademark of Gold Disk Inc. All other products mentioned are trademarks of their respective owners. Specifications are subject to change without notice.

THINK ALL '040 ACCELERATORS ARE THE SAME?

THINK AGAIN!

As a high power Amiga® 3000/3000T user you need a 68040 accelerator board for one reason ... and one reason only ... SPEED!

And once you know what makes one 68040 accelerator better than another, the only board you'll want is the G-FORCE 040 from GVP.

WATCH OUT FOR SLOW DRAM BOTTLENECKS

Yes, all 68040 CPU's are created equal but this doesn't mean that all accelerator boards allow your A3000 to make the most of the 68040 CPU's incredible performance.

The A3000 was designed to work with low-cost, 80ns DRAM (memory) technology. As a result, anytime the '040 CPU accesses the A3000 motherboard, memory lots of CPU wait-states are introduced and all the reasons you bought your accelerator literally come to a screeching halt!

Not true for the G-FORCE 040...

SOLUTION: THE G-FORCE 040's FAST, 40ns, ON BOARD DRAM

To eliminate this memory access bottleneck, we designed a special 1MB, 32-bit wide, non-multiplexed, SIMM module using 40ns DRAMs (yes, forty nano-seconds!). This revolutionary memory module allows the G-FORCE 040 to be populated with up to 8MB of state-of-the-art, high performance, on-board DRAM. Think of this as a giant 8MB cache which lets the '040 CPU race along at the top performance speeds you paid for.

SHOP SMART: COMPARE THESE G-FORCE 040 SPECS TO ANY OTHER '040 ACCELERATOR

► 68040 CPU running at 28Mhz providing 22 MIPS and 3.75 MFLOPS!

NOTE: The 68040 incorporates a CPU, MMU, FPU and separate 4KB data and instruction caches on a single chip.

► 0 to 8MB of onboard, 40ns, non-multiplexed, DRAM. Fully auto-configured, user-installable SIMM modules lets you expand your A3000 to 24MB!

► DRAM controller design fully supports the 68040 CPU's burst memory access mode.

► Full DMA (Direct Memory Access) to/from the on-board DRAM by any A3000 peripheral (e.g. the A3000's built-in hard disk controller).

► Asynchronous design allows the 68040 to run at clock speeds independent of the A3000 motherboard speed. Allows easy upgrade to 33Mhz 68040 (over 25.3 MIPS!) when available from Motorola.

► Hardware support for allowing V2.0 Kickstart ROM to be copied into and mirrored by the high performance on-board DRAM. Its like caching the entire operating system!

► Software switchable 68030 "fallback" mode for full backward compatibility with the A3000's native 68030 CPU.

► Incorporates GVP's proven quality, experience and leadership in Amiga accelerator products.

TRY A RAM DISK PERFORMANCE TEST AND SEE FOR YOURSELF HOW THE G-FORCE 040 OUTPERFORMS THE COMPETITION

Ask your dealer to run any "RAM disk" performance test and see the G-FORCE 040's amazing powers in action.

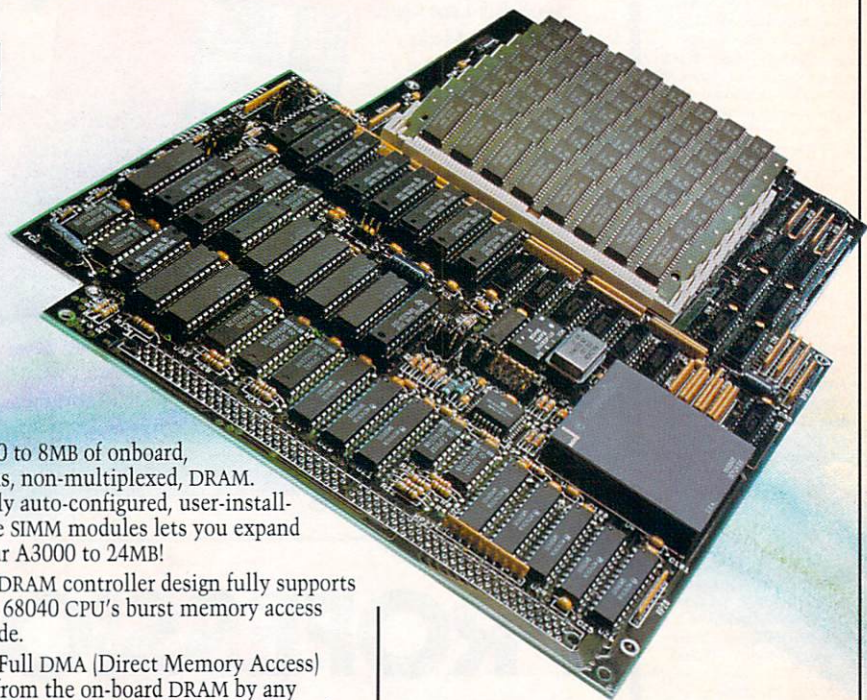
So now that you know the facts, order your G-FORCE 040 today. After all, the only reason why you need an '040 accelerator is **SPEED!**



SEE US AT
**world of
commodore
AMIGA**
NEW YORK CITY • APRIL 24-26, 1992

Dealers Circle 169 on Reader Service card.

Consumers Circle 170 on Reader Service card



G-FORCE 040™



Up to 8MB of high
speed (40ns) DRAM

Motorola 68040 CPU
running at 28 Mhz

A3000 "CPU slot" connector

GVP

GREAT VALLEY PRODUCTS INC.
600 Clark Avenue, King of Prussia, PA 19406

For more information or your nearest GVP dealer, call today. Dealer inquiries welcome.
Tel. (215) 337-8770 • FAX (215) 337-9922

G-Force 040 is a registered trademark of Great Valley Products Inc.
Amiga is a registered trademark of Commodore-Amiga, Inc.
© 1991 Great Valley Products Inc.

CONTENTS

VOLUME 8, NUMBER 5, MAY 1992

FEATURES

AMIGA OUTPUT AS ART

By Joel Hagen.....28

How you translate your computer images into finished artwork can be the crucial difference between mundane reproductions and gallery-quality works. Here are several creative techniques to help make your physical output suitable for exhibition.

DUSTING FOR "PRINTS"

By Dave Johnson.....33

Don't let your search for the right printer wind up in the "unsolved mysteries" file. Use this guide to take the investigative legwork out of finding what different kinds of printer technologies have to offer in terms of capability, performance, and value.

DTP-ING WITH THE ENEMY?

By Eyo Sama.....37

Relax: Neither you nor Julia Roberts will suffer murder or mayhem by engaging in a little cross-platform cooperation in the area of DTP. Learn to incorporate the best elements of Amigas, Macs and PCs, and you may just wind up with a competitive, full-service publishing operation.

ARTICLES

A BRAND-NEW BENCH: PART II

By Sheldon Leemon.....42

New features of the 2.0 operating system are making some applications programs more powerful, flexible, and easy to use—as you will see in Part II of our series on "Getting the Most from Workbench 2.0."

COLUMNS

CHIEF CONCERNS By Doug Barney...6

Using a computer to monitor Wall St. trading from a cell may not be good rehab for Michael Milken, but the editor shows that some "insiders" are putting Amigas to constructive use all the same.

ACCENT ON GRAPHICS

By Joel Hagen.....48

Joel takes you "trekking" in outer space this month with some paint-program tricks for whipping up animated starfields and spinning asteroids faster than you can say "Starship Enterprise."



Getting what you do on your computer out of your computer in quality fashion is paramount. That's why our features this month stress techniques for obtaining top-notch output, tips on buying printers, and practical advice on setting up desktop-publishing operations. Whether you're preparing artwork for exhibition or producing a job for a client, you'll find our "Amiga Output" special will help you get the best results possible.

VIDEO SUITE By Mark Swain.....50

One of the simpler—and less expensive—ways to achieve a crispy luminance clip in your video post-production work is to create a "traveling matte."

DEPARTMENTS

OVERSCAN.....8

News, new products, and more—from all over the Amiga community.

HELP KEY.....80

Memberships are free and service is available here at Lou's "Triple A"—where you get Advice, Assistance, and Action whenever your Amiga hits the breakdown lane.

AW PRODUCT INFORMATION.....84

To contact the developer of any product mentioned in this issue of *AmigaWorld*, consult our all-in-one "Manufacturers'/Distributors' Addresses" list.

THE LAST WORD.....112

The readers write back.

REVIEWS

IMAGINE (Impulse) and REAL3D PROFESSIONAL TURBO 1.41

(Activa / Programs Plus & Video).....18

Major facelifts for two multipurpose 3-D graphics packages pay off with highly successful results.

DSS8: DIGITAL SOUND

STUDIO (GVP).....20

High-quality audio digitizer/sample-editor combo with some sequencing capability thrown in.

MEGACHIP 2000/500, MULTI-START II, AND SECUREKEY

(DKB Software).....74

Three nifty boards that offer sensible solutions to increasing chip RAM, providing multiple Kickstart ROMs, and ensuring data security, respectively.

MEDIASHOW (Gold Disk).....75

Low-cost multimedia system for video production work.

VOYAGER (Carina).....76

"The Dynamic Sky Simulator" makes your Amiga a mini-planetarium.

NOTEBOOK (Black Belt).....90

Free-form text/graphics idea organizer.

GAMES

CRIB NOTES By Peter Olafson.....56

Slick tricks from the top tipster in the gaming game.

RED BARON (Dynamix / Sierra).....56

Highly realistic, authentically detailed flight simulator from the Great War...

BIRDS OF PREY (Electronic Arts)....56

...But if WWI biplanes are too slow for you, try this fast-paced Cold War model.

BATTLE ISLE (UBI Soft / Electronic Arts) and FIRETEAM 2200 (Sim Systems / RAW Entertainment).....58

Two sci-fi war games, one winner.

THUNDERHAWK (Virgin Games).....60

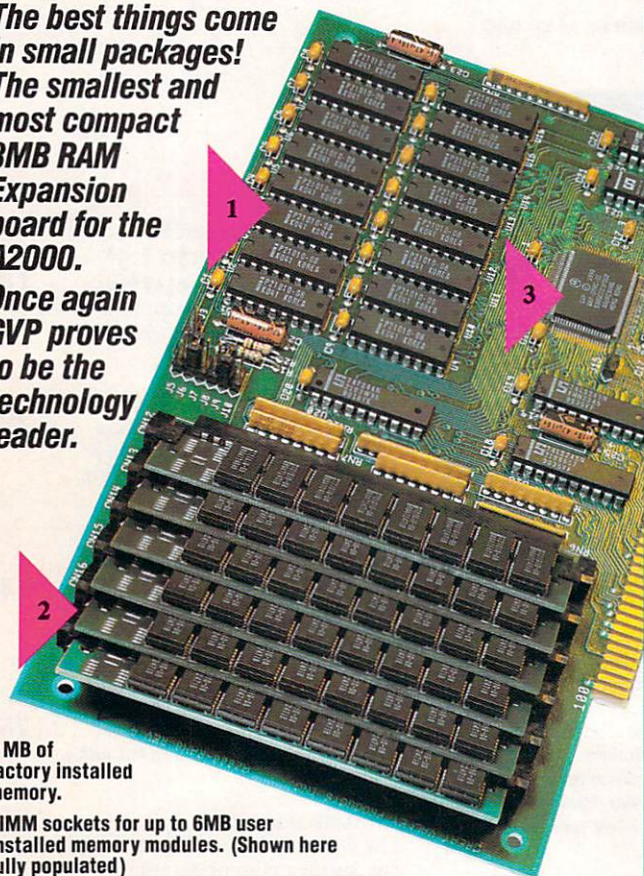
Hi-tech helicopter hijinks with arcade, strategy, and role-playing elements.

CORPORATION (Virgin Games).....62

Challenging role-playing adventure.

THE FINAL WORD IN RAM EXPANSION FOR THE A2000®

**The best things come
in small packages!
The smallest and
most compact
8MB RAM
Expansion
board for the
A2000.
Once again
GVP proves
to be the
technology
leader.**



- 1 2 MB of factory installed memory.
- 2 SIMM sockets for up to 6MB user installed memory modules. (Shown here fully populated)
- 3 GVP's VLSI custom chip allows dramatic decrease in number of parts required.

Features:

- ✓ 2MB of factory installed RAM, expandable to 8MB.
- ✓ All memory is fully Auto-Configured.
- ✓ Also supports a 6MB configuration for maximum memory utilization for Commodore's A2088/2286 "bridgeboard" users.
- ✓ Uses easy-to-install, industry standard, SIMM memory modules. No more bent pins or incorrectly inserted DRAM chips!
- ✓ GVP's state-of-the-art VLSI technology has reduced an 8MB RAM expansion board to a "half-card"! Lower parts count also means highest possible reliability and life expectancy.

GVP

GREAT VALLEY PRODUCTS INC.
600 Clark Avenue, King of Prussia, PA 19406

**For more information or your nearest GVP
dealer, call today. Dealer inquiries welcome.
Tel. (215) 337-8770 • FAX (215) 337-9922**

Amiga is a registered trademark of Commodore-Amiga, Inc.

Dealers Circle 21 on Reader Service card.

Consumers Circle 22 on Reader Service card.

AMIGAWORLD

DALE STRANG, *Publisher*

DOUGLAS BARNEY, *Editor-in-Chief*

DANIEL SULLIVAN, *Executive Editor*

SWAIN PRATT, *Managing Editor*

BARBARA GEVERT, *Senior Editor*

LOUIS R. WALLACE, *Senior Editor, Technology*

LINDA BARRETT LAFLAMME, *Review Editor*

GENE BRAWN, JOEL HAGEN, DAVID T. MCCLELLAN,

PETER OLAFSON, *Contributing Editors*

HOWARD G. HAPP, *Art Director*

LAURA JOHNSON, *Assistant Art Director*

ANN DILLON, *Designer*

DEBRA A. DAVIES, *Production Supervisor*

ALANA KORDA, *Manufacturing Manager*

MICHAEL MCGOLDRICK, *Advertising Director*

BARBARA HOY, *Sales Representative*

HEATHER GUINARD, *Sales Representative,*

Partial pages & InfoMarket, 1-800-441-4403, 1-603-924-0100

MEREDITH BICKFORD, *Advertising Coordinator*

MARGOT L. SWANSON, *Customer Service Representative;*

Advertising Assistant

GIORGIO SALUTI, *Associate Publisher, West Coast Sales*

533 Airport Blvd., Fourth Floor, Burlingame, CA 94010

1-415-375-7018; FAX: 1-415-375-7019

WENDIE HAINES MARRO, *Marketing Director*

LAURA LIVINGSTON, *Marketing Coordinator*

LISA JAILLET, *Desktop Publishing Manager*

DEBORAH M. WALSH, *Circulation Manager*

TECHMEDIA PUBLISHING

DALE STRANG, *President*

SUSAN M. HANSHAW, *Director of Operations*

LISA LAFLEUR, *Business & Operations Manager*

MARY MCCOLE, *President's Assistant*

KENNETH BLAKEMAN, *Associate Publisher, Ancillary Products*

LYNN LAGASSE, *Video Products Manager*

CHRIS CONROY, *Technical Director, Video Products*

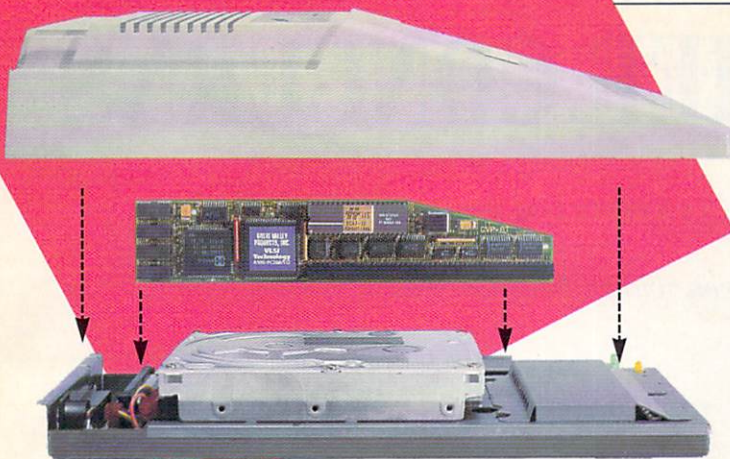
TIM WALSH, *Ancillary Products Manager*

LINDA RUTH, *Single Copy Sales Director*

WILLIAM M. BOYER, *Director of Credit Sales & Collections*

AmigaWorld (ISSN 0883-2390) is an independent journal not connected with Commodore Business Machines, Inc. AmigaWorld is published monthly by TechMedia Publishing, Inc., an IDG Company, 80 Elm St., Peterborough, NH 03458. U.S. subscription rate is \$29.97, one year; \$46.00, two years; \$64.00, three years. Canada \$38.97 (U.S. funds), one year only. Mexico \$38.97, Foreign Surface \$49.97, Foreign Airmail \$84.97 (prepayment is required on Foreign Surface and Airmail subscriptions in U.S. funds drawn on U.S. bank). All foreign rates are one-year only. Second-class postage paid at Peterborough, NH, and at additional mailing offices. Phone: 603-924-0100. Entire contents copyright 1992 by TechMedia Publishing, Inc. No part of this publication may be printed or otherwise reproduced without written permission from the publisher. **Postmaster:** Send address changes to AmigaWorld, Subscription Services, PO Box 58804, Boulder, CO 80322-8804. Nationally distributed by Kable News Co., AmigaWorld makes every effort to assure the accuracy of articles, listings and circuits published in the magazine. AmigaWorld assumes no responsibility for damages due to errors or omissions.

MORE MAGIC FROM GVP



Now ADD 286 "PC/AT" COMPATIBILITY TO YOUR A500TM IN A "SNAP" WITHOUT VOIDING THE WARRANTY ON YOUR A500!

GVP's SERIES IITM A500-HD8+ NOW FEATURES AN OPTIONAL, PLUG-IN, 16MHZ PC286 EMULATOR MODULE!

Not only have we added a PC286 emulator option to our best selling A500 hard drive subsystem but our Series IITM A500-HD8+ units are now equipped exclusively with QuantumTM hard drives offering the fastest access times and data transfer rates, unique disk caching and the highest reliability (MTBF) rating in the industry. Coupled with our world acclaimed DMA SCSI controller, everything from loading software to saving files is so much faster that you finally have the time to enjoy the fun and productivity that you bought your A500 for in the first place.

THE MAGIC BEHIND GVP's SERIES II A500-HD8+ HARD DRIVE MUSCLE

Check out these unequalled features:

- ▶ Choice of factory-installed 50, 120 or 240MB Quantum SCSI hard drives. Provides storage space of 56, 130 or 260 floppy disks!
- ▶ Game Switch for disabling the hard drive allowing compatibility with those few badly behaved games which don't like hard drives!
- ▶ A2000TM Hard Drive Performance. The A500HD8+ uses the same Custom DMA VLSI Chip and AAAASTROM technologies as our top-selling, high performance, Series IITM A2000 SCSI controllers.
- ▶ Up to 8MB of User-Installable Internal FAST RAM expansion (SIMMs).
- ▶ External SCSI port for connecting additional SCSI Peripherals such as Tape Drives, CD-ROM drives, etc.
- ▶ Unique Internal "Mini-Slot" Expansion Connector and Fan for Cool, Reliable Operation.

▶ Includes Dedicated Power Supply ensuring that your A500 power supply is not overloaded (a MUST for adherence to Commodore specs). PLUS, now we offer something NO OTHER HARD DRIVE SUBSYSTEM can, an optional plug-in 16Mhz 286 "PC" Emulator!

THE MAGIC OF THE GVP/PC286 EMULATOR OPENS MICROSOFT WINDOWS — AND MORE.

Our new GVP/PC286 emulator module is the first A500 peripheral specifically designed to be plugged into our unique internal "Mini-Slot". Unlike other 286 PC emulators, this one fits right inside your A500HD8+ housing! So installation is a snap and there's no need to open and dismantle your A500TM and run the risk of VOIDING YOUR Computer's WARRANTY.

In fact your warranty worries are over, because the A500-HD8+ as well as the optional GVP/PC286 emulator module are now warranted for 2 FULL YEARS!!

The GVP/PC286 "Mini-Slot" module features:

- Runs MS-DOS (V3.2 or up), Microsoft WindowsTM and literally thousands of PC applications. NOTE: MS-DOS Operating system is NOT Included.
- 16Mhz 80286 CPU. Up to 15 times faster than IBM's original PC!
- Complete HerculesTM, CGA, EGA/VGA (monochrome) and T3100 video emulations. MS-DOS applications can use the A500'sTM built-in parallel and serial ports transparently.
- Use the A500's floppy drive(s) to read/write MS-DOS floppies.
- Let's your A500 run MS-DOS and

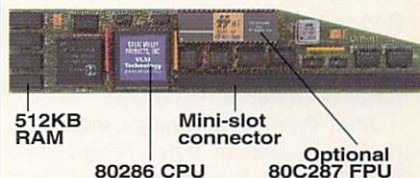
AmigaDOS Applications Concurrently!!

- 512KB of On-board Memory (RAM) for exclusive use by MS-DOS. Transparent access to the A500's memory for MS-DOS applications requiring more than 512KB of memory!
- Socket for optional 80C287 (CMOS) Floating Point Unit.

PLUS, your Series II A500-HD8+ matches your AmigaTM 500's good looks line-for-line and curve-for-curve.

So... Be Smart, before you buy anyone else's A500TM hard drive or RAM expansion system, ask the question: "Does It Have a Mini-Slot"? Why settle for anything less?

GVP/PC286 MODULE



GVP

GREAT VALLEY PRODUCTS INC.
600 Clark Avenue, King of Prussia, PA 19406

For more information or your nearest GVP dealer, call today. Dealer inquiries welcome.
Tel. (215) 337-8770 • FAX (215) 337-9922



SEE US AT
**world of
commodore
AMIGA**
NEW YORK CITY • APRIL 24-26, 1992



CHIEF CONCERNS

A personal computer can create a degree of freedom even within prison walls.

AMIGAS ON THE INSIDE

SOME WHO ARE sentenced to a long stretch in prison have a bleak outlook. Life on the inside is full of drudgery, fear, and anger. And when they get out, it's usually more of the same. Others, however, learn new skills, write books, act—anything to prepare themselves for a productive return to society.

Brad Perrott is currently serving a life sentence at the Warkworth Institution in Campbellford, Ontario. He hopes to be released in 1994, at the age of 47. If he does get out, Perrott

**He blew \$900 on his computer,
giving up the chance to get a
color TV, stereo, or fancy clothes.
He has never regretted it.**

shouldn't have to flip burgers at the local Big Boy; instead, he will become involved in making video, thanks to countless hours spent using the Amiga.

When Perrott bought his A500 in 1988, inmates were allowed to purchase only \$1000 worth of personal property. He blew \$900 on his computer, giving up the chance to get a color TV, stereo, or fancy clothes. He has never regretted it.

After Perrott's first major software purchase—Byte by Byte's Sculpt Animate 3-D—he was off and ray tracing. He also picked up Electronic Arts' DPaint II, and, with the help of his pal Wayne Boden, started broadcasting a schedule of the videos to be shown throughout the prison. They began by creating six screens, but after various other prison groups wanted in, their work outgrew the paltry memory of the standard A500.

An extra 512K took care of that problem, at least for a while. Now the system is punched up with a GVP 42MB Series II hard drive, an extra 2MB of RAM, and an accelerator. And Brad and Wayne have moved up to scripting with Right Answers' The Director.

The current Director application they have built presents a requester that allows the user to select a title animation or a title screen. It then automatically reads a list of videos from ASCII and displays it on the chosen screen. The Director also reads in advertisements from an info.data file and places them

within a screen that's created from DPaint III or NewTek's Digi-Paint 3. All this now runs in hi-res overscan, thanks to Perrott's one-megabyte Fatter Agnus chip.

This work got Perrott more interested in video, and \$99 later he became the owner of

a Mimetics' AmiGen, which he now uses to enhance videos that are shot by various prison groups.

Perrott says that one of his biggest challenges is interesting the 25 or so other Warkworth A500 owners in advanced uses of the Amiga. But an assortment of top-notch games keeps this group fairly well occupied, he reports.

Warkworth prison officials recently upped the amount of money inmates can spend on personal possessions, so Perrott is thinking ahead. On his agenda are the 2.0 operating system and a digitizer. Perrott's greatest Amiga dream, though, is to own a system that includes a NewTek Video Toaster.

Perrott is now trying to convince officials to scrap plans for an expensive PC-based video system, and instead to let him do a more complete job with a couple of A3000s. Sounds like a good idea to me.

TIME TO PROGRAM

FOUR OR FIVE years back, I corresponded a bit with a David Duhaime, a prisoner at the Washington State Reformatory, and I'd guess he's still there. This guy was obsessed with programming, but, making only \$26.40 per month, he lacked the money for a decent software library. I sent him every Microsoft language I had at the time. To me, they took up shelf space. To him, it was like a gift from God.

At the time, Duhaime claimed that Washington State Reformatory was the only house of correction in the US that allowed inmates to own a PC. Like many near-sighted corporations, the prison had strict standards as to what could be used. Unfortunately, it had to be an IBM compatible, and no modems were allowed. I'm not sure if they allow Amigas yet.

Personal computers, even IBM compatibles, have the power to change lives. There is no certainty about it, but in the case of prisoners, it is a *chance* for a new start. Each one can decide what he wants the computer to do. Some may become financial wizards, or programmers, or designers. And these skills, rather than prison garb or a regrettable past, form the identity of the person at the keyboard.

An Amiga computer system is especially well suited for rehabilitation. It is cheap and powerful, and can easily tap into creative powers. It can reward hours of effort with a beautiful animation, a stunning graphic, or a multimedia mindblower that makes you proud.

The Amiga may not be able to save the whales or patch the hole in the ozone, but it might make a difference in one man's life. ■

Doug Rantz



50 or 40MHz '030...

32-Bit RAM EXPANSION... DMA SCSI CONTROLLER... HARD-DISK-CARD & MORE...

Our new G-Force 030 Combo board for the A2000 is truly in a class of its own and has no equal. It's equivalent to four expansion

boards in a single slot! With its '030 Central Processor and 68882 Floating Point Processor (both running at a clock speed of up to 50MHz), 4 to 16MB RAM and on-board DMA SCSI Controller, the G-Force 030 Combo gives you more performance and control for the money than any other single board out there.

G-FORCE 030 COMBO THE MUST HAVE A2000 ADD-ON

Give your Amiga a massive memory boost...

Make your Amiga faster than a speeding bullet...

Use your Amiga with virtually every and any SCSI device on the market — from CD-ROM drives, to Magneto-Optical and tape-based storage devices...

Get all the storage capacity and performance of the latest SCSI hard drives — with our optional hard drive mounting bracket you can even turn it into a 240MB Quantum Hard-Disk-Card...

Save lots of time working with desktop publishing, animation, ray tracing and modeling programs...

Speed up all your New Tek Video Toaster™ applications. A perfect match...

Plus, the G-Force 030 Combo plugs into your A2000's CPU slot, leaving all your normal expansion slots open and free for other uses!

IT'S A COMPLETE SYSTEM
ON A SINGLE BOARD



G-FORCE 030-50/4 with optional "Hard-Disk-Card" Conversion Kit

It's no wonder we say the G-FORCE 030 Combo is the **Must Have** Add-on for your A2000.

IT'S A COMPLETE SYSTEM ON A SINGLE BOARD

Just look what you get from this workhorse, powerhouse:

- 50MHz 68030 or 40MHz 68EC030 CPU. Whichever one you choose your A2000 will out-perform even the latest A3000 systems.
- 50MHz or 40MHz 68882 FPU, math processor.
- 4MB of high performance, 60ns, 32-bit wide RAM expansion. User upgradeable to 16MB with easy-to-install 4MB SIMM modules.
- High Performance, Auto-booting, DMA SCSI controller which can DMA directly to/from the full 16MB range of 32-bit wide RAM — just like the A3000!
- SCSI connectors for connecting both internal and external SCSI peripherals.
- Hardware support for mapping the A2000 Kickstart ROM into the high-speed 32-bit wide on-board RAM. It's like caching the entire operating system!
- Icon-based, Software Switchable, 68000 fallback mode.
- Converts to Hard-Disk-Card with Optional Hard Drive Mounting bracket.

G-FORCE™ 030 COMBO

AND FOR THE MUST HAVE OF ALL HARD DISK CARDS...

Our optional "Hard-Disk-Card" Conversion Kit turns your G-Force 030 Combo board into a Hard-Disk-Card — the drive mounts directly on the Combo board itself — even saving you a peripheral bay! For real price/performance ask your dealer about our factory installed 120MB or 240MB Quantum hard drive bundles — look for our seal! Not only do you get a great price but with our new two-year warranty, you will get the piece of mind you deserve.



GREAT VALLEY PRODUCTS INC.
600 Clark Avenue, King of Prussia, PA 19406

For more information or your nearest GVP dealer, call today. Dealer inquiries welcome.
Tel. (215) 337-8770 • FAX (215) 337-9922

G-Force 030 is a registered trademark of Great Valley Products Inc.
Amiga is a registered trademark of Commodore-Amiga, Inc.
All other trademarks are the property of their respective owners.
© 1991 Great Valley Products Inc.

Consumers Circle 26 on Reader Service card.



SEE US AT
**world of
commodore
AMIGA**
NEW YORK CITY • APRIL 24-26, 1992

Dealers Circle 25 on Reader Service card.

OVERSCAN

News, New Products and Networks

AmiEXPO LONG BEACH: HIGH SEAS, LOW ATTENDANCE

LONG BEACH, CALIFORNIA—The rains that flooded Southern California ceased in time for the opening of AmiEXPO, held February 14–16 on board the Queen Mary, which is now permanently docked in Long Beach.

Unfortunately, the rain returned with a vengeance on Saturday, keeping many would-be attendees nestled in their homes. Disappointing also was the low vendor turnout, apparently the result of a glut of Amiga shows and conflict between competing show groups unable to agree on a coordinated show schedule. Among the missing were Commodore, GVP, Progressive Peripherals, Impulse, and myriad others. NewTek had a very small presence as part of the *Bread Box* Toaster magazine (RS# 120) booth.

Image-processing kingpin *ASDG* was there, though, with an especially unique "exhibit." The firm curtained itself off from the crowd and conducted a three-day focus-group session, questioning customers about what should be added to Art Department Professional. I did get a quick demo of ASDG's new program,

Fred, a terrific system for batch processing frames. *Fred* allows you to easily add Toaster-style effects to single-frame recorded animations. ASDG is also working on motion blurring for digital video. (RS# 121.)

GREATER ACCESS

I unfortunately missed the hottest product of the show. *INOVAtronic*s flew in the UK-based designer of its *HiQ A500 Tower*, who set up the product late in the show. According to *INOVAtronic*s, the *HiQ*'s video slot can run 68040 accelerators and NewTek's Video Toaster. This \$699 product could be a boon to A500 owners eager to use the latest and greatest A2000 peripherals.

*INOVAtronic*s also popped out *CanDo 1.6*, which adds game-port support, proportional sliders, and more ARexx functionality. (RS# 122.)

Digital Processing Systems drew raves (I sure gave it one) with its new *DPS Personal V-Scope*. For \$955, it gives you a waveform monitor and vectorscope on one card. With a standard composite

video monitor, you can have a full-screen waveform or vectorscope, or view them both on a single screen. (RS# 123.)

Gold Disk, which reported brisk business, highlighted *Professional Page 3.0*, which should be shipping by the time this issue hits the stands. The new version automates many layout tasks and supports Adobe Type 1 fonts. (RS# 124.)

If you have a Commodore A2630 accelerator, *CSA* promises to double your speed with the \$699 *Rocket Launcher*. This product replaces the standard 25-MHz '030 with a 50-MHz version. The firm also showed a new generation of its popular *MegaMidget Racer*. (RS# 125.)

Supra pulled in crowds with its range of fax modems, priced from \$199.95 to \$399.95. (RS# 126.)

BUGS AND ALL

Rimik displayed its *Beetle Mouse*, a \$49.95, 320-dpi replacement mouse. The two-button device looks a bit bug-like, comes in a variety of bold colors, and includes an extra long cord. Remix

Continued on p. 14.

ABOUT FACES

The good news: AmigaDOS 2.0 supports Intellifont scalable typefaces. The bad news: Only three fonts are included. The best news: *Agfa Corporation* now offers 15 scalable font packages for the Amiga, plus many more individual volumes (four typefaces each, \$99). The word-processing and desktop-publishing series is composed of *Styles Unlimited* (25 typefaces, \$199), *Laser Type* (35 faces, \$199), *Office Communications*, *Bulletins/Newsletters*, *Presentations*, and *Publications Packs* (12 faces and \$159 each), and *Amiga Starter* and *Amiga Companion Packs* (four faces and \$69 each). For projects that need an artistic flair, check out the five-volume decorative series (six typefaces and \$129 per volume) or the *Amiga Decorative*

Starter Pack (four faces, \$69). *Video Unlimited* (\$199) includes 25 typefaces optimized for video work. With a total of 250 designs in *Agfa*'s Intellifont library, you won't run out of choices quickly. (RS# 110.)

CG Times Italic
CG Times Bold
CG Triumvirate Bold
CG Triumvirate Condensed

Put a good face on it with the *Amiga Starter Pack*.

THE PC CONNECTION

For more Bridgeboard speed, consider the 80386 20-MHz *Bridgeboard Enhancer* (\$449) from *ATOP*. The Bridgeboard Enhancer is a small module that replaces the 80286 chip of the A2286 AT Bridgeboard without cutting or soldering. It works with an 80287 math chip and promises a Norton processor speed of near 20.7. (RS# 112.)

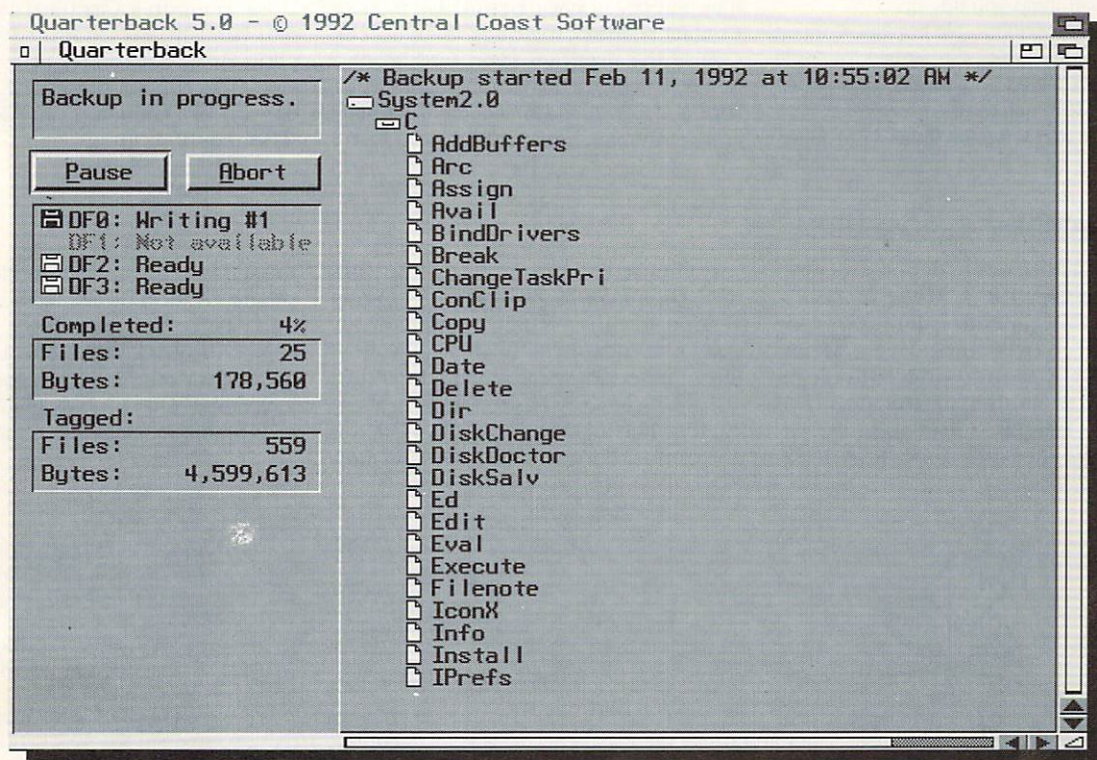
For better Bridgeboard relations, check out the *Ambassador* (\$79.95) from *Consultron*. Based on the company's CrossDOS software, the *Ambassador* allows you to access Amiga-connected floppy drives as MS-DOS drives and boasts it will provide faster access to data

Continued on p. 14.

To contact the vendors of products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 84. ▶

Quarterback 5.0

The Next Generation In Backup Software



- *The fastest backup and archiving program on the Amiga!*
- *Supports up to four floppy drives for backup and restore*
- *New integrated streaming tape support*
- *New "compression" option for backups*
- *Optional password protection, with encryption, for data security*
- *Full tape control for retension, erase and rewinding*
- *New "interrogator," retrieves device information from SCSI devices*
- *Capable of complete, subdirectory-only, or selected-files backup and restore*
- *Improved wild card and pattern matching, for fast and easy selective archiving*
- *Restores all date and time stamps, file notes, and protection bits on files and directories*
- *Supports both hard and soft links*
- *Full macro and AREXX support*
- *Full Workbench 2.0 compatibility*
- *Improved user interface, with Workbench 2.0 style "3-D" appearance*
- *Many more features!*

Thousands of people rely on Quarterback for their backup and archival needs. Now, with Quarterback 5.0, there is even more reason to do so. Greater speed, even more features, and proven reliability. And a new "3-D" user interface puts these powerful capabilities at your finger tips. With features like these, it is no wonder that Quarterback is the best selling backup program for the Amiga. Would you trust your data with anything less?



Central Coast Software

A Division Of New Horizons Software, Inc.

206 Wild Basin Road, Suite 109,
Austin, Texas 78746

(512) 328-6650 • FAX (512) 328-1925

Quarterback is a trademark of New Horizons Software, Inc.

WHO'S WHO HELPER

Tired of hunting through a mess of tiny note papers looking for that phone number you had just a minute ago? **The Contact (Consultron, \$59.95)** address and phone database can help you tidy up.

Called by a configurable hot-key, Contact lets you create, edit, and access multiple phonebooks. Need an address for a letter? Call it up in Contact, tell the program to type it into your text window, finish your letter,

and then configure Contact to print a label for the envelope.

Contact can store up to two telephone numbers for each address and can dial either one if you have an autodial modem. Contact's ARexx interface lets you customize the program even further. As a bonus, CalcKey, a hot-key-accessible calculator, is also included for standard, scientific, and programming math. (RS# 107.)

CURVES AHEAD

Technical Tools offers 3-D modelers a new twist and enhanced convenience with **Lissa** (\$35), a Lissajous curve generator for Imagine and Turbo Silver. Lissa generates Lissajous path objects that you can, for example, use as flight paths or as backbones of extruded objects. You control these paths via a window on Workbench or an ARexx script. (RS# 104.)

PROGRAMMER'S TOOLBOX

Want an easier way to define structures in C? **IntuiGen 1.0 (J. Miller & Associates, \$34.95)** generates definitions for NewScreen, NewWindow, Menu, MenuItem, IntuiText, and Gadget (Boolean, string, and proportional) structures. The WYSIWYG interface's load-and-save features let you alter code later. (RS# 101.)

Composed of 11 command-line utilities, **Quma Software's QVCS** (Quma Version Control System) automatically tracks your source and binary files through development, saving the differences between various revisions in a single file. The lock-file protection lets you use multitasking QVCS (\$99) on net-

worked systems, and for multi-developer projects, QVCS coordinates accesses and updates to shared modules.

Need to backtrack? The program retrieves previous file versions and supports journaling. Other handy features include an editable message file that defines the

Continued on p. 14.



ON-LINE SCAN

By Tim Walsh

Occasionally, a piece of Amiga software worthy of becoming folk-ballad material appears in the public domain. These programs are usually small yet remarkable utilities that make life easier in one way or another. Such is the case with **MultIDOS**, a 34K program by Kjell Didriksen that qualifies as the handiest Amiga/MS-DOS converter of all time.

An earlier Amiga-to-MS-DOS conversion program, **CrossDOS** (\$39.95, **Consultron**), first appeared several years ago. It won the respect of many, including me. CrossDOS alone elevated me from ordinary computer geek to "nice-guy" status in the eyes of *AmigaWorld* Sales and Marketing staffers who often need Amiga files converted to MS-DOS format.

I knew the practicality and pitfalls associated with conversion programs, and CrossDOS allowed me to perfect the art of making PC files Amiga-compatible and vice-versa. I learned to overcome quirks in its behavior; I downloaded software updates as they appeared infrequently on the nets, and I convinced myself that the program was all I would ever need for MS-DOS conversion.

But MultiDOS, the PD alternative to CrossDOS, puts the commercial program to shame. With MultiDOS, there's no secret sleight-of-hand tricks to learn, no semi-secret updates to download, and virtually no documentation needed in order to use the program. You simply decompress the software by using the Arc utility and copy one file to your I: directory, another to devs:, and a couple more to your System directory. Then you're in business.

Unlike early versions of CrossDOS that sputtered to a halt under AmigaDOS 2.04, you can turn MultiDOS on and off with the CLI/Shell commands PCMountAll and PCKillAll, respectively. Furthermore, you can format low-density MS-DOS disks on any Amiga floppy device with the command PCFormat. (You can safely shorten the commands by renaming them or by adding a line such as Alias PC PCMountAll to your Shell-Startup.) After several months of heavy use, I have yet to see MultiDOS crash, and it remains bulletproof to the operating system under just about any conditions.

Even if you do not have access

to a PC-compatible, I recommend this file for future reference. Genie users can look up file number 13661 in library 33, and you can find it in the CompuServe AmigaTech library #11 as filename MLDOS1.LHA. On Portal, the program is file number 90 in the Amiga area "File Libraries/Misc Stuff." You can also find MultiDOS on BIX under the name MULTIDOS.LZH in the Amiga.listings area.

A BID FOR BIX

Speaking of BIX, Byte magazine's telecommunication arm was recently acquired by General Videotext Corporation. To learn more about this sale, I posed some questions to BIX. The responses I received were surprisingly upbeat. According to BIX's Amiga Editor, Joanne Dow, you can expect to see better organization and new help-line operators.

Sometime in the near future, BIX will probably move to a new location, which could mean increased access capability from Tymnet. In turn, BIX would be able to handle as many as 500 users at a time, rather than the current capacity of 140. The

move could result in a 24-hour interruption of service, but all except the most infrequent users should have plenty of warning, as BIX will try to notify subscribers well in advance of any down time.

Dow also noted that BIX will remain the BYTE Information Exchange, with heavy BYTE participation. So, fellow BIX users, set your minds at ease. In these dismal economic times, positive business news is in short supply. That emphasizes Dow's upbeat prognosis: "I am excited by the prospects for BIX and BIX's future, including significant growth. It appears this has the distinct possibility of being a singularly good thing for BIX."

BIX

One Phoenix Mill Lane
Peterborough, NH 03458
800/227-2983

CompuServe
PO Box 20212
Columbus, OH 43220
614/457-0802
800/848-8199

Genie
401 N. Washington St.
Rockville, MD 20850
800/638-9636

Portal Communications
20863 Stevens Creek Blvd.
Suite 200
Cupertino, CA 95014
408/973-9111 □

YOU'LL BUY IMPACT VISION 24 FOR ONE VIDEO NEED AND FIND YOU NEED IT FOR EVERYTHING VIDEO



If you're into video, IMPACT VISION-24 is truly a dream come true for your A3000 or A2000. It is the first multi-function peripheral specifically designed for the A3000's video expansion slot.

With the optional A2000 genlock slot adaptor kit, it also perfectly complements and enhances the A2000.

Check out these features, all packed on a single Amiga® expansion board!



► **Separate Composite and Component Video (RGB + Sync) Genlocks.** RGB genlock operates in the digital domain, for digitally perfect

production studio quality mixing: no color bleeding, no ghosting, no artifacts...!

► **1.5MB Frame Buffer.** Display 24-bit, 16 million color images on your Amiga monitor. On a multi-sync monitor, you can even display 16 million color images in non-interlaced mode!

► **Realtime Framegrabber/Digitizer.** Freeze, grab and store (in standard 4096 or 16 million color IFF format) any frame from a "live" incoming RGB video source. Optional "RGB splitter" required to grab incoming composite or S-VHS video.

► **Flicker-Eliminator.** Duplicates and enhances the A3000's display enhancer circuitry. It even de-interlaces live external video! A must for any A2000 owner. Ask about our A2000 "genlock slot trade-up" program (in case your genlock slot is already used by something less exciting!)



► **Simultaneous Component Video (RGB) Out, Composite Video Out and S-VHS Video Out.** Now, anything you can see on your Amiga monitor can be recorded on video tape,

Introducing the IMPACT VISION 24™ from GVP The All-In-One Video Peripheral for the A3000 and A2000

including animations, ray-traced 24-bit images and more!

► **Picture-In-Picture (PIP) Display.** Freeze, resize, rescale and/or reposition live incoming RGB video just like any workbench window at the double click of a mouse or the pressing of a "hot key". With a multi-sync all this can even be in rock steady de-interlaced mode. Unique "reverse-PIP" feature, even allows you to place a fully functional Amiga workbench (or other application) screen as a SCALE-ABLE (shrunk down!) and re-positionable window over full-screen live video.

► To make sure you can take full and immediate advantage of every feature of your new Impact Vision 24 video-station, we even include the following software with every unit:

- **Caligari™ IV24.** An exclusive version of the leading broadcast quality, 3-D modelling and rendering program. Use your imagination to model 3D, 16 million color, scenes. Use your digitized video images as textures to wrap around any object! The mind is the limit!
- **SCALA™ Titling.** Easy-to-learn, video titling package complete with lots of special fonts and exciting special transition effects. Turn your Amiga into a character generator.
- **MACROPAINT™ IV24.** A 2D, 16 million color paint program that lets you have fun creating or manipulating any 16 million color, 24-bit image.
- **Control Panel.** Provides full software control over all Impact Vision-24's numerous features. Use your mouse or simply



press a (configurable) "hot key" to activate any feature.

At GVP, we wanted to make a major impact on the use of the A3000/2000 by professional video enthusiasts. With the Impact Vision-24 we have!

For more information on how the Impact Vision 24 can have a major impact on your video productions, call us at 215-337-8770.

IMPACT VISION 24



GVP

GREAT VALLEY PRODUCTS, INC.
600 Clark Ave., King of Prussia, PA 19406
For more information or your nearest GVP dealer, call today. Dealer inquiries welcome.
Tel. (215) 337-8770 • FAX (215) 337-9922

ISLAND UNREST

It's 1995, and you're in charge of an American tank platoon. Can you rid Yama Yama's five islands of the North-Korean-backed, disaffected Soviet communists? The sequel to Team Yankee, **Pacific Islands** (*Empire/ReadySoft*, \$49.95) tests your strategic prowess through more than 30 battles, each with multiple objectives. Only after all five strategically important islands are liberated can you call yourself a winner. (RS# 108.)



Experience the not-so-distant future of tank warfare in **Pacific Islands**.

INSIDE SYNC

Is there no more room for another black box in your video studio? Very well, just plug your time-base corrector into one of your Amiga's slots instead. Compatible with composite and S-VHS systems, the **TBCard** (*I.Den*, \$995) promises a broadcast-quality signal, infinite-window time-base correction and

synchronization from any video source, and a bandwidth of 5.5 MHz. For an additional \$135, you can purchase the TBCard/TR-7 combination. The TR-7 is a remote box that gives you control of proc-amp functions, field and frame freezes, and system-timing controls. (RS# 111.)

GRAPHICS TO GO

Have you a need for ready-made graphics and special effects for wedding videos? **Animattes: Wedding Series** (39.95, *Electric Crayon Studios*) is a point-and-click collection of self-running graphic routines offered

on three disks. You can use the routines straight out of the package or customize them in an IFF paint program, utilizing the included modification tutorial as a guide. (RS# 105.)

ENCORE, ENCORE!

They're back! **The Lost Treasures of Infocom**, a collection of 20 favorite by-gone text and graphic adventures, is now available from *Activision Studios*. For about \$100, you'll receive all five Zorks, the mysteries Ballyhoo, Deadline, Moonmist, Suspect, and Witness;

the science fiction games Hitchhiker's Guide to the Galaxy, Planetfall, Starcross, Stationfall, and Suspended; the fantasies Enchanter, Sorcerer, and Spellbreaker; Infidel, in which you must find the great lost pyramid of Egypt, and the creepy Lurking Horror. (RS# 106.)

SIMPLY LEARNING

Suppose you were given the choice of learning addition by drill or by playing a game such as cribbage? That's an easy choice—and studies show that students learn and understand much more when they are having fun. In her article "Simulations and Adventure Games in Computer Assisted Language Learning" (Simulation & Gaming, Dec. 1990), Macey Taylor reports on a wide variety of games usage in both direct instruction and teacher training. She found that "...students in communicative classes have tended to progress more rapidly, scoring higher on our level tests...than their counterparts in more traditional courses."

Taylor uses Sim City (among other programs), and cites the wealth of educational possibilities it allows. These include site research, map making, planning and budget making (using spreadsheet and database programs), and writing.

In fact, teachers at all levels, from elementary school to college, from vocational

schools to literacy and English as a Second Language instruction, are applying this concept with Amigas. With the help of simulations like Sim City (Maxix) and Balance of Power (Software Toolworks), students learn not only city planning and international relations, but also language and writing skills, math, traditional sciences and social studies. These and other simulations offer a wealth of possibilities for instruction and practice.

Scott Horan, teacher and proprietor of Mr. Horan's Computer Lab, a large Amiga establishment in Louisville, Kentucky, uses and installs Amiga educational systems around the South. In addition to simulations, he recommends Lemmings, especially in CDTV format, as "a great problem-solving game for classrooms."

"It's a microworld for higher-order thinking skills," he explains. "CDTV decentralizes the classroom. If the teacher is going to be the guide on the side instead of a sage on



OVERHEARD

Commodore wants to pay you \$500! If you purchase an Amiga 3000-25/50 or 3000-25/1000 before April 30, Commodore will give you a \$500 rebate. You may either apply it to your purchase immediately or receive a check from Commodore. For full details, call 800/66-AMIGA.

the stage, CDTV is the perfect tool."

Many commercial and public-domain games and simulations can be customized using one of the multimedia authoring languages such as AmigaVision, CanDo, or The Director. The tools are readily available; it's up to teachers to use them to spark the creativity and imagination that students at all levels bring to the learning experience.

—Michael Hanish

VIDEO FLIPPERS

NORTH MANITOU ISLAND, Michigan—In the tradition of legendary explorer Jacques Cousteau, scientists from Michigan-based Great Lakes Visual Research (GLVR) took the plunge off the

coast of Lake Michigan's North Manitou Island. Using a Sony video camera housed in a specially-made casing, these fresh-water explorers surveyed and recorded a visit to the sunken Alva

Bradley, lost nearly 100 years ago.

According to GLVR's Harley Seeley, who coordinated the expedition, an A2000 equipped with a GVP accelerator

Continued on p. 14.

GVP Enters the SOUND ZONE

With the most powerful, comprehensive 8-bit Digital Sound Package to ever orchestrate an Amiga

Digital Sound Studio

The Affordable Answer to Your Audio Dreams

Record, Edit, Compose . . .

With a high-quality stereo sound sampler, A fast, powerful, easy-to-use sound editor, And a self-contained 4-track sequencer.

For all the sound effects and music you could ever imagine.

► **Record** sound samples from any source, including voices, noise, and pre-recorded instruments, to create your own instruments and effects.

► **Edit** sounds quickly in real time. Add effects like reverb and echo, run sounds backward, alter wave forms, cut and paste sound segments, create loops, eliminate pops and scratches.

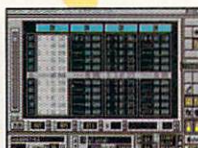
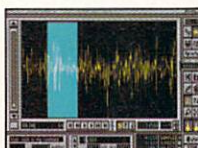
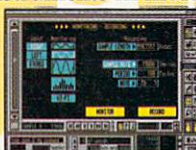
► **Compose** easily using the DSS 4-track sequencer and your Amiga or MIDI keyboard. Draw from up to 31 instruments at a time, in up to four octaves with 8 different variable effects. Mix and modify sounds in real time as you compose, through direct interface with the sound editor.

DSS Stretches the outer limits of 8-bit sound

- Create your own 4-track, self-playing musical compositions.
- Make soundtracks for home video, animation or visual presentations complete with voice-over, sound effects and music.
- Analyze voice patterns and stereo separation.
- Analyze graphic equalization of real-time sound.
- Remove "pops" from old phonograph recordings.
- Create custom instruments and sound effects by collecting and/or modifying pre-recorded instruments, voice, or sounds from any source, and use them in your own compositions.
- Save your sound and music to disk or send it out via modem for replay on any Amiga.

Check out these unparalleled features

- ✓ AmigaDOS 2.0 compatible; written in assembly language.
- ✓ Multi-tasking operation.
- ✓ 68020 and 68030 compatible.
- ✓ Comprehensive tutorial manual helps even beginners get started right away.
- ✓ Intuition-based graphic interface makes operation easy.
- ✓ MIDI-in capability.
- ✓ Direct interface between sequencer and editor.
- ✓ Hold 31 sound samples in memory at once — all shown on screen so they are easy to manipulate.
- ✓ Effects and processing capabilities include echo, mix, filter, re-sample, sound data inversion, playing sounds backwards, loops, fade-in/fade-out and more.
- ✓ Manipulate sound samples in real time, as you listen.
- ✓ Create sampled instruments with 1, 3 and 5 octaves.
- ✓ HIFI recording for highest quality playback.
- ✓ Controls for faster/slower playback and filtering high frequencies during playback.
- ✓ Load and save samples, songs and instruments in multiple formats.
- ✓ Multiple effects for each note.
- ✓ Stereo and monophonic operation. Also convert mono to stereo or separate stereo.
- ✓ Auto-playing music modules.



Hardware now Enhanced!
★ NEW: Software Programmable Volume Control
★ NEW: Software Controllable Filter

- ✓ Real-time oscilloscope and spectrum analysis.
- ✓ Real-time reverberation.
- ✓ Graphic editing of wave forms through easy-to-use functions, including zoom in/out and precision controls for position, frequency and amplitude.
- ✓ Draw sound waves freehand using the mouse.
- ✓ Direct editing of individual sample numeric values.
- ✓ Maximum recording speed of 51,000 samples/second in stereo.
- ✓ Savable Preference settings.
- ✓ Saves in IFF, SONIX or RAW formats.
- ✓ Compatible with SoundTracker, NoiseTracker and SoundFX modules.



GVP
GREAT VALLEY PRODUCTS INC.
600 Clark Avenue, King of Prussia, PA 19406
For more information or your nearest GVP dealer, call today. Dealer inquiries welcome.
Tel. (215) 337-8770 • FAX (215) 337-9922

AmiEXPO, from p. 8.

is also planning a series of Amiga **CD-ROM products**, including a public-domain software collection, clip art, and a picture disc. Each disc is expected to sell for \$79.95. (RS# 127.)

Going back to the future, the **GENie** telecommunications service is planning to introduce an on-line **interactive Amiga "magazine"** that will eventually include sound, graphics, and animation. (RS# 128.)

Mach Universe entered the 3-D object fray with the \$49.95 **Big Rig**, a tractor-trailer object set that's compatible with LightWave 3D. The truck can be easily animated, with headlights, blinkers, rear view mirror, and 18 moving wheels. (RS# 129.)

Besides wowing us with its **Resolver** graphics board, **Digital Micronics** of-

fered a **20MB, 3.5-inch floppy drive**. Yes, floppy! The firm claims an average access time of 65MB per second, which equals the performance of many hard drives sold only a few years ago. Prices range from \$549 for an internal unit to \$749 for an A500 version that includes a SCSI controller. (RS# 130.)

In the Can, a European titling-and-effects product, has crossed the Atlantic and is selling for \$99 from **Visual FX**. (RS# 131.)

Finally, promotor **AmiEXPO** (RS# 132) announced its move into the desktop-video market with its first such show, **Desktop Video '92**, scheduled for May 21-23 at the Hyatt Regency, San Francisco Airport. It has also scheduled another **AmiEXPO** for October 2-4 at the Marriott Marquis in New York City.

—Doug Barney

PC Connection, from p. 8.

from the Bridgeboard if you use Consultron-style PC virtual hard-drive partitions. In addition, with the Ambassador you can access Bridgeboard-created virtual partitions and most real MS-DOS hard-drive partitions connected to the Amiga. (RS# 113.)

A Bridgeboard alternative for the A500, **ATonce-Plus (Vortex/MicroPace, \$448)** features a 16-MHz CMOS 80286 processor and 512K of RAM, plus a socket for an optional 80C287-12 math coprocessor. Tested under MS-DOS versions 3.2 to 5.0 and DR-DOS 5.0 and 6.0, the board runs unrestrictedly in Protected mode (Windows 3.0 and Lotus 123 are supported, however) and offers 640K of memory for DOS functions.

In machines with one meg or more of RAM, **ATonce Plus** lets you either install additional program memory or a RAM disk. For its display, the board emulates 16-color CGA mode, one EGA/VGA monochrome graphics mode, and the Hercules, Olivetti, and Toshiba T3100 graphics cards. While you can use the Amiga's serial port as COM1 or COM2

with the card, the parallel port maps to LPT1. Sound and a real-time clock round out the features list. (RS# 114.)

For PC-XT emulation without hardware, **Consultron's CrossPC** is the answer. This software emulator is bundled with an upgrade of CrossDOS in CrossDOS version 5.0 Plus. Requiring one megabyte of RAM and version 3.0 or higher of MS-DOS, CrossPC emulates CGA or monochrome video modes and can access standard Amiga floppy drives, an MS-DOS partition on an Amiga hard disk, and the Amiga's parallel, serial, and mouse ports. The other half of the team, CrossDOS 5.0 now supports 1.44MB high-density disks and the 20MB MS-DOS floptical disk format.

Associated utilities, error-recovery techniques, and the user interface were revamped, as well. For example, the format and disk-copy commands now operate on both MS-DOS and AmigaDOS disks. As a new product, CrossDOS version 5.0 Plus is available for \$59.95; as an upgrade, the cost is \$20 and an original CrossDOS disk. Consultron also sells **MS-DOS 5.0** for \$90. (RS# 115.)

Video Flippers, from p. 12.

and a Video Toaster (NewTek) made the underwater imaging easy and effective.

Normally, it takes a lot of work, both in the field and in post-production—possibly up to two years—to establish records like these. With the Amiga setup, Seeley said, image acquisition can be done rapidly and with good resolution. The system allowed Seeley to accomplish both his goals: charting underwater preserves and furthering the

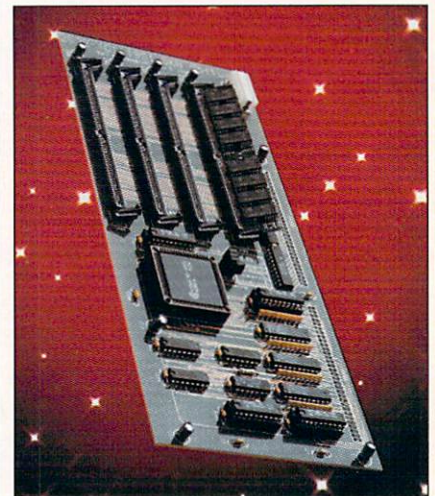
concept of a rapid-deployment, mobile system that is consumer-oriented and inexpensive.

"You don't need to be a computer scientist to use this system," Seeley explained. "(Its) major advantage is that the available software allows you to adjust the contrast and change the scale (of images)." Avocational archaeologists will be interested to know that the entire setup costs less than \$10,000.

—Rick Broida

ADD MORE THAN FOUR

Users of Commodore's A2630 accelerator can now have more 32-bit room to maneuver in, thanks to the **DKB 2632 (DKB Software)**. The DKB 2632 is a 32-bit memory-expansion board that installs on the A2630. While it comes populated with four (\$699.95) or eight megabytes, you can expand the board up to 112 megabytes in increments of 1, 2, 4, 8, 16, or 32 megs using JEDEC-standard 32-bit-wide SIMM modules. Because this RAM uses 32-bit address space instead of autoconfig space, you can install it and still use an AT Bridgeboard with more than six megs of fast RAM. The DKB 2632 is also 2.0-compatible and is backed by a one-year warranty. (RS# 109.)



The DKB 2632 offers up to 112MB of 32-bit RAM to A2630 owners.

Toolbox, from p. 10.

message strings used by QVCS utilities, a file-compare utility for binary and ASCII files, accidental-deletion protection, and the ability to automatically expand key words. (RS# 102.)

If debugging your SAS/C code is a bigger concern than cataloging it, consider **MultiTrace 1.0 (AltoFirma Software, \$89)**, a multitasking debugger housed in a link library. With it, you may open separate trace windows for each program or task running, pause and step through individual tasks, and change a program's or task's execution speed.

MultiTrace supplies feedback on these tasks in several ways: It displays messages and variables in trace windows with printf syntax, displays hex dumps of memory or string data, and lets you restrict trace reporting to specific function-call levels. The included MakeTrace utility creates header files and generates C-function prototypes. (RS# 103.) ■

#1-AND DRIVE-ING HARD TO STAY THAT WAY!

IMPACT
Series II

Only GVP Factory Installed A2000 HC8+/52Q, 105Q or 200 SCSI Hard Disk+RAM Boards have a track record this good—over 20,000 satisfied Amiga® users and now a 2-Year Warranty!

Don't waste your valuable time or money building a SCSI+RAM Controller from parts...

Because of our unprecedented pricing structure you can now get GVP's, brand name, *factory installed* A2000 HC8+/52Q, 105Q or 200 at a very competitive price.

► **GVP's A2000 HC8+/52Q, 105Q or 200 — THE SAFEST CHOICE**

Look for the GVP Factory Installed Drive Seal... it's your assurance that your A2000 HC8+/52Q, 105Q or 200 has been installed and tested in GVP's own factory...

And the 2 year limited warranty protects you better *and longer* than any third party installed drive. And with third party drives you run the risk of a run around if anything does go wrong.

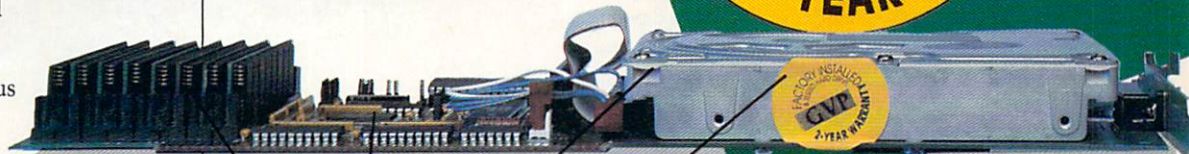
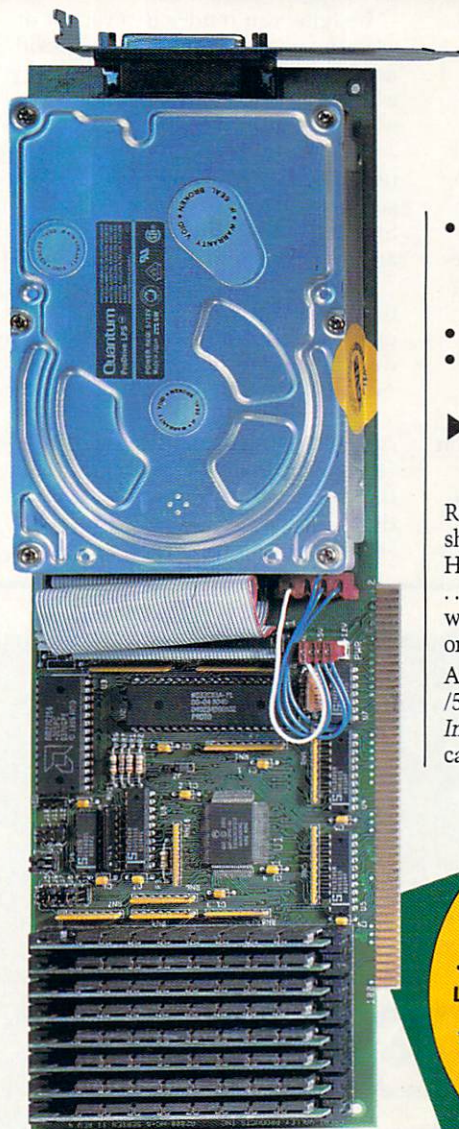
► **GVP's A2000 HC8+/52Q, 105Q or 200 — NOW EVEN FASTER WITH FAAASTROM™ 4.0**

All A2000 HC8+/52Q, 105Q or 200 have been redesigned and equipped with GVP's newest fastest SCSI Driver—FAAASTROM 4.0. Plus, we've also doubled Western Digital's SCSI Controller clockspeed to 14Mhz—for a tremendous increase in speed...

► **GVP's A2000 HC8+/52Q, 105Q or 200 — JUST LOOK AT THESE FEATURES**

- Custom chip design for the fastest possible data transfer rates and DMA performance—even in a multi-tasking environment.

★ Ask your dealer about Syquest 44MB or 80MB removable hard drives for use with any GVP SCSI Controller. Special factory-bundled configurations are now available.



Up to 8MB
FAST RAM
Expansion

Factory Installed
3.5" Hard Disk
Drive

GVP Custom
VLSI Chip

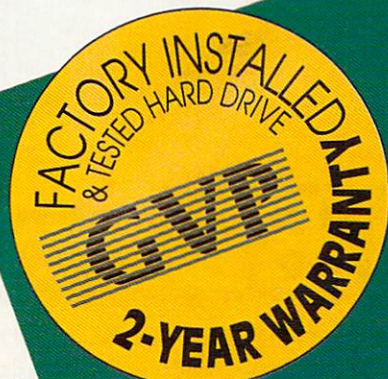
GVP Factory
Installed Seal

- Easy-to-Install SIMM memory modules for configurations up to 8MB—and support BridgeBoard users with the 6MB FAST RAM.
- Support for virtually any SCSI device.
- Fastest and easiest SCSI installation possible.

► **GVP's A2000 HC8+/52Q, 105Q or 200 — JUST LOOK FOR THE GVP FACTORY INSTALLED SEAL**

Remember if the GVP *Factory Installed* seal shown in this ad isn't on your A2000 HC8+/52Q, 105Q or 200 box... it isn't the fastest, most powerful, longest warrantied, safest A2000 HC8+/52Q, 105Q or 200 you can buy.

Ask for and accept only GVP A2000 HC8+/52Q, 105Q or 200 with the *Factory Installed* seal. For more information call 215-337-8770.



GVP

GREAT VALLEY PRODUCTS INC.
600 Clark Avenue, King of Prussia, PA 19406

For more information or your nearest GVP dealer, call today. Dealer inquiries welcome.
Tel. (215) 337-8770 • FAX (215) 337-9922

AW Shucks!

We correct our errors.

Item: Due to problems in the fact-checking process, our Special Issue on Video & Animation contained several errors regarding Impulse's Firecracker board and Imagine software. In the chart on p. 82, the following corrections regarding Firecracker 24 apply: The list price is \$1000; its maximum resolution is 1024 by 482, not 768 by 480, as stated; and it is not available in PAL.

With regard to Imagine 2.0, a number of errors were made in our 3-D software features chart on pages 110-111. First of all, Imagine supports solid spheres, has full 3-D spline control, handles full 3-D remapping and conformation, and includes full extrusion and spin capabilities.

Regarding the category of Polygon Divides, Imagine has triangle fracture, and, under Slice Operation, it has full Slicing. The program also has full grouping of Hierarchical

Objects Sets and includes a full implementation of Key Positions.

With respect to Time Envelopes, Imagine directly equates this to frame numbers and time notation in its Stage and Action editors.

Imagine can render in a variety of ways not covered in the chart, including Wireframe, color and black and white, solid color and black and white, Scanline, and Full Trace.

The program's maximum resolution is 32,000 by 32,000, it fully supports Diffuse Map and Phong Shading, and it supports Full Glass and Index of Refraction.

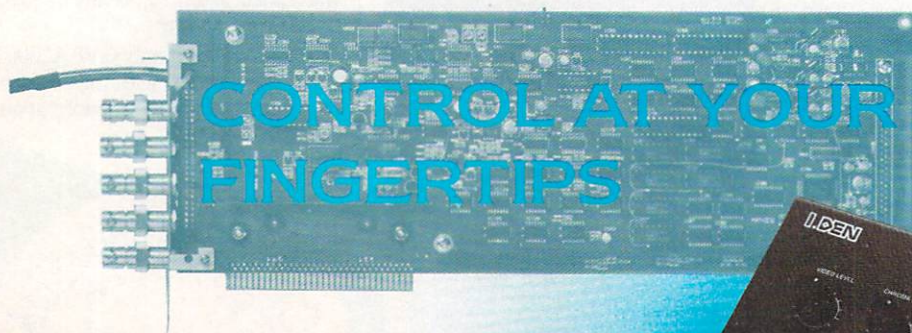
The product does not map Anims to objects, nor does it directly support Single-Frame Controllers. It also does not support Foreground Pics or Antialias Maps.

Item: The Amiga Profile on p. 68 of our Special Issue incorrectly implied that Derek Grime was the creator of the show "Clarissa Explains It All." "Clarissa" is, in fact, the creation of

Mitchell Kriegman. Derek, along with his fellow animator/writer, Tim Burns, was involved only to the extent of providing the Amiga animations for last season's episodes.

Item: Gene Brawn's February tutorial article on DPaint IV (p. 24) contained an error that made his project #1 impossible to reproduce. Two of the three picture files were misnamed. The images identified in the article as *Godz.ab* and *LookingUp.ab* are, in fact, *Godz&Ted.ab* and *LookingUp.anim*, respectively. Gene regrets to say that he used the former names in his work files and then neglected to correct the discrepancy in the final version of the article.

Item: In the March issue, our Manufacturers' Addresses list (p. 89) contained errors in the entry for IM-AGETECTS. Not only should the firm's name be all uppercase, but the correct street address is 7200 Bollinger Rd., Suite 802. ■



TBCARD

The TBCard/TR-7 combination offers a hardware alternative to software control, allowing you to stay in your primary desktop video software and have full control of the TBCard Time Base Corrector.

I.DEN[®]
CORPORATION

I.DEN Videotronics Corporation

9620 Chesapeake Drive ■ San Diego, CA 92123

Eastern Regional Office (203) 827-8900

1-800-374-IDEN



- TBCard plugs into any desktop video system—Amiga or PC based
- Convenient hardware control on your desktop—freeze, video level, chroma level, setup, hue and system timing
- Component processing that provides high resolution

Circle 195 on Reader Service card.

Experience The Power Of ProWrite® 3.2

(Racing Attire Optional)



Test Drive The Best-Selling Amiga® Word Processor.

Feel the power at your fingertips.

ProWrite 3.2 has all the features you need to speed through your documents in record time. Unique functionality, direct PostScript® capability and a long list of features are the driving forces behind ProWrite's ability to outperform other word processing programs. Features such as jaggie-free printing, improved picture handling, timed saves and automatic backups. Maneuver through documents with multiple columns, snaking and side-by-side text and manual text wraps around graphics.

Cruise effortlessly with ProWrite's 100,000-word spell checker that can check as you type, and the reserve power of a 300,000-word thesaurus.

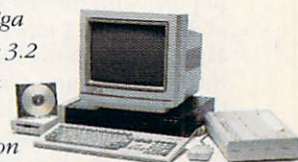
ProWrite 3.2 means high performance in

printing as well. Options include multiple fonts and sizes in PostScript or high-quality dot-matrix printing and options for 8, 64 or 4096 colors in your graphics.



Register To Win An Odyssey--The CDTV Personal Workstation!

Race to your nearest Amiga dealer to test drive ProWrite 3.2 today. You'll qualify to win the exciting Odyssey, a CDTV Personal Workstation complete with CDTV unit, keyboard, external floppy drive, mouse, stereo color monitor, modem and printer, with a CD-ROM containing ProWrite 3.2, DesignWorks™ 1.0, Flow™ 3.0, ProFonts™ 1 and extensive public domain software.



NAME	
ADDRESS	
CITY, STATE, ZIP	
TELEPHONE	
SALESPERSON	
(Entry form must be countersigned to be valid)	
No purchase necessary, need not be present to win. Offer may be void in some states. Ask your dealer for details.	

NEW HORIZONS

First in Personal Productivity and Creativity

New Horizons Software, Inc.
206 Wild Basin Road, Suite 109, Austin, Texas 78746 (512) 328-6650

ProWrite is a registered trademark and Flow, DesignWorks and ProFonts are trademarks of New Horizons Software, Inc. Amiga is a registered trademark of Commodore-Amiga, Inc. PostScript is a registered trademark of Adobe Systems, Inc.

Circle 38 on Reader Service card.

REVIEW

IMAGINE 2.0

IMPULSE

REAL3D PROFESSIONAL TURBO 1.4.1

ACTIVA INTERNATIONAL/
PROGRAMS PLUS & VIDEO

A pair of professionals.

By Steven Blaize

SOPHISTICATED COMPUTER ART and animation are becoming more popular with the release of movies such as Terminator 2 and music videos like Michael Jackson's "Black or White." As the awareness and demand rises, so do the expectations. This trend is very apparent in the Amiga market, where the quality levels expected and techniques used by artists are growing daily.

New versions of two 3-D programs have definitely kept pace with this demand for higher quality and more techniques. **Imagine 2.0** (\$450, *Impulse*) and **Real3D Professional Turbo 1.4.1** (\$499, *Activa International/Programs Plus & Video*) are two top contenders in the 3-D arena. Because both these fine programs are updates of earlier versions, I will concentrate on highlighting the new additions and significant functions of each, rather than cataloging every feature.

MATURE PRODUCTIVITY: IMAGINE 2.0

Released at the end of last year, Imagine 2.0 is a maturing 3-D graphics package. Thanks to its reasonable cost, excellent functionality, and top-notch renderings, Imagine (originally the follow-up to the popular Turbo Silver) has built a large following. You won't be disappointed by version 2.0, with its additional features, new manual, and easier ways to be productive within your 3-D world.

Imagine is one program divided into

seven editor areas. New in 2.0, the Preferences Editor lets you directly edit and customize your preferences. With it, you can add to the bottom of the other editors user-customized gadgets (buttons) that control frequently used functions. This speeds up productivity. With the Forms Editor, you create organic or symmetrical objects, while with the Detail Editor, you build new objects, modify Forms objects, and assign all surface characteristics to objects.

The Stage Editor lets you set object and camera placement, lighting, and viewing perspective. In the Action Editor, you specify movements, global parameters, and, if you are animating, key cels and special effects over time. A potential time-saver, the Cycle Editor lets you create repeating or hierarchical movements for objects. The classic example is walking: If you create the Cycle movement for one full step, you can then repeat this cycle in the Action Editor over an assigned time period. Finally, the Project Editor generates animations and controls rendering selections, such as resolution and format.

In the Forms Editor, you begin with a sphere that is cut into slices, the shapes of which you then alter to create your object. The 2.0 addition of key slices was critical in making this editor useful. Instead of shaping every single slice, you can specify one or more key slices, alter their shapes, and let Imagine provide smooth interpolation between them.

Consider an automobile body with a ridge that runs only from the front door to the back fender: If you cut the body into cross-sections from front to back, the first section (grill area) would be a rectangle, and the section that starts at

the door would be a rectangle with ridges on either side. Designate this section a key slice, and Imagine will produce a smooth ridge down the length of the car.

Want to check the results? The Forms, Detail, Cycle, and Stage Editors now have Quick Render options that let you render directly in the editors without having to set up all of the staging and lights—another welcome productivity enhancement.

The Detail Editor's improvements will make many people happy. Now, when you convert an IFF file to an object, you are asked whether or not you want faces on the object. You can also type in text using standard Amiga fonts and have it converted to a 3-D object. This alone will save a great deal of time, although the conversion is not as powerful and flexible as that offered by dedicated programs such as Pixel 3D 2.0 (Axiom Software).

In the past, getting brush (IFF picture) wraps and texture wraps in exactly the right place was possible, but difficult. Now, Imagine automatically gives you a default position and texture parameters. You can still customize these, but you will at least be assured of a good starting point. Version 2.0 offers several new textures to wrap, as well. Checks2, Pastella, and Waves bring the number of textures to 14.

Another important attribute-enhancement addition is Fog Length. Now, any object can have fog properties (in any of the 16.7 million colors), and global fog has been added to the Action Editor. Spline paths have also been included for object extrusions, and Conform to Path has been added.

Also new to the Detail Editor is the ability to define subobjects—a group of faces within an object. Now you can selectively apply any of the Brush or Texture Maps (four each) to just a subobject, making decals very easy to produce. You can also use subobjects to selectively control Phong shading. Objects in Imagine are composed of

To locate the vendors
of products reviewed, see the
"Manufacturers'/Distributors' Addresses"
list on p. 84.

WS

triangles, and the program uses Phong shading to help smooth the surfaces of rounded areas. Prior to 2.0, achieving sharp edges on one part of the object and smooth ones on another was almost impossible. Now you can define the points that will not have Phong shading, while the rest of the object is smoothed out.

New to Imagine 1.1's Detail Editor was Quick Draw, which changes the objects in your display to simple bounding boxes. This is very helpful when you have complex objects, because Imagine can update your display much more quickly if it draws only a bounding box in place of a point-filled object. In version 2.0, Quick Draw was added to the Stage Editor, as well. Now you can load your complex objects, and then turn on Quick Draw for faster manipulations. Your Perspective View is always updated with the proper display.

In 2.0, the Action Editor is basically the same as in earlier versions, with the addition of a Sort function from the menu for your objects and a second F/X action line. F/X, one of my favorite features in this program, now includes Boing, Explode, Fireworks, Flash, Grow, Ripple, Rotate, and Tumble. You can even apply two different effects on an object at the same time. You can also have a global backdrop picture, as I did with the clouds in Figure 1.

The Cycle Editor is relatively unchanged, as is the Projects Editor. From the latter, however, you can now output directly to DCTV format.

The last area to cover is the documentation. The reputation for producing inadequate manuals has always haunted Impulse. The company has developed outstanding products, but has accompanied them with lackluster documentation. The manual for Imagine 2.0 is definitely a complete rewrite. It takes a different and unusual approach, in that you are expected to read it from start to finish.

It reads like a story about creating with Imagine. The sparse index—locat-



Figure 1. Imagine 2.0 lets you use global backdrop pictures, such as these clouds.

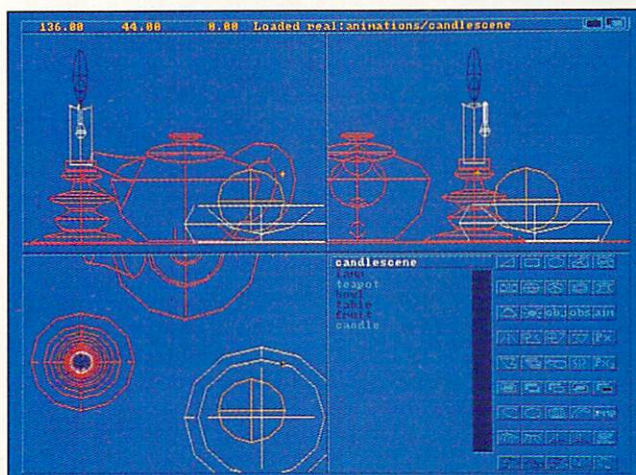


Figure 2. Real3D's free-form modeling mode gives you commands for bending, joining, and twisting objects in 24 ways.

ed before the single tutorial—and other appendices do not really direct you to specific subjects, however, but rather send you to pages where the phrases are mentioned. The misspellings and comments such as "Ask Zack For More Here" indicate that the manual was a little rushed. However, the program is more thoroughly covered than in previous versions. Should you need it, technical support is available free of charge.

POWERFUL FLEXIBILITY: REAL3D PROFESSIONAL TURBO 1.4.1

Real3D Professional Turbo, while not the new kid on the block, is one of the newest professional-level 3-D programs for the Amiga. Version 1.4.1 makes it a definite contender for your consideration. Real3D takes a very different approach with its interface and object creation, but, once mastered, the techniques produce outstanding results, with options not always found in other 3-D programs.

The program has three basic working areas: the Editor, Wire, and Solid. The Editor is your object-creation and staging area for a specific frame. The Wire area lets you move about your space and

record animation movements for your objects. Finally, the Solid (or Render) area controls the quality, format, and resolution of your rendered images.

When I looked at the first release of this program, I was impressed with both the speed and quality of the renderings, but found object creation and animation seriously hampered. Version 1.4.1 has improved both immensely. It employs a hierarchical structure for object creation. For example, a chair is made of the legs, the seat, and the back. In turn, it is part of the dining-table set, which is part of the room, and so on. By selecting any group level, you can alter it and all of its related parts. A unique feature is the ability to identify a cost with a specific object. At any time, you can see the cumulative cost at any stage in the construction of your object.

When it first appeared, Real3D provided object creation only by means of a few primitives and tools to modify them. Now the program provides a wealth of primitives, along with excellent tools such as Lathe, Polygon, Polyhedron, and Conical Tube. An unusual one is the Pixel tool, which replaces pixels in an IFF picture with a specified ▶



YOUR TURN:

Imagine 2.0 is a big improvement over previous incarnations, especially in the documentation and interface. Still, the documentation is more of a tutorial than a reference, and, as always, the edit screens are limited to 640x400 resolution, which is frustrating for those of us who typically use overscan screens.

Kent Kalnasy
Seattle, Washington

object. For example, if you drew a title in a paint program, you could replace each pixel with a sphere and build a title composed of balloons.

Another tool, Pixel2, creates a mesh over an IFF picture to generate a topographical landscape, with increasing brightness of color indicating increasing elevation. This type of object creation is fine for some things; however, many of us want point editing to design custom objects. Version 1.4.1 gives us that, too.

Real3D also has some of the most powerful Boolean operators in any 3-D program. You can use these to cut away sections of objects, using any object as the tool for cutting or adding. Best of all, you can use the tool to apply its attributes to the new object. With a gold cylinder, for instance, you could drill a gold hole through a wooden ball and even animate the process. The problem with this method of creation is that the two objects are still completely displayed in the Editor and the wireframe view. This can become very confusing with complex objects. A new feature helps: You can now have Real3D "rethink" to provide you with a better wireframe representation. You also have the ability to attach and modify a different wireframe to the object if it will assist your work.

The free-form modeling is very powerful, offering 24 ways to bend, join, and twist objects. Tools and primitives are available from menus, keyboard commands, and icons (see Figure 2). Lights and refractive properties in Real3D react exactly as they do in the universe; for example, you can create an actual glass lens. Real3D also permits you to create custom materials libraries for controlling the surface properties of your objects. A very useful feature is the ability to select objects

based on color, properties, or name. These can then be altered in one global change. The program now supports 24-bit brush maps, which is very important to many of us.

The Solid (render) screen provides many methods for rendering your image, and it gives you controls for automatic lighting, shadow inclusion, refractive depth, and so on. The full ray-traced output takes about the same length of time to render as in other programs, but the results are outstanding. You can output your work as an Amiga, 24-bit IFF, or Targa image. Real3D also supports some full-color display boards, with libraries (such as DCTV) that will be added through the public domain; current libraries include the Harlequin and VD2001 boards.

Animation is still a little awkward in Real3D 1.4.1. The program does support key frames, and it allows movement along a spline path. Adding acceleration and deceleration of objects, however, takes a bit of work. In addition, the method used for key frames is to "Expose" a frame to certain positions. If you want to change an object in that frame, you must first "De-Expose" it.

The manual is well written; the information, however, is sparse, and a lot about the program is presumed to be intuitive. For example, adding primitives requires different steps to define the starting points, diameters, and so on, but these are never explained. Furthermore, the reference section is far from a thorough explanation of each of the commands. Overall, though, I feel the manual provides coverage that's adequate to get you started. While it was developed by The Netherlands' Activa International, Real3D Professional Turbo is supported by Programs Plus & Video in North America via telephone or BBS, if you need technical help.

THE BEST FIT FOR THE JOB

If you are a 3-D artist, you should consider adding one or both of these programs to your toolbox. Neither is a clear winner over the other, as each offers features the other does not. While Imagine excels at point editing and is a much better animator, Real3D offers unique Boolean functions, more output options, and somewhat better-looking output quality. Both Imagine 2.0 and Real3D Professional Turbo 1.4.1 are very well suited to produce professional results, so you can't very well go wrong.

DSS8: DIGITAL SOUND STUDIO

GREAT VALLEY PRODUCTS

Edit sounds or capture your own.

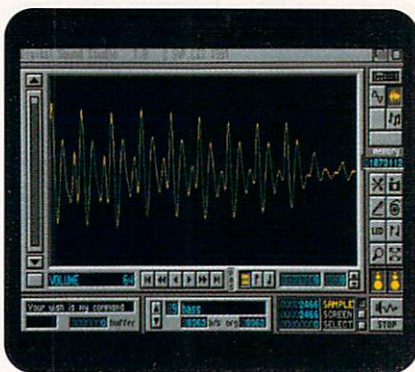
By Steve Quinzi

A COMBINATION SOFTWARE and hardware package, **DSS8: Digital Sound Studio** (Great Valley Products, \$125) utilizes the Amiga's internal audio capabilities to provide an environment for stereo sampling, sample editing, and sequencing Amiga-specific sounds.

When DSS boots, it opens with a system-information screen that displays details about your current system, such as the version of DSS that you're running, the microprocessor that you have, and the amount of available chip and fast RAM. Click twice, and this screen becomes the DSS samples list, although you can summon the system information display at any time by selecting Info from the Project menu.

TRY A SAMPLE

The samples list consists of 31 slots into which samples can be loaded.

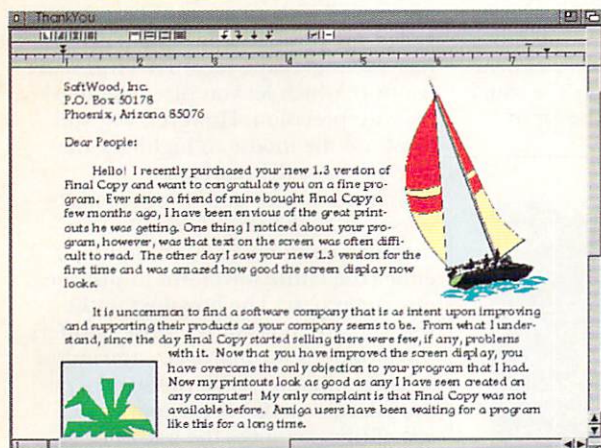


Digital Sound Studio's sample editor gives you precise control over your sound.

Obviously, the number of samples you can actually have at one time is limited by the amount of available RAM. To the left of each sample in the list is a small box indicating if the sample is stereo, less than 128K, and currently residing in chip or fast RAM (more about this later). Arrows at the bottom of the screen let you move up and down the sample list.

To work with a sample, you must first select it with a mouse click. The box at the base of the screen displays the name of the selected sample, its current frequency (in bytes per second), ►

NO BRAG, JUST FACTS!



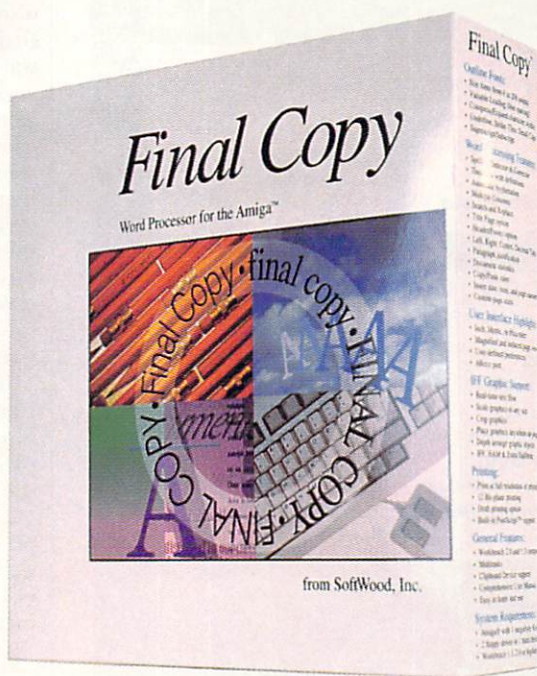
Version 1.3's new screen display is easy to read!



Best output of any Amiga word processor!

To be a winner you've got to be a whole lot better than the rest.

Final Copy is the first and only word processor for the Amiga that gives high-quality printing on any 1.3 or 2.0 Workbench supported printer. It comes with a 116,000 word spelling detector and corrector, 470,000 synonym thesaurus with definitions, 35 outline typefaces, multiple newspaper style



columns, IFF graphic support including 24 bit ILBMs, real-time text flow around graphics, 12 bit-plane color printing, typographic controls, ARexx port, and true WYSIWYG PostScript® printing.

As one of our customers said, "You don't have to be a rocket scientist to see Final Copy has the best printing of any Amiga word processor."

Comparison Chart	Outline Fonts Included	Crop Graphics	Load Simple HAM graphic	Thesaurus Synonyms	Speller Words	Snaking Columns	Graphic Text Flow	Automatic Hyphenation
Final Copy 1.3	35	Yes	3.5 sec.	470,000	116,000	1-6	Yes	Yes
ProWrite 3.2®	0	No	1 min 20 sec	300,000	100,000	1-5	No	No

Comparison Chart	Price	Frame Graphics	24 Bit ILBM Support	Thes. with Definitions	Page Views	Print 1 pg. Document	ARexx	Use Amiga Clipboard
Final Copy 1.3	\$99.95	Yes	Yes	Yes	25-400%	53 sec.	Yes	Yes
ProWrite 3.2®	\$174.95	No	No	No	No	2 min 5 sec	Yes	No

\$99⁹⁵

VISA &
MASTERCARD

1-800-247-8314

SoftWood, Inc.

and its original frequency. The multi-function slider at the left can vary either the sound's volume or frequency. To hear the current sample, just click the speaker icon in the lower-left corner of the screen.

DSS offers some interesting features for changing samples from mono to stereo and vice versa: Create Stereo combines two mono samples to form a single stereo sample, while Divide Stereo separates the right and left channels of a stereo sample to individual mono sam-

ples. Convert to Stereo contrives stereo by duplicating a mono sample and assigning the two samples to left and right channels of a stereo sample (this is actually not stereo but "multi-mono"). Convert to Mono sums the two sides of a stereo sample to mono.

Double click on any sample, and you enter DSS's Sample Edit mode, where the waveform is displayed graphically. If the sample is stereo, both waveforms appear. The Edit menu offers the usual cut, copy, and paste, while the Swap

Channels command produces some nice stereo "ping-pong" effects.

Most of the editing features require that you define a range before using them. The obvious way to do this is by highlighting the desired area of the waveform with the mouse, but you can also use the position markers. These are moved with an array of buttons called the position-adjustment arrows (resembling a tape recorder's transport control), which let you place the markers with precision. However, you still must use the mouse to highlight the area between the markers.

Another way to define a range is by selecting Auto Range from the Edit menu; from there, you can highlight either the entire waveform or just the on-screen part. The box next to the speaker icon now makes sense; it offers three options for playback—the entire sample, whatever is on the screen, or the selected range. A readout to the left of this box gives the size of each option.

The Process menu's functions are also designed to work within a specified range. The first option here, Backward, plays the selected range in reverse. Inverse changes every amplitude value within a range to its inverse (for example, 1 becomes -1). The waveform sounds the same, though it is now 180 degrees out of phase from the original; if you play the two waveforms together, they cancel each other out. Set to Zero sets all amplitude values within the specified range to zero, which is useful for inserting periods of silence into a waveform.

Ramp Volume creates percentage changes in amplitude from the beginning to the end of a range. For example, setting the start value to 100% and the end value to zero produces a fade-out. You can use Ramp Volume to produce uniform level changes, as well, by setting the start and end values the same (a value above 100% increases the overall level, below 100% decreases it).

Echo repeats a range to create an echo effect; you can control the echo rate, rate of decay, and the number of echoes (limited by the length of the sample). With the Mix feature, you can merge a range with whatever is currently in the RAM buffer, and you can resample a range to a different (presumably lower) sample rate to conserve memory.

Clicking the loop button in the control panel at the right of the screen activates the loop mode. To specify the section you wish to repeat, place the ►

WE'RE STICKING OUR FACES INTO OTHER PEOPLE'S BUSINESS

AMIGA COMPANION PACK \$69

CG Times Italic
CG Times Bold
CG Triumvirate Bold
CG Triumvirate Condensed

AMIGA DECORATIVE STARTER PACK \$69

Uncial
Branding Iron
Brush
Shannon Extrabold

AMIGA STARTER PACK \$69

CG Trump Mediaeval
CG Omega
Futura Bold II
Park Avenue

VIDEO UNLIMITED \$199

Antique Olive Bold **Antique Olive** **Compact**

ITC Benguiat Book
ITC Benguiat Bold
CG Bodoni Book
CG Bodoni Bold
CG Poster Bodoni
Clarendon Book Condensed

Futura Book
Futura Bold
Garamond Antiqua
Garamond Kursiv
Garamond Halbfett
Microstyle Bold
Agfa Nadianne Medium
Agfa Nadianne Bold
Stymie Medium

Stymie Bold
Letraset Aachen Medium
Peignot Demibold
Branding Iron
Letraset Revue
Shadow
Letraset University Roman
Murray Bold
Old English

Until now, Amiga® users were stuck with the typefaces unique to their applications. But now, with AmigaDos™ Release 2, all your software will use Agfa's high quality Intellifont® scalable fonts so you can use your fonts in any size you want. We've made it easy to get started by creating more than a dozen Amiga font packs from the Agfa Compugraphic library of more than 250 typefaces. Prices start at just \$69. For more information, see your software dealer, or call 1-800-424-TYPE.

AGFA 
Agfa Division 90 Industrial Way
Wilmington, MA 01887

Intellifont is a registered trademark of Miles, Inc. AGFA and the Agfa Rhombus are registered trademarks of Agfa-Gevaert, AG. Amiga is a registered trademark and AmigaDOS is a trademark of Commodore-Amiga Inc. All other trademarks are the property of their respective owners.

AGFA INTELLIFONT IS NOW PART OF AMIGADOS RELEASE 2

Welcome to the Future.

Soft-Logik would like to congratulate Gold Disk on adding features to Pro Page 3.0. Of course, it still doesn't compare to PageStream 2.2, the Experts' Choice.



Congratulations, Gold Disk, on adding improved typographic precision and an Undo option to Professional Page 3.0. Of course, PageStream has had Undo since version 1.0 and its type scaling is still 12.5 times more precise. The five new AGFA Compugraphic fonts included in ProPage 3.0 bring your total to 7, still short of the 10 we give our users.

We're sure ProPage users will appreciate the new ProWrite and Excellence text import filters; PageStream users have been enjoying them for years. And the tiling feature you've added in 3.0 will allow your users to make those banners and posters PageStream users have been pasting on walls everywhere.

The most impressive feature in 3.0 has to be the links to ProDraw and Article Editor. Your "hotlinking" feature is a closed and proprietary system. Our HotLinks is a standard protocol which any company can support. Of course, this isn't really a fair comparison, because ProPage's links cannot match HotLinks' automatic data transfer, real-time multiple edition updating, and edition management utilities.

Cool Programs for a Hot Computer

Soft-Logik Publishing is proud to announce HotLinks Editions. HotLinks Editions combines BME, PageLiner and HotLinks into an affordable package. BME is a bitmap editor for touching up pictures and photographs. PageLiner is a feature-laden text processor with spell checking and formatting tags. HotLinks is the new Amiga standard for data exchange.


Multitasking is Cool, but HotLinks is Hot

HotLinks takes Amiga multitasking into the future. An open standard available to all companies, it allows you to exchange text, graphics and other data between applications in real-time. Imagine having all copies of your corporate logo updated automatically in your PageStream document when you make changes in BME. PageStream doesn't even have to be loaded. The next time you load a document containing a copy of the logo, HotLinks will update it automatically.

This might be the future, but it's available now. PageStream 2.2 is just \$299.95. HotLinks Editions is \$99.95. If you would like your other software to be HotLinks compatible, just ask its publishers. We'll help them include HotLinks in their next release.

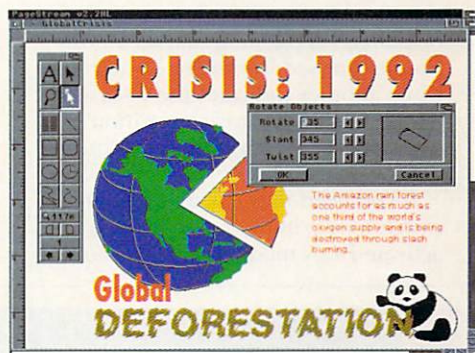
PageStream 2.2 and HotLinks Editions are *the* publishing solution.

HotLinks >>>

Soft-Logik Publishing Corporation  **We give you the tools to dream. 800-829-8608**

PageStream, BME and PageLiner are registered trademarks or trademarks of Soft-Logik Publishing Corporation. The HotLinks name is reserved for use on the Amiga for software compatible with the HotLinks standard set by Soft-Logik Publishing. Compugraphic is a registered trademark of AGFA Compugraphic. Amiga is a registered trademark of Commodore Business Machines. Professional Page, Professional Draw and Article Editor are registered trademarks of Gold Disk Inc.

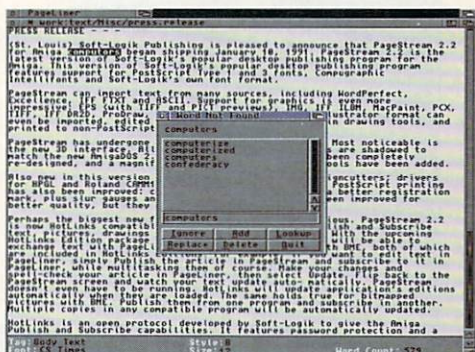
Circle 46 on Reader Service card.



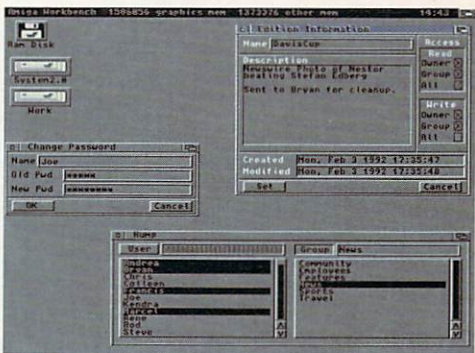
PageStream 2.2



BME - The Amiga BitMap Editor



PageLiner



HotLinks

loop markers with the mouse, and then fine-tune them with the position-adjustment arrows. One readout below the lower-left corner of the waveform display gives the loop marker's position (expressed in time or by address), while another indicates the instantaneous amplitude at each position (useful for searching for points of zero crossing).

If you need to tweak a waveform, switch to maximum magnification and activate Draw mode. Here you can use

the mouse to make repairs. There are three drawing options: free drawing (hold down the left mouse button), straight-line drawing (hold down both buttons), and value entry (use the two arrows by the amplitude readout to enter a precise amplitude value at every position).

You can capture fresh samples, as well. First, plug the supplied audio digitizer into the parallel port (after turning off the Amiga), and then click the Sampler button to activate sample

capture mode. (The DSS digitizer is a well-made, attractive black box with two RCA audio-input jacks, each one equipped with an attenuator knob and an overload light.)

The first screen to open lets you set various parameters. Here, you select the input (right, left, or stereo), choose one of three scales of oscilloscope displays or the spectral analyzer (an animated bar graph showing frequency ranges) to monitor incoming signals, set the sample length, rate, period, and root note, and you're ready to record.

Click the monitor button, and the incoming waveform is displayed according to your choice. You can also adjust the display's resolution to take advantage of the power of accelerated Amigas. Once the digitizer levels are properly set, click the record button to digitize the waveform. While the program offers a real-time reverb function that can be encoded upon the sample on input, I don't see the point in it. In my opinion, reverb is much more useful as an after-the-fact processing function.

MAKE TRACKS

The sequencer portion of DSS, the Tracker, works exclusively with Amiga sounds, specifically those that are loaded into the DSS samples list. For the Tracker to use a sound, it must be mono, less than 128K (256K if it contains a loop), and resident in chip RAM. The Edit menu's Transfer to Chip command moves sounds for you, but you need to keep track of your available RAM.

The Tracker's four tracks correspond to the Amiga's four audio channels. Above each is an on/off switch, or you can use two switches in the control panel at the right of the screen to toggle the left and right audio outputs independently (the outer tracks are assigned to the left side and the inner to the right). Two small readouts with adjustment arrows can set the volume of each individual sound, as well as that of the entire mix.

To enter data into the Tracker, highlight the track onto which you want to record, select the appropriate sound, and type notes from the Amiga's QWERTY keyboard. A small keyboard icon on the left toggles the range of the keyboard from the upper two octaves to the lower two octaves to accommodate a four-octave range.

You can also enter notes from a MIDI keyboard—the program's only MIDI aspect, by the way. This setup was apparently designed for moderate-

IF YOUR AMIGA COULD DREAM IT WOULD DREAM IN VISTAPRO 2.0.

FOR PROFESSIONAL QUALITY

LANDSCAPE ARTISTRY

VISTAPRO 2.0 IS UNPARALLELED.



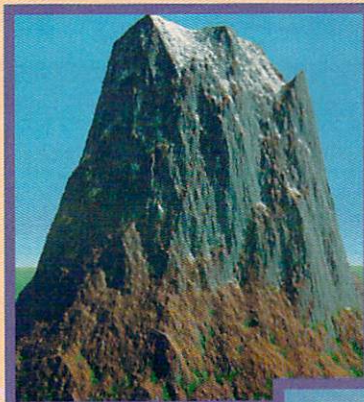
VISTAPRO 2.0 FEATURES

- **CLOUDS!** Roads and buildings!
- Most complete final image control of any landscape simulator.
- Most advanced color palette
- Virtual trees, stars, rivers, lakes, snow
- Basic animator, Direct 24-bit output
- Parts of Mars, Yosemite, Mt. St. Helens, Crater Lake, fractal scapes, and more!

VISTAPRO 2.0 INCLUDES SPECIAL COUPONS FOR MAKEPATH AND TERRAFORM
MAKEPATH Advanced Animation Utility which allows complex animation with Vistapro 2.0!

TERRAFORM Landscape Editor which allows users to modify an existing Vistapro 2.0 landscape or create new ones!

\$25 EACH WITH COUPONS



MORE FEATURES

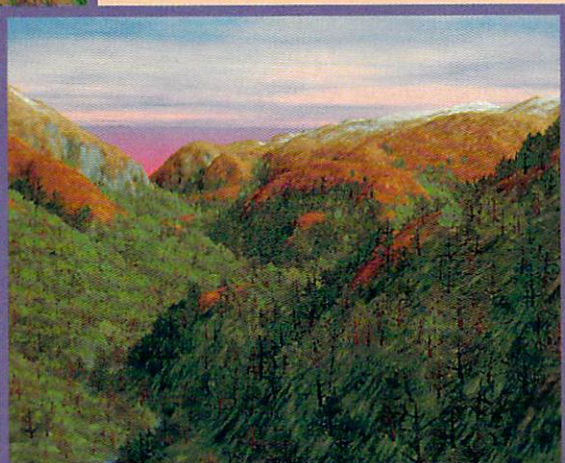
LOWER PRICE!

RETAIL \$99.95

HARDWARE REQUIREMENTS

- 3 megs RAM required
- Accelerator strongly recommended.

Virtual Reality Labs, Inc.
 2341 Ganador Court
 San Luis Obispo, CA 93401
 Phone or FAX 805/545-8515
 Dealer Inquiries Welcome!



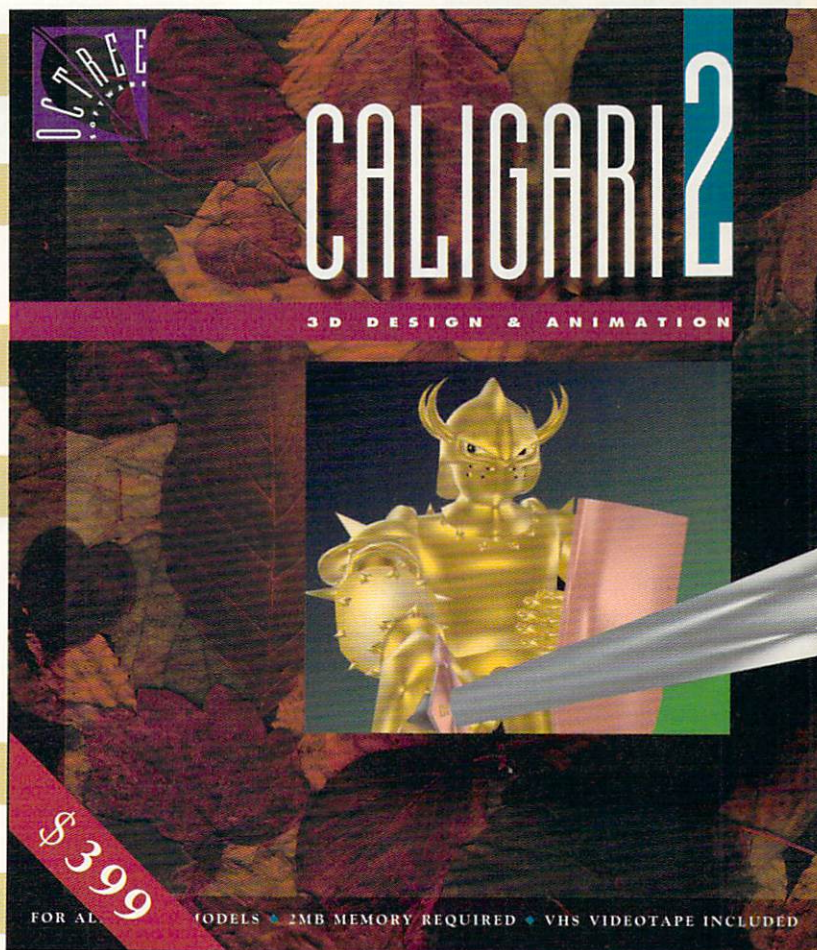
Circle 58 on Reader Service card.



REALITY REFINED

v i r t u a l l y

- The world's best modeler using virtual reality technology for direct real time manipulation of 3D objects in full perspective
- Single Point Editor, full hierarchies, Primitives, Extruder, Mirror, Slice and Sweep tools
- Photorealistic full color renderer with texture mapping, environment mapping, shadows, transparency, Gouraud, Phong, Metal and Environmental shaders
- Four levels of antialiasing, with separate antialiasing of textures, unlimited number of lights, including Global, Local and Directional lights
- 20 to 50 times faster than ray tracing programs
- Full color output to HAM, HAME and DCTV frame buffers
- Interactive spline based animation with real time preview
- Fully compatible with Videoscape, LightWave and Sculpt 4D object formats
- Runs on all Amiga models (2Mb memory required)
- Support for 68030/040 accelerators
- Full implementation of Caligari Broadcast 2.0 technology.



**OCTREE
SOFTWARE**

311 W 43 St. Suite 901
New York, NY 10036
Tel. 212. 262 3116
Fax 212. 262 4081

The products mentioned above are registered trademarks of the following companies: Caligari2/Octree Software, Inc.; Amiga/Commodore Business Machines; DCTV/Digital Creations; HAM-E/Black Belt Systems, Inc.; Videoscape/Aegis; LightWave/Newtek; Sculpt 4D/Byte by Byte.

Circle 82 on Reader Service card.

ly slow (step time) note entry, evidenced by the fact that rapid noodling from a MIDI keyboard will produce some crazy, but not permanent, results.

The Tracker takes the building-block approach to song construction: You have a maximum of 128 "blocks" to work with, each consisting of 64 events. There is no provision for measures or time signatures; in fact, there is little reference to musical fundamentals at all. If this disturbs you, you could make up a chart mapping event numbers to

measure and beat numbers. Given an eighth-note subdivision for example, a block would be eight measures in length (at 4/4 time), and the downbeats would fall on event numbers 1, 9, 17, and so on, while in a sixteenth-note subdivision, a block would be four measures in length, with downbeats on event numbers 1, 17, 33, and 49. Of course, you have to adjust the tempo accordingly.

Not surprisingly, the Tracker has a very nonstandard means of setting tempo—a scale from 1 to 15, with 15

being the slowest. You assemble blocks into a song by arranging a sequence of positions, assigning a block to each position. For example, assigning block 1 to positions 1 and 2, and block 2 to position 3 would result in block 1 playing twice, followed by block 2. If you need a block that is shorter than 64 events, there is a provision to jump out of a block at any point.

As far as global editing goes, you can cut, copy, and paste either tracks or blocks. Microscopic editing is limited to using the delete key to erase individual notes, while the Fill Track command places single notes at specified intervals in a track. Two transpose functions, called Note Up and Note Down, move a track, a block, or the entire song up or down a half step. The Tracker also offers a few "effects" such as Pitch up, Pitch Down, and Shazam (a rapid up-and-down pitch change). These are applied to individual notes with the degree of effectiveness expressed in hex.

When a song is complete, you can save it as a song (solely note data), a module (both notes and instruments), or a run module (a stand-alone module that plays, without DSS, from an icon or the CLI). You can also save your instrument setup independently from the song. While the sample editor can save sounds in either IFF, Sonix, or Raw format, the Tracker is limited to IFF.

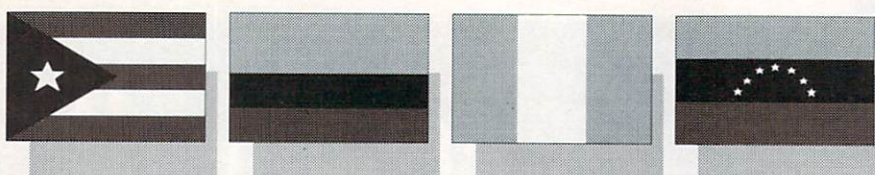
APPLAUSE, BUT NOT A STANDING OVATION

With respect to its strength as a program, DSS gets high marks. It is smooth, easy to use, and intelligently laid out. The sampler and sample editor portions get the job done nicely, and I got some excellent results using GVP's audio digitizer.

The Tracker, however, is a different story. I would have been impressed by it seven or eight years ago, but today, with so many good music products on the Amiga market, it's hard to believe that a commercial program includes such a primitive sequencer. If basic musical parameters and MIDI implementation are not important to you, the Tracker should suit you fine; otherwise use DSS for sampling and get a real sequencer.

(Editor's note: Just before press time, GVP informed us that it has upgraded DSS8. Software sliders have replaced the digitizer's gain adjustment knobs, but the package has acquired a low-pass filter, and you can now make a software choice between line and microphone impedance.)

Continued on p. 74.



AMIGA NOW FLYING OVER LATIN AMERICA

Commodore International has awarded Creative Equipment International, "CEI", rights to distribute all Amigas to Latin American and Caribbean countries. CEI has established an initial dealer network and is **now signing up additional dealers in this lucrative market**. Other products included in this network are GVP, SUPRA, PROGRESSIVE PERIPHERALS, RGB and others. Many PAL versions of video boards and genlocks are available through the CEI dealer network. Interested computer and video dealers in these countries can call Creative Equipment International at the number below. **VIVA AMIGA!**

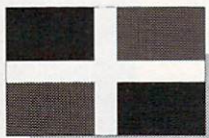


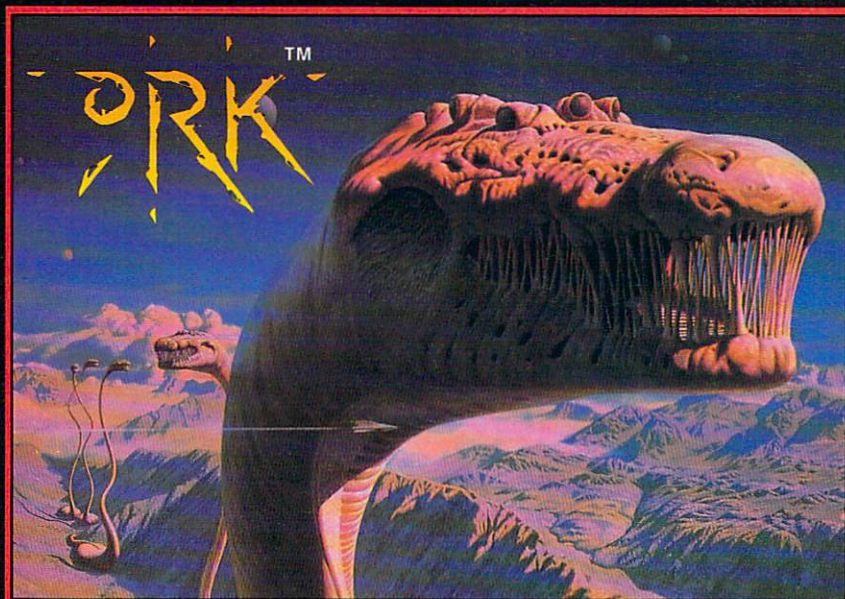
CREATIVE
EQUIPMENT
INTERNATIONAL

Se habla español

Falamos português

6864 West Flagler Street • Miami, Florida 33144
(305) 266-2800 FAX (305) 261-2544





ORK

Beamed down to the planet Ixion from the Legion Ship, Ciskei, aspiring Captain Ku-Kabul has to face the dangers and tests specifically placed on this planet in order to prove himself worthy of Leadership. Failing any of the tests will end his career as a Legion-Command Officer... permanently!

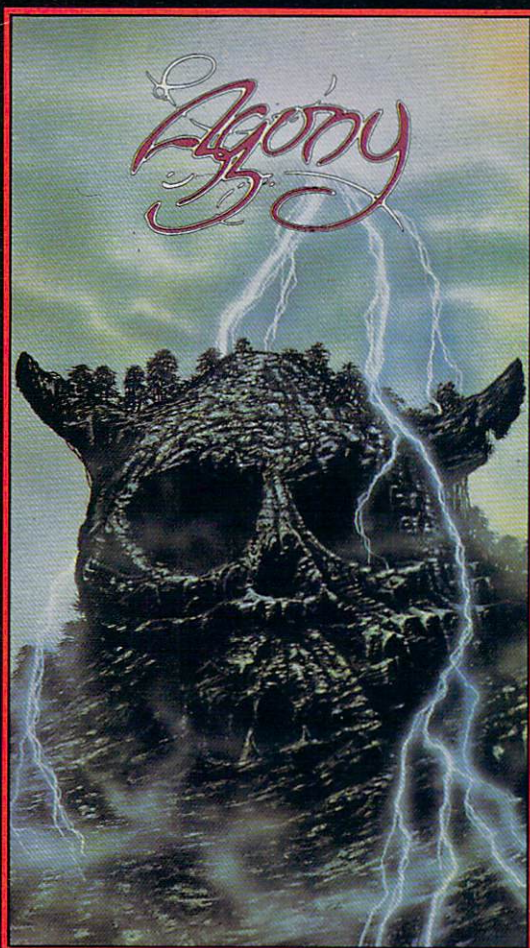
To give him a fighting chance, Ku-Kabul is fitted with twin laser cannons and refuelable jet boosters.

Using brains and brawn he must find, collect and use objects to solve the many perplexing puzzles and defeat the hordes of mighty enemies that infest this deadly arena.

3-layer parallax scrolling, arcade-speed action and powerful FX combine with total-gameplay addiction to bring you the experience that is Ork!

Are you Orkenough?

Screen Shots from the Amiga version.



AGONY

Pit your magical powers against an equal but opposite mystical force. Use your sorcery and fighting skills to battle through six graphically — excellent levels, each infested with hordes of beautifully-animated conjured-up creatures.

Pick up potions and spells to help your valiant struggle to find the secret of Cosmic Strength.

Experience four layers of incredibly-smooth parallax scrolling, animated backdrops, a massive play area, hundreds of on-screen colours, unbelievable gameplay and an exorbitant sound track all expertly mixed together and skilfully cast to bring you a spellbinding brew of computer gaming action.

Experience Agony with no pain!

Screen Shots from the Amiga version.



PSYGNOSIS

29 Saint Mary's Court,
Brookline, MA 02146
Telephone: (617) 731-3553
Fax: (617) 731-8379



Amiga Output as Art

Paying careful attention to the physical output of your Amiga images—through creative photography, printing, and mixed-media techniques—can reward you handsomely with results that are gallery-quality and suitable for exhibition.

By Joel Hagen

One of the most frustrating challenges facing the computer artist is that of translating electronic images into some form suitable for exhibition. While I feel that both the computer and video are strong new media to create and exhibit artwork, for the purpose of this discussion let us dispense with electronic media and focus on “hard” display for exhibition purposes.

Unfortunately, ordinary printer output has a mechanical quality to it, typically lacking the richness that characterizes the “feel” of traditional media, the “quality of surface” that viewers perceive at a conscious or unconscious level. For computer art to succeed in a competitive gallery setting, that quality must somehow be brought to the physical image that is framed and hung. This article will discuss a variety of methods toward that end.

Let me say at the outset that I have no idea whether or not some of the printing procedures I will discuss here violate manufacturers’ recommendations. Before trying any of these ideas, you might be well advised to check on such matters for yourself.

Three main output problems confront the computer artist. The first is the quality and appearance of the material. Does the ink and paper, for example, have a physical character that is as interesting as that of traditional media? The second is scale. How can the artist break the constraints of 8½×11 printouts? The third problem is quality of image translation. How effectively can the original colors, nuances, and resolution of the computer image be translated into a “hard” medium? (*To locate vendors of the products mentioned, see the list on p. 84.*)

PHOTOGRAPHY

Because the computer image is composed of dots of colored light, photography can be one of the most accurate means of reproducing that image. You can get fairly good results by shooting the screen with a 35mm camera. Use a long lens, if possible, to eliminate distortion. Shoot exposures of a quarter-second or more to reduce the effect of video scan. For better results, send your disk to an image service for slides or prints of your artwork. Photographic prints can be blown up to any practical size, and they have an established history and legitimacy as a medium.

For photographic prints of Amiga images, the best solution is probably the Polaroid CI3000 film recorder (\$4495), which uses *Art Department Professional* as its interface (**AD Pro 2**, \$299; **CI3000 Driver**, \$200; **ASDG**). This device cables directly to the parallel port ►

of your Amiga. A variety of camera backs can be attached to it for capturing slides, negatives, Polaroid prints, and so on. The CI3000 is capable of imaging on 35mm film at a resolution of up to 2048×1366 in a color space of 16 million colors.

Images are produced on film by digitally controlling a light beam through an internal CRT. The film is exposed through red, green, and blue filters. The AD Pro interface includes controls for calibration, exposure, and color balance. Even if your Amiga is not equipped to display large 24-bit images, they can be rendered by a variety of software or created by compositing in AD Pro's 24-bit color space. These images can be directly exposed to film in the CI3000 with excellent results. Large photographic prints made from 2048×1366 24-bit images are exhibition quality.

MULTIPLE-PASS PRINTING

The most widely available method of getting a computer image onto hard media is via a printer. There are



Figure 1. A full-page, multiple-pass print. Repeated passes through an HP Paintjet build up the final image.

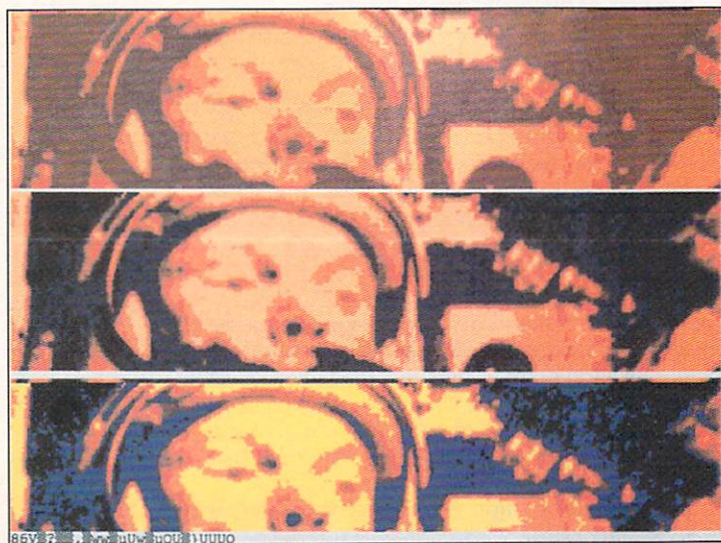


Figure 2. You should print a series of test strips—like these of astronaut John Glenn—before committing to a final Paintjet printout.

high-end color printers such as the Iris that can do a remarkable job of duplicating high-resolution 24-bit screen images onto poster-size glossy paper at about \$60 per print. While these printers are beyond the reach of most artists as far as experimentation goes, they also have, to my mind, the limitation of being too slick. The print looks like a commercial poster. Such results can be rather sterile in the realm of fine art. For color prints, I prefer the look and feel of ink-jet output. Creatively handled, an **HP Paintjet** (\$1395, *Hewlett-Packard*) can produce a more interesting surface, in my opinion, than printers costing ten times as much.

Most of the trick in imparting a good look to the ink-jet surface is to do multiple passes (see Figure 1 for an example). The ink becomes dense and fills in any faint lines left by the print head. To print multiple-pass images, make a mark in the tractor-feed margin with which you can later reregister the paper. Use the "set top of form" button and print the image once; then roll it back to the mark and print it a second time. You will see a beautiful velvet quality emerge that is lacking in a single pass. Black, violet, red, yellow, teal blue, and all the "peacock" colors render well in this technique.

A favorite trick of mine is to do a couple of passes as described, and then use a yellow extraction of the image as a final pass to warm the print up. Similarly, you can experiment with using more than one screen image to build up a hard print. Try laying down a base of vivid color and then overlaying a darker, more detailed image. Earthy colors emerge that are impossible to achieve in a single-step print.

If you find the image getting too dark after multiple passes, lighten it first in AD Pro, **PIXmate** (\$69.95, *Progressive Peripherals*), or some other image-processing software. I find that AD Pro gives me the most powerful control over preprint image adjustment. Experiment with brightness, contrast, and gamma adjustment to produce a light version of your image. Save this and build up a hard print in the Paintjet, layer by layer.

Perhaps the most important concept in working with a printer is to think of the machine itself as your artistic tool. If you focus your thinking on the screen, you are likely to fall short of a quality hard image. The printer is the tool laying down the ink, so think of it as your brush. Use the screen only to adjust the image toward an effective printout. That screen image may ultimately bear little resemblance to the final print.

Prior to committing to a full printout, print a test strip, adjust the screen image, and then print another test. Figure 2 shows such a series of image tests from a Paintjet. There is no need to waste an entire sheet of paper and a lot of ink for a test; simply repeat a representative strip until you arrive at a pleasing result.

Before starting any print, run a diagnostic on the printer to ensure the best quality. With the HP Paintjet, turn the printer off, hold down the form-feed button, turn the printer on, and then release the button. The printer will produce a black bar followed by yellow, cyan, and magenta bars as shown in Figure 3.

If these bars are perfectly solid, a good print will result. Often, as in Figure 3, certain jets will be clogged, leaving a white line in the print. Beneath the solid color bars in the diagnostic are rows of black and colored lines. Failed jets show up clearly here because each line represents one jet. In Figure 3, for example, one black and one cyan jet are not printing. The effect of this fail-

ure is seen as white lines in the image strip above the diagnostic. Follow the printer guidelines to reprime and clean each cartridge.

POSTSCRIPT LASER OPTIONS

If you have access to a laser printer, PostScript printing is a powerful opportunity. I have used 300-dpi PostScript images straight out of the Amiga for the illustrations to the *Dr. Bones* series of paperback science-fiction books. Higher-resolution Linotronic printouts are even better. Even so, for exhibition purposes, straight laser output is a bit sterile. What I enjoy doing, however, is layering a PostScript printout over a built-up Paintjet print (see Figure 4 for an example). The warm, solid "graphite black" of laser ink is a smooth complement to the velvet colors of the Paintjet.

I use AD Pro, **PageStream** (v2.2, \$299.95, *Soft-Logik*), **Professional Page** (v2.1, \$395, *Gold Disk*), or **Saxon Publisher** (v1.2, \$395, *Saxon Industries*) as my interfaces to PostScript printing. These programs allow you to size and position a PostScript image on the page so that it matches the position of the underlying image. Don't rely on a sheet-fed printer, however, to give you registration as tight as you would expect from tractor feed.

I like the laser printer's ability to create halftones via PostScript. For my work, I use a **Silentwriter 2 Model 90** PostScript laser printer (\$2495, *NEC Technologies*). If I layer a halftone of an image over a Paintjet color field, the underlying colors show through the dot patterns, creating subtle effects and details. The dot patterns of the color print and the halftone can, however, interfere with each other to cause a "moiré" effect. This is sometimes interesting, but can be objectionable.

Experimenting with ordered and F-S dithering in Printer Preferences at the color stage can affect the moiré interference. Also, AD Pro 2 has a new Saver feature called Prefprinter that can enhance the output of a printer like the Paintjet. Printing via Prefprinter not only produces better ink coverage and more subtle dithering, but allows effective printout of 24-bit color images. The dithering from a 24-bit Prefprinter image is so tight and diffuse that I can overlay a PostScript halftone with no moiré effect.

You can also try Prefprinter to lay black over a color image. Experiment with the Density settings to get the best results from your printer. Floyd dithering at density 1 has fairly large dots, widely and diffusely spaced. Density 4 or 5 produces small dots in a tight pattern. On my laser printer in HP emulation mode, I get fine results from density 4 with the Gamma raised to 36. Gamma adjustment can make or break a high-density Prefprinter image. I get better grayscale fidelity with the laser in Prefprinter density 4, Gamma 36, than with a PostScript printout.

With desktop-publishing software, you can take advantage of the high resolution of object-oriented shapes and drawings. You can create these directly in the publishing software or in a drawing package. Diagonal or curved lines print without "jaggies" at the resolution of the printer. This has a much better look than does a printed bitmap line with its blocky pixels.

Interesting combinations can thus be created by building up a color field with an HP Paintjet and then overlaying linework with a laser printer driven by a program like PageStream, Professional Page, or Saxon Publisher. In fact, publishing software can do a fine job

of printing object-oriented lines and shapes with ink-jet or even dot-matrix printers. Different papers can produce more interesting print. I find that gray charcoal paper looks very good with laser ink.

PRINTING MULTIPLE-PAGE IMAGES

The ideas discussed thus far are pretty much limited to single-page prints. It is possible, however, to print an Amiga image at virtually any size by spreading that image over multiple pages. ADPro's Prefprinter and Deluxe PhotoLab's Posters program are good tools with which to explore this process. (PhotoLab is no longer sold separately but is available as part of *Electronic Arts' DeluxeVideo III*, \$149.95.)

I am very impressed with Prefprinter's interface and controls. You can experiment with size, style, print density, and other factors with ease. Each printed image section must be trimmed and the group mounted to another surface for display. Unfortunately, the display looks like a lot of sheets of typewriter paper glued together.

The multiple-page technique, however, really comes into its own for exhibition when the scale of the finished mosaic is quite large. A cleanly mounted ten-foot ▶

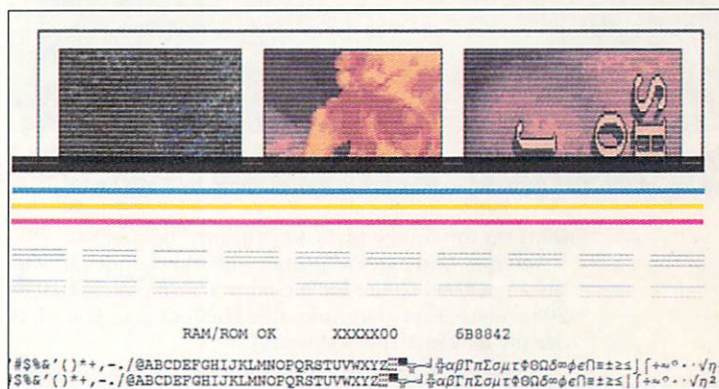


Figure 3. Before starting to print your image, run a diagnostic test on the Paintjet to ensure that all jets are functioning properly.

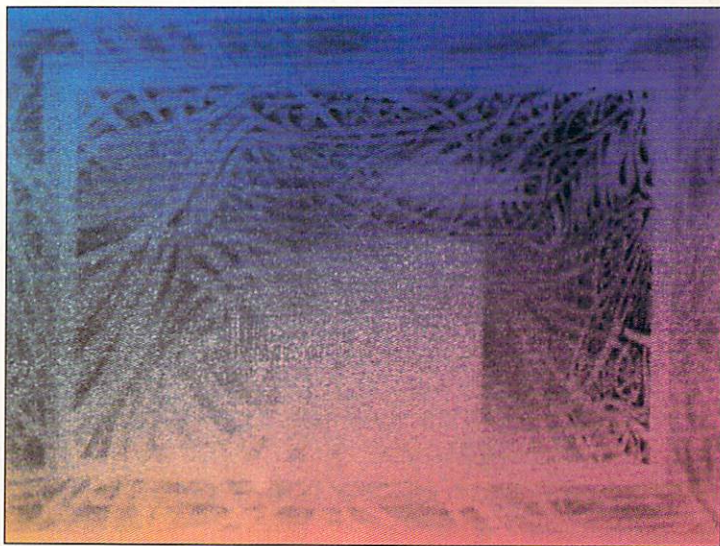


Figure 4. This composite is the result of layering a PostScript laser printout over a built-up Paintjet print.

image is impressive, no matter what the material limitations. A few large mosaics can set a mood, or act to pull viewers through an exhibition hall. AD Pro version 2.1.0 adds eight new dithering methods to Prefprinter for some interesting options. There are two new halftone dithers that optimize color mixing, plus four line dithers and a "brick" dither. These are particularly suited to doing very large mosaics. For greater image clarity, try using one of AD Pro's sharpening convolu-

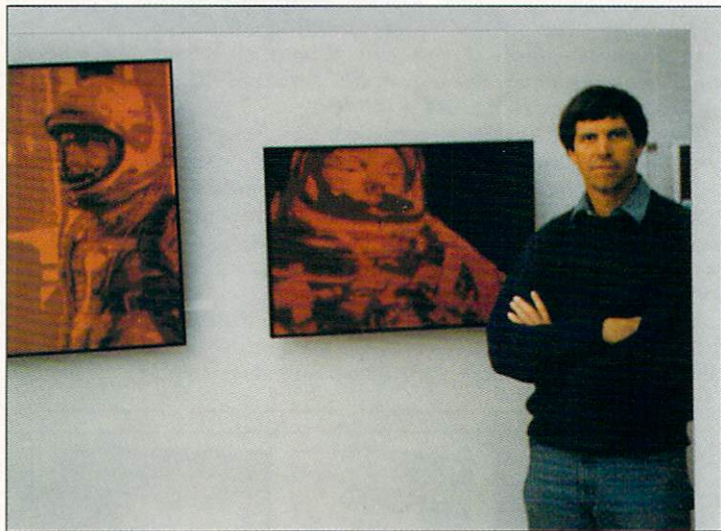


Figure 5. The author next to his Shepherd/Glenn mixed-media creations at the Yuri Gagarin exhibition in Yalta. Photo by Beth Avary.

tions on the image prior to printing the mosaic.

You may find that Prefprinter with Floyd dither at density 1 is a good choice for medium-scale mosaics of 10 to 20 sheets. For very large mosaics, Halftone A or B at a low density may give the best results.

It is possible to create more polished works using the same technique by emphasizing rather than concealing the individual mosaic elements. For example, if each tile is carefully trimmed, then affixed to an interesting surface with attention paid to leaving visible gaps, the arrangement and value composition of the tiles and gaps takes on an esthetic significance beyond that of the image alone.

In a 1991 collaboration with British artist Arthur Gilbert, we reduced an image of Cosmonaut Gagarin to three gray levels and then printed it as a 99-sheet mosaic. The printout, using Posters with its "smoothing" option, took about 30 hours on my Epson dot-matrix printer. Those 99 sheets were sent to 99 astronomical artists all over the world. Each artist used his or her repeated signature as texture to completely fill the gray areas of their chunk of the image. Each artist then mailed the finished sheet to the All Artist's Union in Moscow so that the huge installation could be assembled at the opening of the exhibition celebrating the 30th anniversary of Gagarin's space flight. In this case, the concept outweighed the limitations of the material. Additionally, the personalization of each tile by the artists took the finished piece beyond the realm of a simple printout.

MIXED-MEDIA EXPERIMENTS

The signatures of the artists on the Gagarin mosaic

brings us to my favorite realm as a computer artist, that of mixed media. To an extent, we have touched on the idea in discussing laser ink over color, but the Amiga artist can explore even greater opportunities by adding paint, graphite, and collage to the output of the computer printer.

Two of my paintings in the Gagarin exhibition began life on the Amiga. Wanting to create stark, documentary paintings to contrast with the more expressionistic Soviet styles, I began with two scenes from our early space program. I reworked images of Alan Shepard and John Glenn in DeluxePaint (**DPaint IV**, \$179.95, *Electronic Arts*), simplifying composition, using fiery colors, and breaking up forms into solid shapes. When the painting was finished, the images were printed as multiple pages on an HP Paintjet. The test strip already mentioned (Figure 2) shows some of the color experiments that were tried on the Glenn image prior to final output.

The printouts were planned to fit masonite panels cut to the maximum size allowed by the airlines that took us into the former Soviet Union. White glue diluted in water was brushed over the entire surface of the untempered masonite. Each trimmed strip of Paintjet tractor paper was dipped in water, then carefully positioned. Failure to wet the prints first causes them to buckle on contact with the glue. Wet paper is also easy to slide around for accurate positioning. Diluted acrylic gel medium was brushed over the entire surface.

When each panel dried, the paper had shrunk slightly, leaving small gaps between the strips. These gaps were filled with patching plaster. When dry, the entire surface was sanded and sponged flat. One more coat of gel medium sealed and smoothed the surface. When that was dry, each panel was painted in acrylics, using the Paintjet mosaic as a sketch. A final coat of matte varnish completed the paintings. Figure 5 shows the finished paintings hanging at the show's premiere in Yalta.

To experiment with enhancing a printout, try attacking it with your favorite medium such as pencil, conte, or ink. A good first project might be touching up a color print with a soft pencil. You can enhance the subtlety of shading, antialias lines, and add new elements to the image. The touch of the human hand immediately elevates the perception of the piece.

Another technique I like is collage. Use the computer and printer to create image elements that are cut, torn, and reassembled to create a final image. I use spray mount on torn pieces of printout to mount them on illustration board. I like to go into this with oils or acrylics to pull together a composition such as the Mercury collage that is the opening illustration of this article.

The wonderful thing about mixed media is that it fully integrates the computer and printer into the studio. The artist must then maintain enough common sense to know when to use a \$2500 computer and when to use a 25-cent pencil. Having the mental flexibility to mix these tools freely can produce some powerful work. ■

Joel Hagen is the author of AW's "Accent on Graphics" column and a contributing editor to the magazine. His credits include work in art, astronomy, science fiction, and software development. Write to him c/o AmigaWorld Editorial, 80 Elm St., Peterborough, NH 03458.

Dusting *for* Prints



*Need some clues
on how to track down the right
printer to suit your needs?
Our hands-on guide reveals the
different kinds of printers available,
the up-front and hidden costs
involved, and the performance
you can expect.*

SEARCHING FOR THE right printer can be mysterious business. Finding evidence is not so hard, but can you be sure you have the whole story? A friend testifies that the model he bought is the perfect solution—but are his needs the same as yours? Some prints you've examined point to a particular model—but can you get acceptable quality for substantially less money? Or will you give up options you need by spending less?

As if the situation were not complicated enough, much of what you knew about printers three years ago is now obsolete. That's because today you can afford printers that you could then only dream about. Let's do a little sleuthing to define ►

By Dave Johnson

the cost and performance differences and determine your best bet. For information on fingering the right printer driver to work with your chosen output device,

see the sidebar "Paper Drive." (To locate vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 84.)

VERY FINE PRINT

Perhaps the biggest news of last year was the plunge in black-and-white laser printer prices to a floor of \$700. (Color laser printers are still very expensive, starting at about \$6000.) The main advantage of a laser printer is its 300-dpi (dots per inch) output, an essential feature for professional appearance of copy. Another benefit is its deep, rich, black output—much darker and more uniform than you can get with either ink-jet or dot-matrix printers.

A laser is both quick and quiet (you can print while listening to Pink Floyd's "Wish You Were Here" and never hear it running). The slowest lasers start at four ppm (pages per minute) in letter-quality mode and take only a few minutes to print a graphics-laden sheet. A laser printer uses most of that time to build a picture of the page in its own memory, however, and thus can kick out additional copies nearly instantaneously.

Because a laser (sometimes called a page printer) must build the entire page in memory before printing any of it, the printer needs enough RAM of its own. That means about 1.5MB to generate a page of graphics—such as a full sheet of DeluxePaint graphics or a PageStream document. Although most laser printers come with only 512K, that is changing; you can now find bargain machines with 1.5 or 2MB standard. Be sure you know what you are buying and that you consider the cost of necessary additional memory. Don't be frightened by list prices for RAM, though; while it may list for \$400 per megabyte, street prices are closer to \$100.

All laser printers use some sort of page-description language to control output. While most lower-price lasers use a version of Hewlett-Packard's Printer Control Language (PCL), a more flexible control method is Adobe Systems' PostScript. (For details on the precision PostScript allows, see the "Why PostScript?" sidebar to the article "Power to the People," Sep. '91, p. 23.) Many Amiga programs, PageStream and Professional Page included, make it easy to avoid PostScript, as they output excellent quality to nonPostScript printers. (See the sidebar "Amiga Software and Lasers," Sep. '91, p. 26.)

If the software you use supports PostScript and you want to use it, you should expect to spend a few hundred dollars more for your printer. (A software-based PostScript interpreter allows you to print PostScript-defined output to an ordinary printer, but it is slow and memory-intensive.) If you think you will eventually need PostScript, but not right away, you might consider a laser (such as **Hewlett-Packard's LaserJet IIP or LaserJet III**) that is upgradable to PostScript via an expansion cartridge. Then, you can wait to purchase the expansion cartridges, which are available from the printer's manufacturer or a third-party developer such as **Pacific Page**. The additional memory that you installed for printing graphics will be essential for driving that PostScript cartridge, as well.

Resist the temptation to buy the cheapest laser you can find without testing it. Some (such as **Okidata's OL-400-series** machines) generate unsightly banding when printing graphics, although they are perfectly good for other tasks. You can encounter significant



The same PageStream file output using a Hewlett-Packard LaserJet IIP (\$1295 retail) at 300 dpi (top), an HP DeskJet (\$995) at 300 dpi (bottom), and a Star NX-1000 color dot-matrix (\$379) at 240 x 72 (opposite page).

quality differences in sending the same file to different printers.

THE JET SET

If you want laser-like output but do not want to pay laser prices, a black-and-white ink-jet printer may be just what you need. For \$500 or less, the ink-jet produces wonderful output as high as 360 dpi.

Unlike the laser printer's toner cartridge, which renders pages by allowing the laser to "burn" the ink off the roller and onto the paper, ink-jet printers feed from a vial of ink that fires at the paper through several dozen tiny nozzles. The ink is designed to dry almost instantly on contact with paper, though some printers rely on special clay-based paper to aid ink adhesion.

It is a good idea to find out what kind of paper works best with the ink-jet you are considering before you buy. Some paper stock is costly. Paper type is also important for obtaining the highest quality of output. Printers (and inks) designed for clay paper will invariably generate blurred hardcopy on ordinary paper, so use the best paper you can afford if you want to get sharp, laser-like output.

Printing time is one more consideration for ink-jets: 15 to 30 minutes or more per page is average. And because ink-jets are not "page printers," every copy takes the same amount of time to print. Ink jets are pleasantly quiet, however.

As long as you can find color cartridges for the black-and-white ink-jet you choose, you can use a color-separation process (as most desktop-publishing software allows) to print in full color by making numerous passes on the same page with inks of different colors. It is a time-consuming process that's susceptible to paper-alignment errors, but the results are often breathtaking. You can get color cartridges for various ink-jets from such companies as InkMat, Jet Technology, and Software Sensations.

For more convenient but still affordable color output, ink-jets are still your best choice. **Hewlett-Packard's PaintJet** (\$995) is the best-known of these low-cost color printers. It can offer very rich color saturation (depending on exactly what you are printing) with all the traditional characteristics of its black-and-white counterparts.

Color printing involves some special considerations because, while "printing" to your Amiga's monitor is a subtractive process, printing to paper is additive. On screen, a pixel with red, green, and blue elements all pegged at 15 appears white. Now imagine mixing equal quantities of those colors on paper. Quite the opposite of white, no? That incongruity often makes it tricky for a printer to accurately render on paper what you see on the screen.

Because of the special problems involved in color printing, I recommend you try a color printer before you buy—or at least purchase it from a store with a reasonable return policy. Do not settle for the demo prints that the sales people are all too happy to show you in the store. Those demos are optimized to show off the machine's best color-rendition abilities, and they rarely involve the colorful and detailed graphics the Amiga can output. Many of the sales people who demonstrate these printers think eight-color exploded pie charts are pretty amazing, and they may have no concept of how you plan to use the machine.

Until recently, if you wanted a color ink-jet, you were



pretty much limited to 180 dpi. While that resolution may be acceptable, it forced many people who were weighing color at 180 dpi versus black and white at 300 dpi to stay away from ink-jets. With the recent introduction of the **Hewlett-Packard DeskJet 500 Color**, 300-dpi color now retails for \$995.

This is a printer to be reckoned with, but it is not perfect. Instead of four colors, the DeskJet Color uses three, which results in less-than-ideal color accuracy in some images. Because there is no black ink when printing in the color mode, the printer uses all of the other inks to reproduce black tones. This means that black does not saturate well, and the DeskJet goes through ink even more quickly than other ink-jets. Although Commodore has not yet released a driver for this printer, **Creative Focus** sells one called **Super_DJC**.

DOTS THE WAY IT IS

The "Old Faithfuls" of the industry, dot-matrix printers have been around forever and are best sellers because of their versatility, low price tags, and negligible maintenance costs. These days, the battle lines are drawn firmly between the 9- and 24-pin varieties. The ►



The N

— CO

America's c

NOTES FROM THE LITTER BOX



EDITORIAL

by

Newt

This month

like to talk about a pro

that my older cousins

been having. I'm talki

9-pin type is probably the cheapest printer you can buy (starting at approximately \$150 for black-and-white and \$190 for color), but you pay in terms of limited resolution.

Though 9-pin printers can provide densities up to about 240 dpi, there are two serious limitations to driving dot-matrix at resolutions that high. First, there occurs a phenomenon called banding: very noticeable stripes of ink appear across the page. Also, the image can become very muddy and indistinct, particularly when printing in color. Happily, dot-matrix printers generally support enough densities so that you can find a useful one for every type of printing task.

With 24-pin printers, you can usually print in high resolution (around 300 dpi) without resorting to multiple passes—at a still-reasonable cost (\$200 and up). The result is pages that are reasonably free of smearing and banding.

Both 9- and 24-pin printers come in color and black-and-white versions. If you do have a color printer, you can conserve the somewhat more expensive color ribbons by buying black ribbons to use for black-and-white-only tasks.

Paper Drive

The issue of printer drivers is often a source of confusion. It's an important topic, too, because without a driver you cannot send output from your computer to a printer. It is a good idea to settle on a driver before actually purchasing a printer, and finding the right one is not as complicated as it may seem.

Your Workbench Extras disk contains drivers for nearly every popular printer. These are named for easy identification. For example, the driver labeled HP_DeskJet is optimized to work with Hewlett-Packard's line of DeskJet printers. Beware, though: if you choose a printer that has just come out on the market, an older driver may not get top performance out of it—or even be able to run it. HP's new DeskJet 500 Color printer is an example.

Although, as mentioned in the article, Commodore has not yet released a driver for the color DeskJet, Creative Focus sells one called Super_DJC. There

are several other such developers—including Glass Canvas Productions, ACDA, Micro Programs, and Tychon Technologies—that sell custom drivers. You can also find drivers on BBSs and networks, as well as in the Fred Fish collection of public-domain software. (Add any driver to the Printers drawer in your Devs directory.)

If you do not find a custom-built driver for a printer you want, be sure to check your printer's manual for a list of emulation modes. Many manuals list alternatives in the order in which they work best. As a last resort, you can use the Generic printer driver that's found on the Extras disk, although it will probably not be able to output styles (such as bold and italics) or graphics. —DJ □



Printing speed is one of the most hotly advertised features of dot-matrix printers. The fastest can kick out about 200 characters per second (cps) in draft mode and around 75 in near-letter-quality (NLQ) mode. The slowest ones drag along at about 25 cps.

Dot-matrix printers have been around for so long that it is hard to find a truly bad one. Because they are so inherently noisy, however, keep an ear out for those that have good sound insulation. Dot-matrix are the only printers that come in wide-carriage configurations for handling special printing tasks like large spreadsheets. While a wide-carriage unit might make life easier for you, there's no sense paying extra for such a feature if you never need to print wide stock.

HIDDEN COSTS

When you shop for a printer, remember that the three-digit figure on your charge card is not the end of it. Maintenance costs tend to add up, particularly if you print in volume. Laser printers require replacement toner cartridges, which cost between \$50 and \$150 dollars and are usually good for a few thousand copies. Ink-jet cartridges run about \$30 or less, but they are good for only a few hundred sheets. Dot-matrix printers require only ribbons, which cost less than \$10 and provide acceptable saturation for a hundred pages or so. (Once a ribbon is too worn to use for official correspondence, it can have a long and fruitful life printing draft and in-house copies.)

Do not underestimate the long-term cost of special paper, either. Clay-based stock for some ink-jets is rather costly, and using plain paper diminishes the quality of your output.

Laser paper is more expensive than ordinary stock, but it comes in many grades, and you can experiment on your own to find a happy medium. Using poor grades of paper in a laser can seriously shorten its lifespan, so choose carefully. Some laser paper has a decidedly evil finish, ecologically speaking. If you are so inclined, there are several sources for recycled laser stock, including *Earth Care Paper*, which will be happy to send you samples.

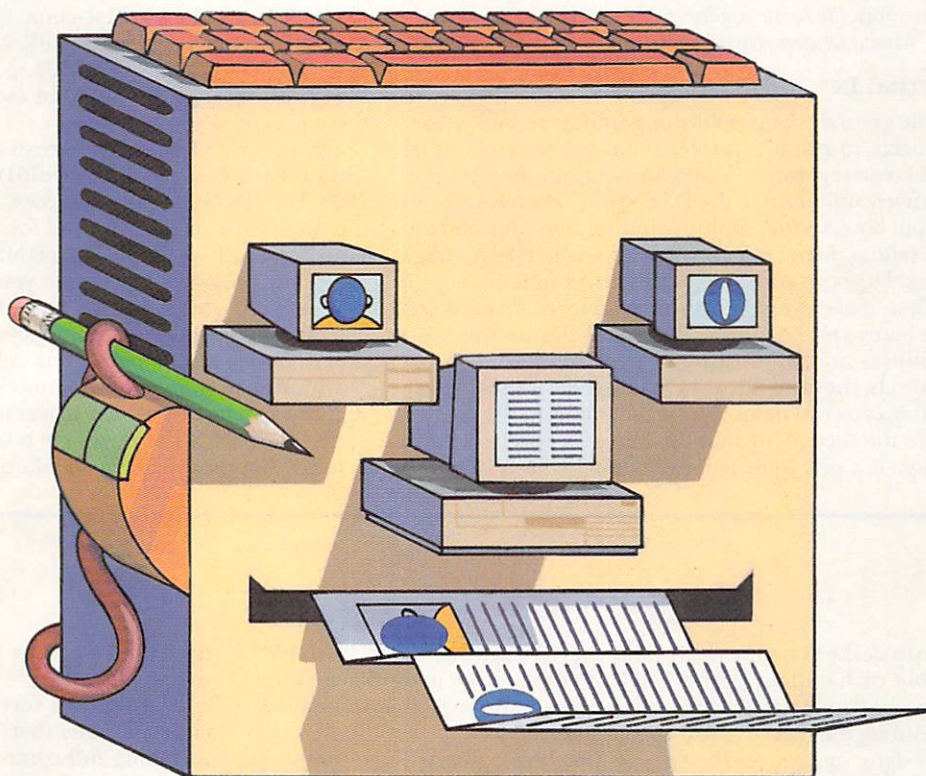
Though paper capacity is not a concern for dot-matrix printers, which run with tractor-feed paper or print one loose sheet at a time, keep in mind that both laser and ink-jet printers vary widely in the size of the paper tray. You may not need 250-sheet capacity now, but think ahead to be sure that a 50-sheet tray won't drive you insane later on. Many printers are designed to optionally accommodate one or more large-capacity trays.

Also, while most printers accept envelopes one at a time, some can handle multiple envelopes. And if you wish to produce overhead transparencies, make sure the printer is capable of producing them. This is not a given by any means, particularly with color printers.

A printer is a long-term investment. If a laser is what you really need, do not settle for an ink-jet. If a dot-matrix is sufficient for your needs, think seriously about buying a 24-pin machine instead of a 9-pin. Whatever your output goals, buy the best printer you can afford and keep the future in mind. ■

Dave Johnson authored the book *The Desktop Studio: Multimedia with the Amiga*, in addition to several reviews and articles for Amiga magazines.

DTP-ing WITH THE ENEMY



Providing competitive, full-service desktop publishing to your clients requires cross-platform cooperation. Here's how to incorporate Amiga, Mac, and PC formats into one DTP setup.

As Amiga users, we want to do everything on our machines just because others try to tell us we can't. Unfortunately, Amiga desktop publishers find themselves in a world dominated by Macs and PCs. Although I will always brandish my Amiga sword, I think it may be time to use a different strategy to further the Amiga crusade. A multiplatform desktop-publishing setup allows selective use of the best features of the Amiga, the Macintosh, and the PC.

The Macintosh leads the field with its excellent

24-bit image enhancement and painting packages. Other strengths of the Mac are its well-featured illustration programs and its multitude of printer-control and calibration utilities. (Macintosh utilities can calibrate the density and color accuracy of imagesetters, as well as manage memory and hard-disk-resident printer fonts.)

Because the PC is so widely used for word processing, most text files you receive from clients are apt to be in MS-DOS format. Also, Windows 3.0 has greatly increased the ease of use over DOS-based systems, and there are now some excellent ►

BY EYO SAMA

24-bit painting programs (such as Aldus' PhotoStyler) that are good alternatives to Mac-based software costing twice as much.

The Amiga, on the other hand, is perfect for jobs requiring 3-D ray-traced imagery, fast layout and design work, and the integrating of data from multiple platforms into one project.

So, given the different strengths and varying capabilities of the three platforms, how can you incorporate the best elements of each into your DTP setup? I will start by outlining what you can do with a limited budget and take you through to an explanation of how you can set up the ultimate networked desktop-publishing operation. (*To locate vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 84.*)

FITTING IN

While good desktop-publishing software enables Amiga users to produce professional-quality typesetting and color-separated design and output, the Amiga is relatively unknown in the DTP world. Therefore, most output bureaus that supply printing, scanning, and image setting do not offer those services directly to Amiga users. How can you cope in this environment?

First, make every effort to introduce your local service bureau to the Amiga. Show them the machine's capabilities and how, through networking and other methods, they can integrate it into their present setup. Perhaps you can demonstrate that many in the area require the service, or that the bureau's purchase of an Amiga is a prerequisite for obtaining your business.

If you cannot get direct Amiga services, then you must be able to read and write the formats these service centers do support. There are several programs that enable the Amiga to read and write both PC- and Mac-format disks. **Consultron's CrossDOS** (\$39.95), for instance, allows your Amiga to read 720K and 5.25-inch 360K MS-DOS disks. **ReadySoft's AMax II** (\$249.95), plus a Mac disk drive and Macintosh ROMs, not only lets you read and write 800K Macintosh-format disks, but also lets you run some Macintosh software.

Unfortunately, AMax II does not work in color, so you cannot benefit from the displays of 8- or 24-bit software. **Central Coast/New Horizons' Mac-2-Dos** (\$349.95, including a Mac-compatible floppy drive) simply lets you read/write 800K Mac floppies. (See "Royal Opportunities," Sep. '91, p. 40, and "Forging the PC Link," Dec. '91, p. 51, for more information on these packages.)

The program I often use to read and write MS-DOS disks is Kjell H. Didriksen's **MultiDOS**. Unlike CrossDOS, MultiDOS allows you to access MS-DOS disks with the same drive names you use for your Amiga disks. Whether you have an Amiga or MS-DOS disk in any drive, any programs you use on your Amiga will automatically recognise the disk. Incredibly, this commercial-quality program is in the public domain. You can find it in the **Fred Fish** library as well as on BBSs.

Unfortunately, because Commodore has not added higher-capacity floppy-disk drives to all Amigas, there seems generally to be no way to take advantage of the 1.44MB floppies that are standard on both the Mac

THE ULTIMATE SETUP

Mission: To set up a desktop system that would be capable of handling entire publishing projects (from the design stage through sending the files to print) and accepting designs, images, and text files from clients using various computer systems.

Thanks to networking—and to excellent new Amiga networking software—I accomplished this mission. At the core of the system I devised were three Amiga 3000s, three IBM PS/2s, a Macintosh IIci, a Mac SE, and a 33-MHz 386 PC-compatible file server running Novell Netware in dedicated mode.

Attached to the file server was a 600MB SCSI hard drive, accessible by all the computers on the network. Because Novell Netware does not allow partitions larger than 256MBs, I divided the drive into three partitions. On the A3000s, all running Oxxi's ACS, the partitions show up as three drive icons on the Workbench screen.

The Mac SE hosted a 9600-baud modem, which we employed to receive clients' PostScript, image, and text files,

whether Amiga, Mac, or PC based. When stored on the network hard drive, these files were accessible from all the computers.

I attached a Sharp JX-450 300-dpi 24-bit color scanner to an A3000 running **ASDG's Art Department Professional** (\$299) to handle most of the scanning. To the file server, I attached a 300-dpi QMS PostScript laser printer (used primarily for proofing), and a 2400-dpi Compugraphic 9800 image-setter (used to produce final films and high-resolution paper work).

All the computers on the network can simultaneously send files to be printed on either printer. The way the Netware queues work is very useful for scheduling print jobs of different priorities. You can set up Novell's Netware to have several printing queues; files sent to be printed are spooled to the file server's hard disk and output to the appropriate printers in the order received. You can even have multiple queues serving one printer. We have express and slow queues; files in the slow queue are sent

to the laser printer only if the express queue is empty.

Netware has several safety and security options that protect your data, including full control over file and directory access and support for disk mirroring and duplexing. With the help of an uninterruptible power supply, the file server can, upon detecting any power loss, automatically log off users and safely power down the network.

READY, SET

Setting up the Novell Netware file server was an adventure; Novell's software comes on more than 30 disks, and the manuals are encyclopedic. The first chore was to get the 386 PC to run without any interrupt, DMA, or memory conflicts. Unlike the advanced bus design of the Amiga, PC boards do not auto-configure; you must configure them separately by juggling several jumpers. We had to install a SCSI controller in addition to Arcnet, Ethernet, I/O, and VGA cards. Thankfully, setting up the PC client software was easy.

and PC. (With CrossDOS and a high-density Commodore floppy—now shipping with the A3000—you can read 1.44 MB PC disks.) Both MultiDOS and CrossDOS, however, claim to be able to read and write to MS-DOS-formatted hard-disk drives. (I have not tried this feature, but it surely is intriguing.) This brings me to the best method of integrating Amigas, Macs, and PCs: networking.

NET GAIN

Just a year ago, networking was a foreign concept to most Amiga users. Although it is still in its infancy for the Amiga, we now have a few options for constructing networks.

By the time you read this, **Oxxi's Amiga Client Software (ACS) for Novell Netware** (starting at \$199) should be available. Novell Netware, one of the most widely used networking systems on the PC, is the only one I know of that allows networking between Amiga, PC, Macintosh, NeXT, and Unix systems. To use ACS, you must connect your Amiga—via an Arcnet or Ethernet card—to a PC running the Novell server software.

Oxxi's software allows your Amiga to print to any device that is attached to the file server (the PC), which automatically spools printing requests from any computer on the network. Any fixed or removable hard disk attached to the file server appears on the Amiga Workbench as if it were a local drive, and it is accessible through all Amiga software. Such drives also appear on the Macintosh desktop and on other computers attached to the network.

Commodore recently released its **NFS (Network File System) Client Software** (\$199), which allows you to add Amigas equipped with Ethernet cards to a network served by a Unix NFS file server. (NFS is the networking system used by Sun Microsystems' computers and many other Unix-based systems.) According to Commodore, it is possible to use the NFS software to attach Amigas to a PC server running Novell Netware 386 with an NFS module, although I suspect that an NFS server must also be involved.

Progressive Peripherals' DoubleTalk (\$450-\$500) AppleTalk board allows Amigas to network between each other using the peer-to-peer networking software provided. It also lets the Amigas link into an existing AppleTalk network, enabling them to share files with Macs and print to the AppleTalk ports of laser printers connected to the network.

While AppleTalk is slow compared to Ethernet- or even Arcnet-based systems, it is also much less costly, because you do not need a separate file server to run the DoubleTalk network.

NET SETS

In the sidebar "The Ultimate Setup," I describe the optimum system for a desktop-publishing venture. Although I think it is the ideal solution for working efficiently to handle whatever your client gives you, the setup is also quite expensive. If you do not have the budget to install and maintain such a system—or if you want to begin on a smaller scale—then you can use just parts of the system. ►

The installation of the Macintosh Netware software was also simple. One annoying limitation of the Macintosh, however, is its inability to run both AppleTalk and EtherTalk at the same time. This meant that we could not bridge the network between Netware and AppleTalk unless we installed an AppleTalk card on the file server, which would increase the server's work load.

The Amiga client software is not only easy to set up, but also offers the most elegant and complete interface of the three systems. Oxxi's very thorough ACS includes most of the utilities you need to manage and control the network. These have the same functionality as the PC-version utilities, but the ease of use of Amiga software. You can set directory and file restrictions for individuals, groups, or all users, and you can even restrict access times. You can view and modify the printing queues and use the included hard-disk backup program to back up the network drive—including both the resource and data forks of Macintosh files. (I often

use this feature to transfer resource forks from the Mac to the Amiga; it lets me avoid first having to convert the Mac files to machinary format.) A message facility lets Amiga users send messages to other network users.

Access to the network drive from the Amiga is very fast, even using Arcnet cards. In fact, I found it faster than some Amiga peer-to-peer networks operating with Ethernet.

HOW IT WORKS

To demonstrate how the system works, I will describe the execution of a typical project—creating a full-color brochure for a client.

We received the WordPerfect-format text by modem on the Mac SE, which automatically saved it to the network drive. We edited and formatted the text on one of the PS/2 machines using WordPerfect.

We scanned the color pictures into an Amiga 3000 and saved them to the network drive in either TIFF or TGA format. From there, we loaded the pictures

into the Macintosh IIfx (equipped with a 24-bit graphics card) running Adobe's PhotoShop. We used PhotoShop to modify and color-correct the images and to do photo montage and other special effects (which I would like to be able to do on the Amiga!). We saved the finished images to the network drive, and from there loaded them into Gold Disk's Professional Page on an A3000.

After color separating the images on the Amiga, we sent them to the printing queue serving the imagesetter. Meanwhile, we downloaded extra Adobe Type 1 fonts (which the brochure required) to the imagesetter using the Macintosh. Finally, we shipped the imagesetter-produced film to the printer.

With the network, we were able to use components created on any of the three machines with layout and illustration software on any of the other machines. For example, we converted fonts and Adobe Illustrator files from the Mac for use on the Amiga, and we typeset Amiga-generated text with PageMaker running Windows 3.0 on the PCs. —ES □

If, for example, you do not have an in-house image-setter, you can save your huge, color-separated PostScript files to removable hard disks and send them to an output service. Another option is to compress your files with such public-domain utilities as **ARC**, **ZIP**, and **LHARC**, some of which have counterparts on the Mac and PC. You may be surprised how large a compression factor you can obtain with PostScript files.

Faster than compressing is backing up files with something like **QuarterBack** (\$69.95, *Central Coast/New Horizons*) and restoring them to the hard disk of your service bureau's Amiga.

If you have Amigas, Macs, and PCs, but cannot afford a network, you can connect the computers via serial cables and use terminal software to transfer files. Set the machines to the highest baud rate available and use a protocol such as ZModem to transfer the files. With ZModem, you do not have to bother naming the files at your destination, but keep in mind when sending PC files that the file-naming conventions of that system demand a name of not more than eight characters, plus a three-character extension. Serial connection is a slow transfer method and should be used only if you cannot fit the compressed files onto a floppy disk (which happens often if you deal with color separations and 24-bit images).

Using one DoubleTalk card, an Amiga, a Macintosh, and an AppleTalk laser printer, you can set up the beginnings of a larger system. This setup lets you use the Amiga for layout and design work, and for creating 24-

bit ray-traced images that you can then transfer to the Mac, taking advantage of its 24-bit image-editing facilities and printer control.

You can construct a similar system with an Amiga and a PC. You could attach a high-capacity removable drive to each machine and use MultiDOS or CrossDOS to read and write files directly from your Amiga applications onto MS-DOS-formatted cartridges. By using **Aldus PhotoStyler** on the PC for your 24-bit editing needs, and **Professional Page**, **PageStream**, or **Saxon Publisher** on the Amiga, you'd have a fairly capable system.

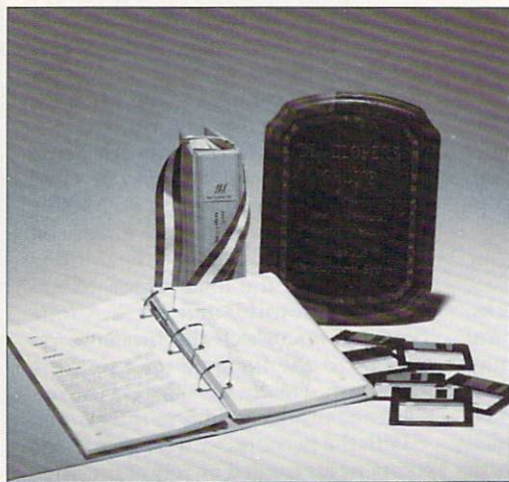
If possible, try to purchase a color scanner that you can use on your Amiga, Mac, or PC, depending on your software preferences. With the Mac and PC, you can edit the files immediately after you scan them. With the Amiga, on the other hand, you have the advantage of scanning much faster than on the other systems. If you need to scan numerous pictures without major editing, the Amiga will save you time. Then, you can transfer to other machines any files that need editing.

As you can see, it is possible to successfully integrate the Amiga into an environment involving other computer platforms. It's not a question of "fight or switch"; it's simply a matter of joining forces to best serve the customer...and to make things easier for yourself. ■

Eyo Sama was editor and publisher of the former Amigo Times, a full-color magazine created entirely on the Amiga. He currently works as a consultant, author, and developer.

And the Winner Is. . .

The SAS/C® Development System



Selected as the best professional productivity software at the 1991 North American Amiga Developers' Conference, no other C compiler delivers more powerful or efficient programs for the Amiga® than the SAS/C Development System from SAS Institute Inc.—one of the world's largest independent software companies.

The SAS/C Development System offers a host of impressive features for Release 5.10:

- A workbench environment
- Release 2.0 support
- Improved code generation
- Additional library functions
- Point-and-click program to set project options
- Automated utility to set up new projects
- Source-level debugger
- Integrated editor
- Global optimizer.

Run with the SAS/C Development System!

You'll come out a winner too. To order or for more information, call SAS Institute at 919-677-8000, extension 5042.

SAS and SAS/C are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries.
® indicates USA registration.
Other brand and product names are trademarks and registered trademarks of their respective holders.



SAS Institute Inc.
SAS Campus Drive
Cary, NC 27513

Circle 40 on Reader Service card.



**A COMPLETE
WORKSTATION
ON A
SINGLE CARD!**

FAST SCSI-2 DMA HARD DRIVE CONTROLLER

**+ 28MHz or 33MHz 68040
ACCELERATOR**

**+ 64MB HIGH-SPEED 32-bit
RAM EXPANSION**

**= THE ULTIMATE AMIGA 2000
POWER PERIPHERAL!**

FAST SCSI-2 DMA HARD DRIVE CONTROLLER

for synchronous data transfer speeds of up to 10 megabytes per second with fast SCSI-2 drives...up to 10 times the speed of many Amiga hard drive controllers! Autobooting with full DMA access to Zeus's onboard 32-bit RAM. Zeus supports Synchronous AND Asynchronous SCSI-2 drives, and standard SCSI drives on the same SCSI chain!

28MHZ 68040 CPU with built-in floating point processor for lightning-fast acceleration. Zeus is over 23 times the speed of a standard Amiga 2000, and 3 to five times the speed of 25MHz Amiga 3000 systems! Easily upgradeable to 33MHz CPU when available from Motorola.

64MB HIGH-SPEED 32-bit RAM expansion using standard 1MBx8 or 4MBx8 80ns, 60ns, or 40ns fast page or static column SIMM modules (faster performance with faster RAM). Add RAM easily for contiguous configurations of 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 48, 52 or 64MB.

IMPROVED PERFORMANCE with many standard SCSI hard drives. Supports "Rigid Disk Block" standard - just move your existing drive over and you're up and running - no reformatting necessary! Zeus supports full DMA from standard SCSI drives.

FAST and COMPATIBLE with AmigaDOS 1.3, AmigaDOS 2.0, the Video Toaster & Lightwave, Imagine, PageStream, Professional Page, ASDG's ADPro, genlocks, video peripherals, and a wide variety of other Amiga hardware & software products.

ADVANCED HARD DRIVE SOFTWARE for easily installation, partitioning and formatting of nearly all SCSI and SCSI-2 hard drives. Use the easy "automatic" mode, or set up FFS, old file system, or custom system configurations.

68040 SOFTWARE UTILITIES included for optimization and full control of the 040's unique cache modes and high-speed floating-point software library.

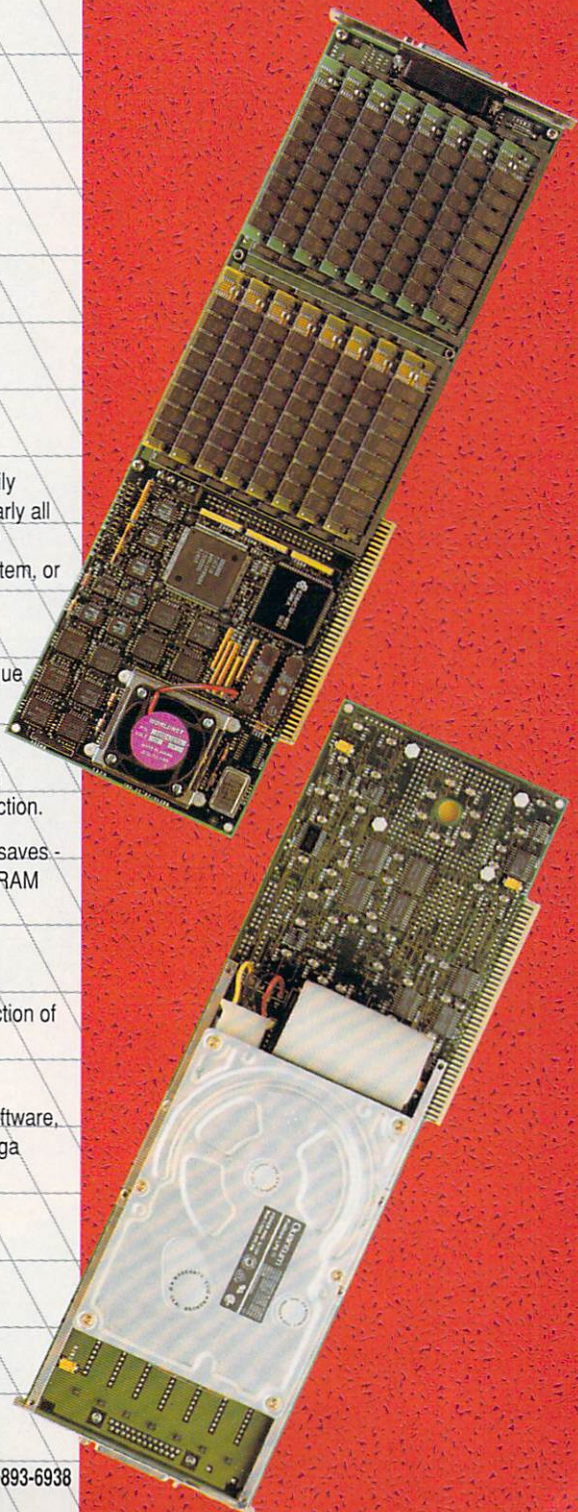
FULL 1-YEAR WARRANTY backed by PP&S's commitment to service and customer satisfaction.

NO MORE WAITING for hard drive loads and saves - Zeus reads and writes data with super-fast "RAM disk" speed!

FOR 3-D, "TOASTER", ANIMATION, VIDEO, DESKTOP PUBLISHING and countless other applications, Zeus gets the job done in a fraction of the time. Zeus is the ultimate productivity workhorse!

Zeus. From Progressive Peripherals & Software, world leader in the fastest, most reliable Amiga accelerator technology.

*Attention Progressive 040/2000
Accelerator Users: Call for
upgrade information.*



All trademarks acknowledged. Product specifications subject to change without notice.

Progressive Peripherals & Software • 464 Kalamath St. • Denver, CO 80204 • Phone (303) 825-4144 • Fax (303) 893-6938

Circle 150 on Reader Service card.



A Brand-New BENCH

GETTING THE MOST FROM WORKBENCH 2.0—PART II

THE VISIBLE DIFFERENCES between Kickstart 2.0 and 1.3 are like the very large tip of an even more gigantic iceberg: While just a cursory look reveals that much has changed, even greater, more significant differences lie hidden beneath the surface. These hidden changes in 2.0 take the form of new programming tools and operating-system routines that give programmers more flexibility than ever in creating powerful and easy-to-use programs. And while the visible changes in the operating environment are easy to spot, the effect of the new programming tools is apparent only when they result in new features in applications software.

*More than simply
enhancing Workbench
operations alone, new 2.0
features will also make many
applications programs more
powerful, flexible and
easy to use.*

Until recently, 2.0 was available only on the A3000, so few commercial programs have added such "2.0-only" features. Now that 2.0 is an option for all Amigas, and will soon become standard equipment, more and more programs will be adding these advanced features. Let's take a look, then, at what the new programming features mean to the current 2.0 owner, and also what we can expect in the near future. (To locate vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 84.)

EMPHASIS ON "APPLICATIONS"

Among the more widely-used programming enhancements to 2.0 are the calls that provide applications with access to the Workbench and its icons. These calls let programs create new objects known as AppIcons, AppWindows, and AppMenus. AppIcons are icons that appear in the Workbench window. Although they look like normal icons, they don't necessarily act like them. The program that creates an AppIcon is notified whenever the user double-clicks on the icon or drags another ▶

By Sheldon Leemon

icon on top of it; it is then up to the program to decide what to do next.

Version 3.2 of **ProWrite** (\$175, *New Horizons*), for example, opens an AppIcon that's called "ProWrite Deposit." When you double-click on this icon, it brings the ProWrite screen or window to the front and activates it. When you drop the icon for a text file on it, however, it loads that text file into ProWrite.

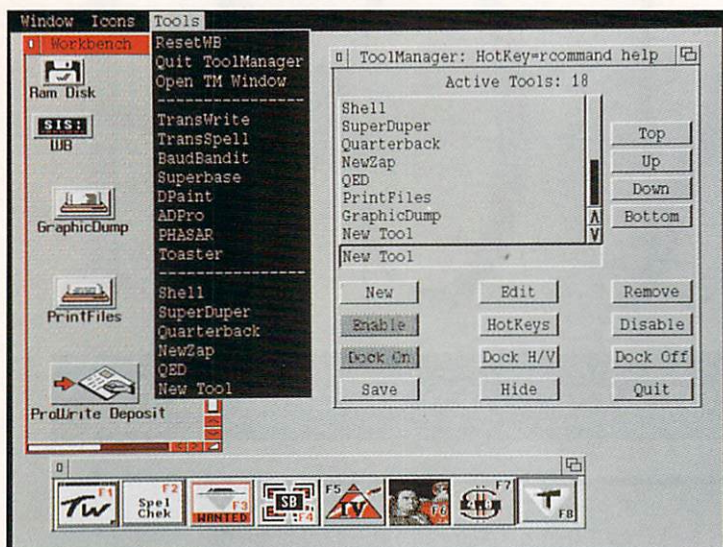


Figure 1. Stephan Becker's ToolManager lets you take advantage of 2.0's new "App" features. AppMenu support allows you to add your own applications to the Workbench Tools menu. AppIcon support allows you to put your own icons on the Workbench window. From the screen above, you can print a file or show a graphic by dragging its icon to the appropriate Workbench icon. The dock window at the bottom of the screen (which lets you launch a program by clicking on its icon) is also an AppWindow, so you can load a data file into a program by dragging its icon to the picture of the program.

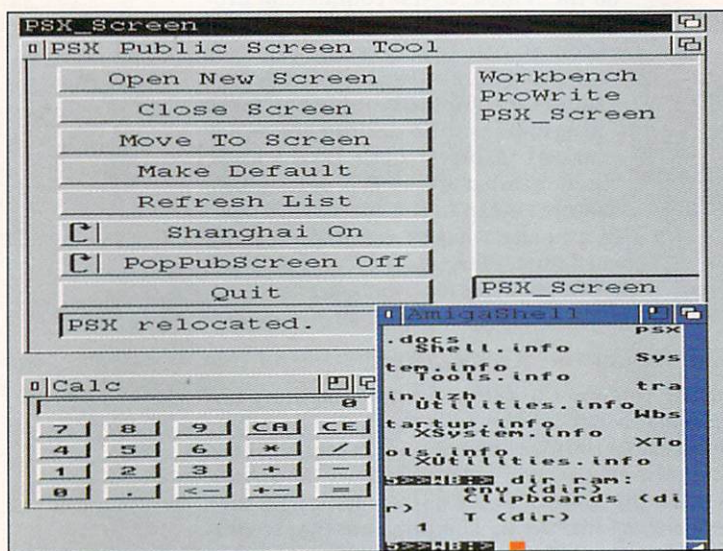
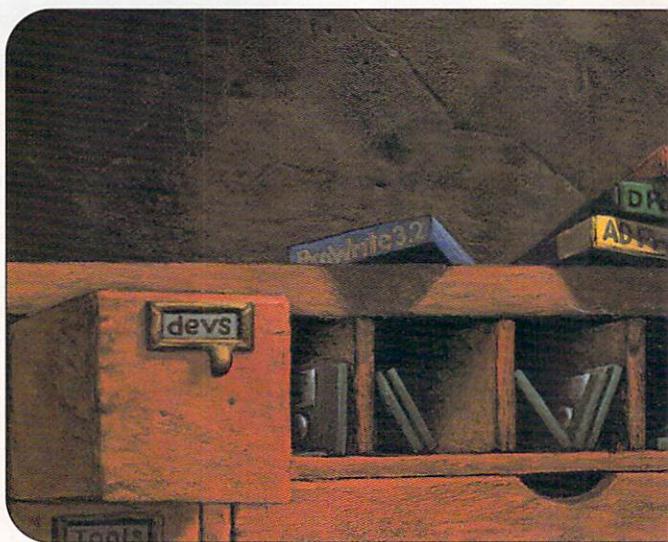


Figure 2. With Steve Tibbett's PublicScreenX, you can create public screens and "shanghai" Workbench applications to them. Here, the PSX Screen Manager, a Shell window, and the Calculator have all been opened on a low-res, interlaced public screen.

The third way in which a program can make its mark on the Workbench is through the use of AppMenus. This new facility allows a program to insert one or more menu items on the Workbench Tools menu. AppMenus have spawned a large number of freely-distributable tool-menu managers, including AddTools, ToolsX, and ToolMenu, all of which allow you to list your favorite programs as menu items and to start them right from the Workbench menu.

My favorite, though, is Stefan Becker's **ToolManager** (*Fred Fish* #551), which uses all three of the "App" features (see Figure 1). Its configuration window uses an AppWindow, so you can add programs to the menu bar simply by dragging their icons onto the list. It also lets you create an AppIcon for any program. This means, for instance, that you can make an AppIcon out of the PrintFiles program and print any text by dragging its icon over the picture of the printer.

Using Recolor, you can change the colors of mul-



iple icons by shift-selecting them and choosing a menu item, instead of dragging them all to the AppWindow. When you run ProWrite 3.2, for example, it adds an item to the menu bar that lets you flip directly to the ProWrite screen.

GOING PUBLIC

One new 2.0 feature that you will probably hear a lot more about in the future is the "public screen." Kickstart 1.3 allows for only two types of screens, the Workbench screen and custom screens. Many different programs can open their windows on the Workbench screen at the same time, but they all have to accept the graphics mode, resolution, and number of colors of that screen. Custom screens let the program choose the mode, resolution, and number of colors—but only one program can open its windows on that screen.

Kickstart 2.0 introduces a new type of screen, the public screen, that extends the usefulness of custom screens beyond such limitations. You can use public screens like custom screens that allow other applications to open "visitor" windows on them. Visitor windows might include such utilities as color-palette ad-

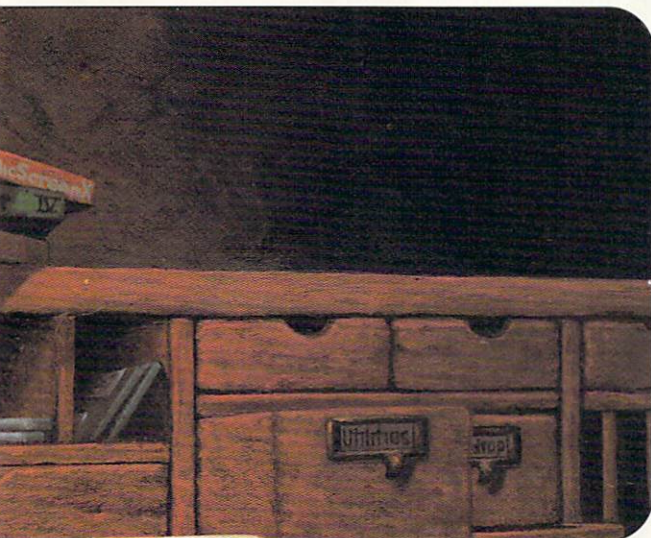
justers, magnifier windows, clipboard managers, or any one of a dozen other “parasite” programs. You can also use public screens to create multiple Workbench screens. By setting a special “Shanghai” flag, you can force Workbench applications to open instead on your public screen (hence the term “shanghai,” as in “force or trick into captivity”).

Not many applications use public screens as yet. ProWrite 3.2 does open a public screen named “ProWrite,” and you can also get the program to open on a named public screen by adding a ToolType to the program icon. The best way to experiment with public screens is to pick up a copy of Steve Tibbett’s **Public-ScreenX** program (*Fred Fish* #483). It allows you to open new public screens of varying modes and resolutions, and then to “shanghai” Workbench applications to those screens (see Figure 2).

Kickstart 2.0 also provides some new shared program libraries that make it easier for developers to follow the recommended Amiga style guidelines. Although these libraries may not result in many new

hanced for the 2.0 release. The console device is now font-independent. This means you can employ just about any font with applications that use a console window for text display, such as the Shell and the system text editors. New console windows wait for a click on the close gadget, which makes them much more useful for displaying the output of CLI-only programs that you can now run from the new Workbench.

The clipboard device, which was designed so you could exchange IFF text and graphics data between applications, has been enhanced to be more suitable for that purpose. Console windows now use the clipboard for copy-and-paste operations, which makes it possible to copy text from a Shell window into an Ed edit window (see Figure 4, top) or into the window of any other application—such as **Final Copy** (\$99.95, *Softwood*) or the freely distributable TurboText and VLT—that uses the clipboard for cut-and-paste procedures. I hope other programs will follow suit, thus helping to expand the clipboard into an exchange medium that supports dynamic updating.



applications-program features, they should make some of the standard features more common and their implementation more uniform.

For example, the ASL library makes it easier to use the standard file and font requesters. The result is that nearly all of the Workbench programs—including the Preference editors, IconEdit, the More Utility, and even Ed, the CLI text editor—present file requesters that allow the user to select the file to save or load. Some programs, such as ProWrite 3.2, even allow you to substitute the standard ASL file requester for their own.

Another new shared library, the GadTools library, makes it simple to create sophisticated gadgets and menus that respond appropriately when the user changes the default system font to something other than Topaz 8. **Art Department Professional 2** (\$299, *ASDG*) uses these tools to create a chooser window that allows 2.0 users to select multiple-choice options from a list, rather than toggling through them one at a time (see Figure 3).

DEVICES FOR YOUR DESIRES

Some of the familiar AmigaDOS devices have been en-

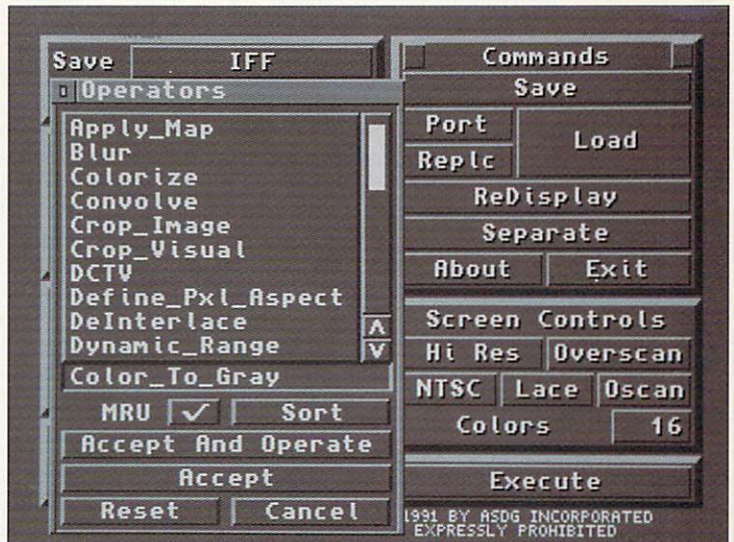


Figure 3. When you run ASDG’s **Art Department Professional 2** from Kickstart 2.0, the program presents you with a chooser window instead of making you toggle through multiple-choice options.

Another AmigaDOS device receiving a facelift in 2.0 is the narrator feature, which you use to produce synthesized speech. The new narrator speech model is more complex than the old one, providing many more controls that allow you to produce more interesting and natural-sounding speech. These include an enthusiasm control that makes the voice sound more or less “excited,” a perturb control that can make the voice “shaky,” and an articulation control that lets you adjust the speech from sharp and deliberate to slurred.

Other controls allow you to make the speech sound throatier or more nasal, or even to change the way vowels are pronounced in order to create regional accents. The only program that currently allows you to experiment with these narrative improvements, however, is the freely-distributable **SpeechToy2** by Chris Demiris (see Figure 4, bottom). ►

The Compugraphic outline-font technology introduced in Workbench 2.0 mainly provides support for screen fonts, but the technology will certainly produce software that provides smooth-looking text of almost any size. ProWrite 3.2 is the first program to use the Compugraphic system-font support for printing, but others are sure to follow suit—particularly as Commodore enhances its programing support.

Another font change users will be happy to see is that the system now recognizes ColorFonts, such as the popular **Kara Fonts** (*Kara Computer Graphics*), which provide textured or metallic-looking characters. **DeluxePaint IV** (\$179.95, *Electronic Arts*) users will no longer have to run the ColorFonts support program in order to make use of these fonts.

HARDWARE HELPERS

Finally, 2.0 provides software support for a wide variety of optional hardware. Programs can open custom screens in Productivity or SuperHires modes on machines that have ECS (Enhanced Chip Set) Agnus and Denise chips. So far, ProWrite 3.2 is the only piece of productivity software to take advantage of this option. On the video side—which is what SuperHires was designed for—**Broadcast Titler 2** (\$389.95, *InnoVision Technology*) is the first program we are aware of to support that mode's 1472x480 display.

The ECS chip set also offers new genlock modes that allow you to replace color registers other than zero with video, but so far we have not seen any software developed to control this new capability. Even

if you do not have the ECS Denise chip, the ECS Agnus allows you to switch from NTSC (the US display standard) to PAL (the European standard) under software control; most 1084 or multiscan monitors can be adjusted to display either format correctly.

It is possible to control the Workbench screen from the ScreenMode Preference editor, but it is up to the individual applications to control their custom screens. AD Pro 2 will open a PAL screen if you request that display mode, and the freely-distributable **AmigaToPAL** and **AmigaToNTSC** programs by Nico François (*Fred Fish* #575) will "trick" any application into opening its custom screen in the desired mode. This makes it much easier to use European software in the US, and vice versa.

Kickstart 2.0 also provides support for the 68040 processor, the fastest chip in the Motorola 68000 family. As this processor becomes more common, 2.0 will help Amiga users to run their programs faster than ever before.

MUCH MORE TO COME

While we have already begun to see the appearance of software with features that would not be possible without 2.0's programming support, there are many new, powerful functions that are still untapped. For example, Intuition now provides support for Menu Help, a feature by which the user can receive an explanation of a program option by holding down the Help key while selecting the menu item for that option. While there are not many programs using Menu Help yet, it is likely to become a widespread feature in the future.

Another relatively unexplored attribute is 2.0's support for scrolling screens that are larger than the display. Such screens would let desktop-publishing applications update a whole page at a time, rather than building a small part of the display based on which portion is currently showing. This feature requires a lot of chip memory, but makes it quite easy to build and display large bitmaps such as those required for a fax program.

A further "hidden" capability of 2.0 is support for cooperative record locking, which prevents two users from changing the same portion of a database simultaneously. This should inspire the first true networking applications for the Amiga.

So, although 2.0 has been a long time coming for most of us, it will still be some time before its full impact is felt. Only in the weeks and months ahead will Amiga users really discover all of the ways in which it can improve both our operating environment and our applications. ■

Sheldon Leemon, a well-respected authority on virtually every aspect of the Amiga, is currently writing a book on Workbench 2.0 for Compute! Books. When he is not writing for computer magazines, you can find him working at Slipped Disk, a Michigan-based Amiga dealer.

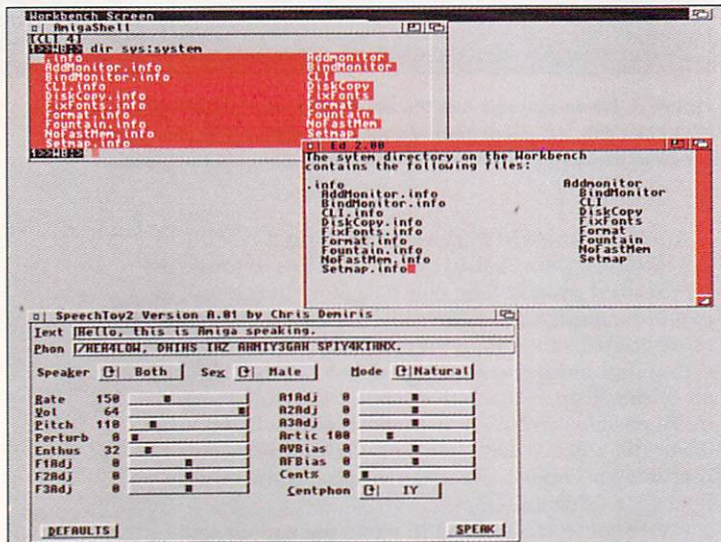
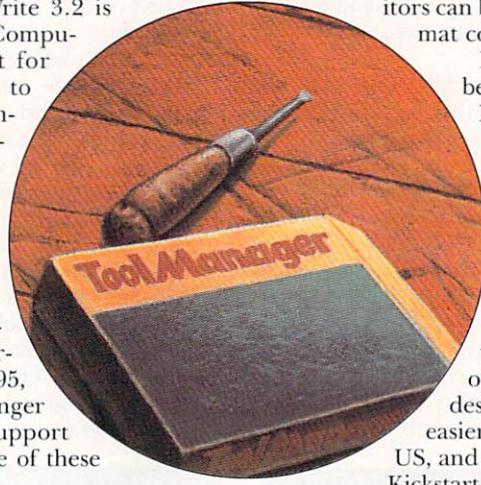


Figure 4. Enhanced 2.0 support for the clipboard device makes it possible to copy a directory listing from a Shell window and paste it to the Ed text editor (top). Similarly, additional support for the narrator device will allow you to use such programs as Chris Demiris' Speech2.0 to try out new synthesized speech options (bottom).



A Cure For The Colorblind Toaster.



It's the new
DPS PERSONAL
V-SCOPE™ card.

The world's
first waveform
monitor and vectorscope for desktop video. A
perfect companion for your Video Toaster®, our
PERSONAL V-SCOPE lets
you superimpose a digitally
synthesized waveform
monitor and vectorscope on
any video signal. So now
you can precisely measure
video levels and test for
true colors. We even
include PERSONAL



Actual Monitor Photos



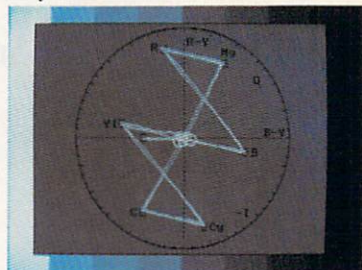
DIGITAL

PROCESSING SYSTEMS INC.

If you want to look your best

TSG Software with more than 30 industry standard test signals for display with your Video Toaster. Buffered video output. Dedicated full-time output and superimpose output. Hardware rasterizer with electronically generated graticule scales. And more. All compatible with AMIGA® and IBM PC®. Use the DPS PERSONAL V-SCOPE by

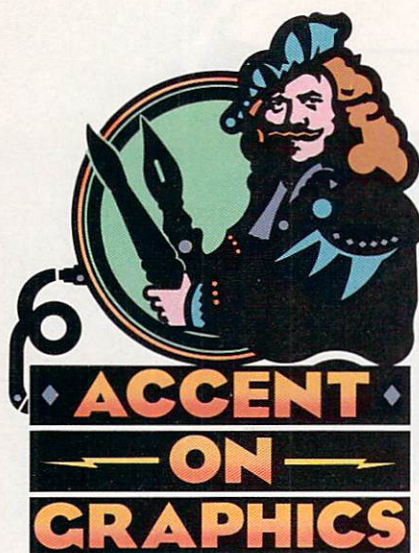
itself or combine with our PERSONAL TBC II card for a fully integrated video processing, manipulating and monitoring system. Best of all, it shows your true colors just for a little green. Only \$995.



Circle 171 on Reader Service card.

55 Nugget Avenue, Unit 10 • Scarborough, Ontario M1S 1L3 Canada • (416) 754-8090 Fax: (416) 754-7046
11 Spiral Drive • Florence, Kentucky 41042 • (606) 371-5533 Fax: (606) 371-3729

Video Toaster® is a registered trademark of NewTek Incorporated. PC® is a registered trademark of IBM Corp. AMIGA® is a registered trademark of Commodore-Amiga, Inc. DPS PERSONAL V-SCOPE™ is a trademark of Digital Processing Systems, Inc. DPS PERSONAL TBC® is a registered trademark of Digital Processing Systems, Inc.



39

A continuing series
of tips, techniques,
and tricks for
creating more
imaginative Amiga
graphics.

By Joel Hagen

Starfields and Asteroids

THE ANIMATED STARFIELDS we see as the "Enterprise" plies the spaceways may not be astronomically plausible, but they sure look great. This month's "Accent" outlines some easy tricks to get you up to warp 7 without busting your asteroid.

SEEING STARS

To try the animated starfield, work in DeluxePaint (Electronic Arts) in a 32-color mode. Set up a palette with a smooth sequence comprising all 16 gray levels from black to white. Establish that as range 1. If you are using DPaint IV, make sure that the range begins on the first position of the Range bar and that each successive position is filled with the next gray value in the sequence as shown in the illustration accompanying this column.

On screen, set up the black sky—which can be anything from a full overscan black screen to a black window in an imaginary control panel. Next, select the straight-line tool with the right mouse button. This brings up the Spacing requester. If you are new to DPaint, this is one of the most under-used features of the program, and the starfield is a great first exercise in which to try it out.

The Spacing requester has four options: N Total, Every Nth Dot, Airbrush, and Continuous. The last of these is the default selection, and it simply draws in a continuous unbroken line with the current brush. Remember that the Spacing requester affects all the line tools except dotted and free-hand. Your settings will apply to straight or curved lines, unfilled circles, rectangles, ellipses, and polygons.

Of the other options, Airbrush draws the line with the current brush, using the airbrush at its current spray diameter. Every Nth Dot draws a line by placing one copy of the current brush at regular intervals along the path of the line. You define the interval by entering a number in the requester.

N Total places a defined number of copies of the brush along the path of the line. If you enter 8 and draw a line, eight brushes will be evenly spaced along that line no matter how long or short it is. For this exercise, select N Total and enter 16, the number of colors from our range.

As a test, select white from the range as a foreground color and draw a straight line with a single-pixel brush. You should see a line of 16 dots. Now select Cycle from the Mode menu, and draw a straight line again. This time you should see a sequence of evenly spaced dots ranging from black to white as shown in the illustration. Undo or erase the test lines and select Frames/Set# from the Anim menu. For reasons that will become apparent, I find it most effective to create a number of frames greater than N Total that has no divisor in common with N Total. Try 25 frames.

On frame 1, position the single-pixel brush roughly in the center of the sky, hold down the Animpainting key, drag a line to the edge of the sky, and release the mouse button. You should see stars painted one by one on 16 successive frames, black in the "distant" center and growing bright at the edge. If the stars start white and grow darker, return to the Range tool and reverse the range. Hit the 4 key to loop the animation, and you will see a convincing animation of a star zooming out of the distance past your screen.

Now build up multiple stars by repeating the line from the center toward different points at the edge of the screen. Do not return to frame 1 for each line; simply begin on any frame you end up on. Because you made the frame count an odd number greater than N Total, each star begins moving on a different frame, adding to the

Create your own "Star Trek" special effects with these simple DPaint animation techniques.

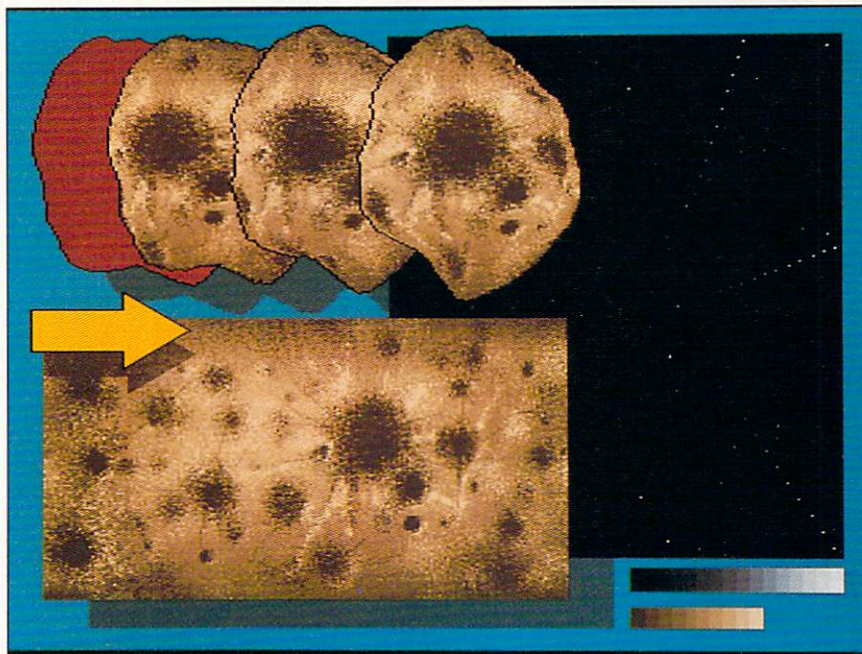
natural feel of the animation. After making ten or twenty star paths, hit the 4 key to see the result. The feeling of motion is quite convincing, enhanced by the growing brilliance of the stars as they near the viewing plane.

AND NOW FOR A DIFFERENT SPIN...

This animation can stand alone or provide a backdrop for other objects, titles, or animbrushes. It serves as a great background for a ray-traced spacecraft or rotating planet. One of my favorite things to add to a starfield is an asteroid with compound rotation. The illustration shows the stages involved in creating such an object. For more detail on making a spinning planet, consult my planet-building article ("Around the World in 80 Frames," Oct. '91, p. 39) or read the tutorial on page 177 of the DPaint IV manual.

This project is a more complex extension of that idea. Briefly, create a map of the surface of the asteroid that is two squares wide, 100x200, 80x160, or whatever. To paint craters, I use the airbrush in Shade mode, with a range like the one shown in the illustration. Set up 25 blank frames to match the frame count of the starfield animation. Use the Move requester to move the map across the screen an x-axis distance equal to the map width. Repeat that move with the map following itself to make a smooth, seamless scroll. Using Animbrush/Pickup, grab exactly half of the area of the moving map—one square.

To create the compound tumbling effect, clear the animation frames and draw a rough-contoured, filled-free-hand asteroid shape in a solid color, like the red shape in the illustration. Pick it up as a brush and, with the Move requester, rotate it 360 degrees on the z-axis over 25 frames. Now set the Fill Type to Wrap and select Animbrush/Use. Hold down the Animpaint key and execute an Anim-Fill on the rotating shape with the map animbrush. Note that Anim-Fills are possi-

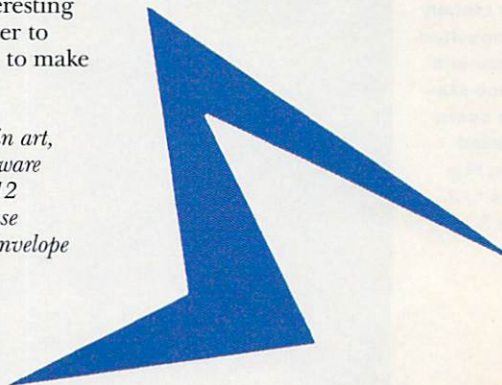


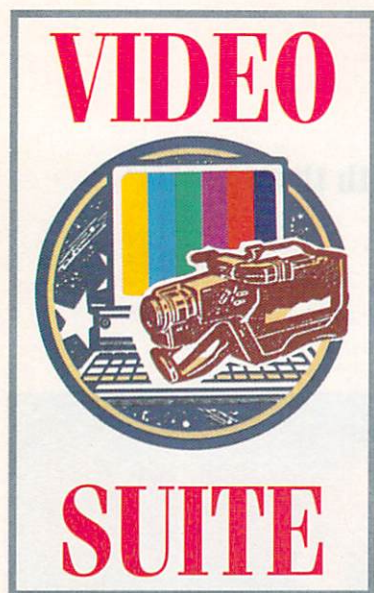
ble only with DPaint version 3.21 or higher. Play the loop to see the asteroid in motion.

The illustration shows three successive frames out of 25. The eye is fooled by the detail of the rotating map into seeing a rough, solid object rotating on its y-axis. Unless your shape was extremely irregular, the z-axis rotation is no longer noticeable. Plant this asteroid in your starfield for an interesting effect, or use the Move requester to add a motion path guaranteed to make any Trekker duck! ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.

"Asteroid and Stars"
(above) shows color ranges and the stages in creating an animated starfield and an asteroid that uses compound rotation.





Crispy Clips with Traveling Mattes

With all the 24-bit advancements of the past year, who'd have thought that a simple black-and-white graphic would be your ticket to high-end video effects?

By Mark Swain

ONE OF THE tricks to using computer imagery in video post-production is mastering the crispy luminance clip. This means to cleanly paste a computer graphic (title, image, animation) over another video source. Yes, a genlock accomplishes this task, but not with a luminance key. Genlocks simply remove color register zero and replace it with another video source, thus limiting a genlock to the Amiga's basic resolutions and color palettes.

When you use 24-bit graphics or single-framed (24-bit) animations over live video, they become video sources, not computer sources. In cases like this, the basic Amiga genlock will not work; you need a luminance keying device, which removes either the brightest or the darkest part of a video source. So, with a graphic containing white text on a

black background, you could replace the black or white with another video source.

The problem in luminance keying arises when the graphic to be keyed has both light and dark properties. For example, take a 3-D ball that is lit with a spotlight on the upper-right side. The rendered 3-D ball would contain a very bright spot on the upper right, but be very dark on the lower left, making it nearly impossible to achieve the crispy edge or luminance clip that you need for the production.

The solution is to use a traveling matte. Also known as alpha channels, key-holes, stencils, and matte fills, traveling mattes serve one very useful purpose—crispy luminance keys. A traveling matte works by using a black-and-white silhouette of the computer imagery to cut a hole in the back-

ground video source. You fill the hole with the detailed version of the graphic. The final result is a cleanly composited image that gives the overlaid graphic crisp edges.

CRISPY MATTE CREATIONS

The first step in creating the traveling-matte effect is to generate the graphics to be overlaid. You can use a 2-D or 3-D graphics package, but always keep the background plate in mind. When placing your images, determine what works best with the background video.

Animations that need to match live-action background movements can be troublesome. Consider, for example, the combination of a live-action background of a distant purple planet and a few stars (created by panning a camera over a painting or photograph) and a 3-D space station that orbits the mysterious planet. The background pans from the right, leaving the planet in the screen's lower-left corner, and the space-station animation should match this motion as closely as possible.

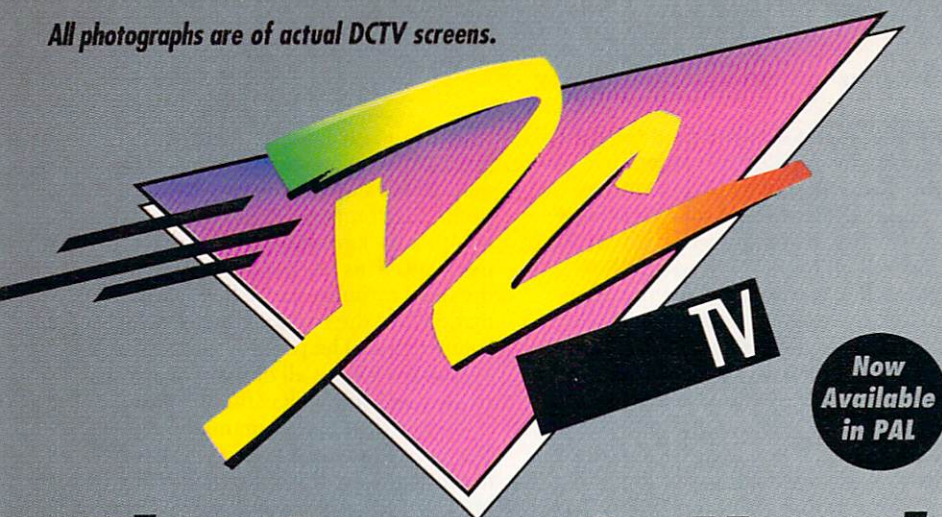
To accomplish this, grab two or three frames of the background at different stages of the live footage to use as a reference in the animation package. If you use the reference frames as backgrounds for key-frame positions of the animation, you can easily place the space-station object in the proper perspective and location. Once you set the key frames, surfaces, and lights, and save the scene, remove the backgrounds and render the space station on solid black. Finally, single-frame the animation to videotape.

You can create a traveling matte for a 3-D environment by simply modifying ►



The cleanly composited space and space-station scene created from Figures 1, 2, and 3.

All photographs are of actual DCTV screens.



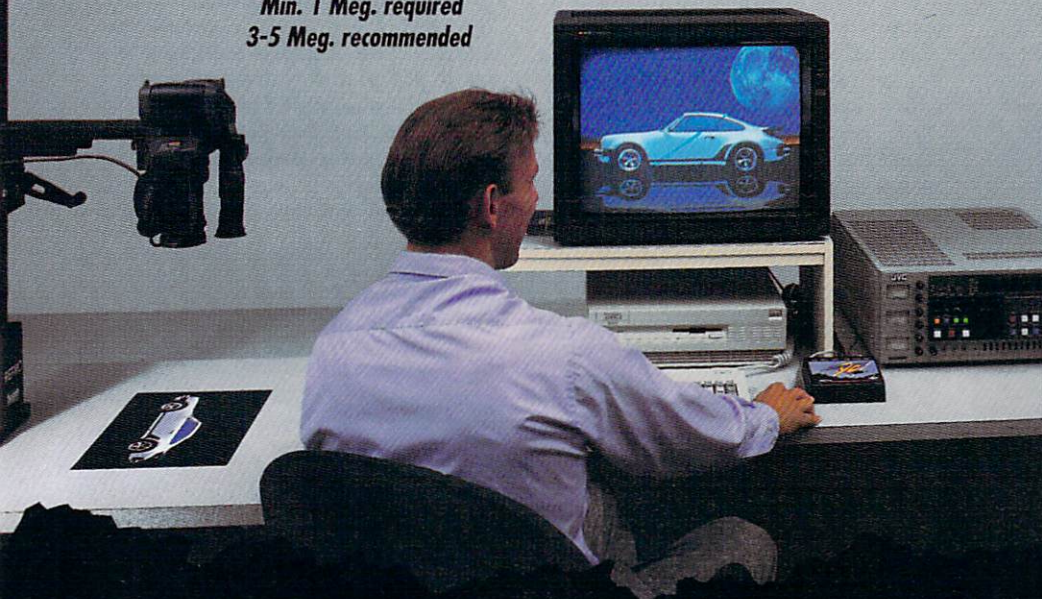
Now
Available
in PAL

The Future Is Here!

- ▲ Paint, digitize and display beautiful full color composite video images on any Amiga.*
- ▲ Capture an image in 10 seconds from any color video camera. (Also works with still video cameras, video disk and still frame capable VCR's.)
- ▲ Convert DCTV™ images to or from any IFF display format (including HAM and 24 bit).
- ▲ Full-featured paint, digitize and conversion software are included. DCTV™ is a complete system, right out of the box!
- ▲ Create spectacular 3D images and animations. Compatible with all popular 3D programs.

\$495

*Min. 1 Meg. required
3-5 Meg. recommended



Digitize and process full color composite video images in millions of colors.



Sophisticated true color video paint, digitizing and image processing software are all combined into one easy to use package.



Create beautiful full color video images with all popular Amiga 3D programs.



Animate video quality DCTV images in real time using popular Amiga animation creation tools.

DCTV (Digital Composite Television) is a revolutionary new compressed video display and digitizing system for the Amiga. Using the Amiga as a compressed video buffer, DCTV creates a full color composite video display with all the color and resolution of television.

DIGITAL

CREATIONS

Telephone 916/344-4825 FAX 916/635-0475

©1992 Digital Creations. Amiga is a registered trademark of Commodore Business Machines. Patents applied for.

Circle 16 on Reader Service card.

your finished 3-D scene. First, remove all texture maps or surface details that you added to the original animation. Then change each of the surface colors to white (255 in each of the RGB sliders). The matte should contain only black and white, so you must turn off the object's shading. Of the three basic ways to do this, choose the one that works best for your 3-D animation program:

Method 1: Remove all lights from the scene. In LightWave (NewTek), change the first light's intensity to zero. Next, increase Ambient light to 100 percent.

Method 2: Remove all lights, as above. Turn on LightWave's Luminous function or Imagine's (Impulse) Bright function for all surfaces. The Luminous and Bright functions cause the object always to be the surface color, white.

Method 3: Change the Diffuse value for all surfaces to zero percent. Then turn on the Luminous or the Bright function as described above.

Finally, make sure the animation will be rendering on a black background. With the changes complete, test-render a few frames to make sure you get a crisp black-and-white traveling matte. Now, render it, save all frames, and single-frame the traveling matte to tape.

EDIT POINTS

With your three video-tape sources in hand, head to the editing room to assemble them into a composited animation. To accomplish a traveling matte in which all three video sources are live or moving (as in our example), you need a video-tape recorder for each source, another to record the final composite, and a switcher. Your first step is to connect the VTRs and switcher. Start with source A, the background, on the program bus. To cut the hole in the background source, input source B, the traveling matte, to the external keying

portion of the switcher. Feed the final source, the detailed 3-D animation, into the matte-fill section of the switcher.

Editing all of these sources is fairly easy. Using a computerized editor that controls all four VTRs, you do little more than synchronize the traveling matte, the animation, and the background. The alignment of the matte and the animation must be frame-accurate, however, or you'll flub the effect. In the final result, the traveling matte cuts a hole in the background that the detailed animation then fills.

This example, with four VTRs, is, of course, an extreme case. One way to cut down on the amount of equipment is to use a D2 recorder or a digital disk recorder (DDR). D2 recorders have the ability to record and play at the same time: You could play the background on the D2 and record the final composited video over the original background. The obvious problem with this method is that you erase the master background video source. DDRs are similar beasts: You could record the background to side A of the disc and the final composited video to side B. This method has the advantage of not erasing anything in the process.

A third way to cut down the number of high-ticket items required is to make one or two of the sources still. For example, you could freeze the background on a still store or time-base corrector and composite it with an animated traveling matte. Or, the matte could be a still logo over a live background.

Another ultra high-end method is to composite with a DDR and a Video Toaster (NewTek). DDRs are very expensive (\$30-180K), but if one is within your reach, this is a nifty compositing idea. The recorder accepts both video-source and alpha-channel (traveling matte) input. The Toaster can output two signals—program and preview.

Thus, if the program bus outputs an animation frame, and the preview bus outputs the matte, then you can composite the computer imagery very cleanly with a background video source on the DDR. This method also eliminates the need to single-frame both the animation and the traveling matte before compositing. The process composites and single-frames all of the imagery in a single pass—no VTRs and no editing.

The process is very manual, however. You must load each frame of the animation and the traveling matte, and operate the recorder manually. The only way to automate this process is to save all of the frames (animation and matte) in LightWave as framestores and to sequentially load them into the Toaster's switcher, using a clever AREXX script. The script should allow you to load the next frames into the correct busses by pressing a key, leaving only the DDR on manual operation.

CRISPY TOASTER CLIPS

The Video Toaster is the perfect device for demonstrating the effects of a simple traveling matte. First, create the image and the matte in LightWave. Start by entering LightWave with a click of the 3-D button in the Toaster's switcher. Next, select the Object menu and load the urn from the phonebook. The default positions of the object and camera are fine, but you should adjust the light. Move it to the urn's far left or right, creating a dramatic effect, with one side of the urn lit and the other dim.

Next, select the Camera menu and turn off Overscan, switch on Letterbox, and select the Antialias rendering mode. If you wish, you can alter the surface characteristics of the urn before rendering. The final step in LightWave is to click the render button and wait. When the urn is finished, return to the Scene menu and click Enter Switcher. ▶

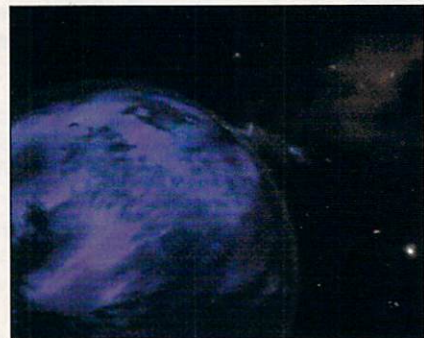


Figure 1. The space background plate, which is set on the Video Toaster's program bus.



Figure 2. The overlay image of the space station, which is set on the Video Toaster's overlay bus or the key-fill portion of most switchers.

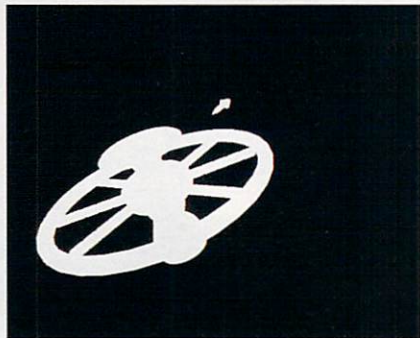


Figure 3. The black-and-white traveling matte of the space station, which is set on the Toaster's preview bus or the external-key portion of most switchers.

GO FROM MUSICAL MESS TO OVERNIGHT SUCCESS

WITH
SUPER

JAM!

The world of music is yours for a song with SuperJAM!, music software for the tone-deaf and talented alike. Its ability to write music in an unlimited number of styles will open your ears to fresh ideas, exciting rhythms, and mesmerizing feats of all kinds.

Never before has writing music been so easy! Using SuperJAM!'s expert features, you can create your own chords, rhythms and bass lines, whether you read music or not. You can invent drum tracks, design sections, and combine musical styles at the touch of a button. In fact, you can compose an entire song without ever touching a musical instrument.

With SuperJAM!'s new TurboSound Technology™, you can instantly transform your Amiga into a multi-voiced music machine capable of playing up to 16 different instruments at once*. No additional hardware required! Plus, you can invent and edit your own musical instruments and sound effects using SuperJAM!'s TurboSound editor.

If you own any MIDI-compatible instrument, you can use SuperJAM! to arrange electronic music. And, if you're a BARS&PIPES PROFESSIONAL user, you can seamlessly integrate SuperJAM! directly into BARS&PIPES

PROFESSIONAL's screen and use both programs at once!

SuperJAM! comes complete with everything you need to write music including an on-screen piano keyboard that plays complex chords with the touch of a single key. With SuperJAM!'s Editing Grid, you can play your own drum tracks and accompaniments using only the mouse. You can select from dozens of specially designed instruments – such as piano, bass, guitar, and drums – to create your own individual sound, or to imitate songs you know and love.

Use SuperJAM! to create and synchronize soundtracks for animation, video and multi-media presentations. Play along with your favorite tunes or write the next hit song.

**Soundtrack machine,
backup band, sketch pad,
musical mentor, SuperJAM!**

Create rhythmic and melodic patterns easily.

- MAJOR FEATURES AND SPECIFICATIONS:**
- Designed for novices and professionals alike!
 - On-screen piano keyboard controlled by mouse or keyboard
 - Over 20 infinitely-changeable musical styles, including rock, pop, dance, classical, samba and jazz
 - One-touch chord playing
 - SuperJAM! and solo-mode
 - Ready-made musical arrangements and chord progressions
 - Unlimited amount of chord types including major, minor, sus, 7th, 6th
 - Change styles, patterns, rhythms, tempos, keys and chords "on the fly"
 - Custom chord design and editing
 - Multiple time signatures, instrument types, tempos and styles available within every song
 - Graphical song construction and arrangement
 - Pattern-style editing and recording
 - Graphical section creation and editing
 - Full-featured backup band with 6 players
 - Solo and lead-line recording
 - Snapshot editing and recording
 - IFF sample editing and TurboSound design
 - TurboSound Technology, with more than four Amiga voices playing simultaneously
 - MIDI compatible
 - Writes to SMUS and MIDI file format
 - Seamless on-screen integration with BARS&PIPES PROFESSIONAL
 - Synchronization with leading multi-media applications
 - ARexx compatible
 - Supports standard BARS&PIPES ARexx commands
 - Includes dozens of specially-designed TurboSamples (a \$49.95 value!)
 - and much, much more!

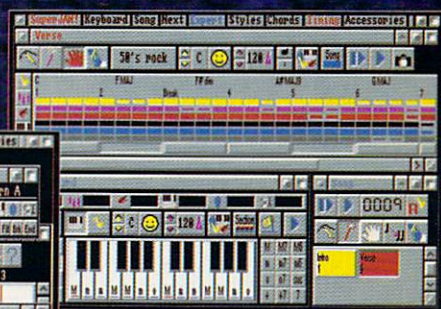
HARDWARE REQUIREMENTS

- Workbench 1.3 or 2.0
- 1 meg of memory
- Amiga 500, 1000, 2000, 2500, 3000

*Results will vary according to your computer's memory and processor speed. A MIDI instrument is recommended but not required. All specifications subject to change. SuperJAM!, TurboSound Technology, BARS&PIPES and BARS&PIPES PROFESSIONAL are trademarks of The Blue Ribbon SoundWorks, Ltd.

SOUND MINDS

See, hear and touch your music.



Integrate
SuperJAM!
seamlessly into
BARS&PIPES
PROFESSIONAL'S
screen

1293 BRIARDALE LANE NE
ATLANTA, GEORGIA USA
TEL: 404-377-1514
FAX: 404-377-2277

THE
BLUE RIBBON
SOUNDWORKS
LTD

In the switcher, select DV1 on both the preview and program busses and save the new image as a framestore.

To create the black-and-white matte version of the image in LightWave, you simply tweak the lights and the surface characteristics. First, return to LightWave from the switcher and enter the Surface menu. The matte image should have no shading, so change the diffuse value to zero percent. Next, change all surfaces to white. You should select the Luminance button for each of the named surfaces. Finally, click the Render button to create the matte image. Return to the switcher and save the matte as a framestore.

To use the matte effect, load the image of the urn to DV1 and the matte image to DV2. Instead of using live video for this project (which takes too much time), enter the Preferences menu and select Video Snow as the background generator. Return to the switcher and select bank D of the effects grid. The Toaster effect that makes the traveling matte possible is the Art Card crou-ton (the keyhole icon). This effect ac-

cepts three video sources, the background plate on the program bus, the source image on the overlay bus, and the traveling matte on the preview bus.

To set up the project, select the Art Card effect, set the preview bus to DV2, the program bus to BKG (Background—or Live Video if you wish), and Overlay to DV1. Next, click on the scissors icon to select luminance keying for black. Finally, set the clip level under the scissors icon. The best level that I obtained was between 30 and 45 (depends on image luminance). Once tweaked to perfection, the urn is cleanly clipped over the video-snow background.

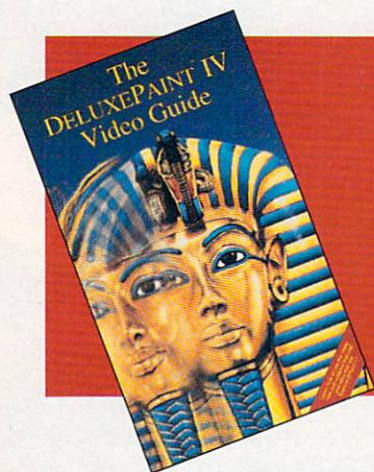
MORE MARVELOUS MATTES

You can use crispy Toaster clips for a number of other sensational special effects. One of the most obvious matte effects is to generate black-and-white text with the character generator or LightWave, and then fill it with a video-source or graphic texture. You could also try painting the matte in ToasterPaint or other 24-bit paint programs.

For example, suppose that in your

next feature video, a scene calls for the back window of your home to overlook an oceanside vista—but you live in the Midwest. No problem for the Toaster matte: First lock down the camera and frame the window scene. Freeze-frame the scene and save it as a framestore. Load the window scene into ToasterPaint and paint the glass parts of the window a solid white. Next, remove everything in the scene but the freshly painted glass. The final result in ToasterPaint should be a black-and-white matte, with the white parts in the exact positions of the glass panes of the window in the live-action scene. Return to the switcher and set up the Art Card effect as described above, with the window matte on the preview bus. The final step is to find video footage of an ocean vista and set the clip. Your property value just skyrocketed! ■

Mark Swain is a California-based freelance writer who does video post-production and computer animation. Write to him c/o AmigaWorld Editorial, 80 Elm St., Peterborough, NH 03458.



Get Even More From Your DeluxePaint™ IV

Two different 60 minute VHS videos to choose from!

Exclusive AmigaWorld Offer!

ORDER NOW!

1-800-824-5499

or **410-543-1989**

Only \$24.95 each

Or complete set for \$39.95

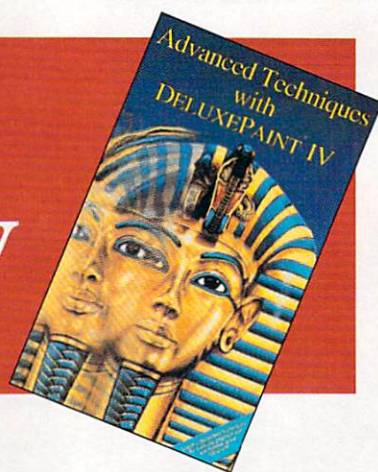
For shipping and handling, please add \$2.95 for one video or add \$3.95 for both. CA residents add 7.25% tax. Canadian orders add 7% GST. Please mail to:

TechMedia Video

PO Box 2151 • Salisbury, MD 21802

DeluxePaint is a registered trademark of Electronic Arts. DeluxePaint IV Video Guide and Advanced Techniques with DeluxePaint IV are products of Saddleback Graphics.

6E2DP



With the **DeluxePaint IV Video Guide**, you will be taken through many of DPaint's features including the new *Menu Structure*, *Metamorphosis*, *HAM* color mode, the new *Gradients* and *Cycle* requesters, the advanced *Palette Mixer* and much, much more! Many examples are shown in any easy to follow, step-by-step fashion. Whether you are a new user, or a seasoned professional, you will be easily shown how to best utilize DPaint IV's features and tools to fulfill your specific graphic and animation needs.

Advanced Techniques with DeluxePaint IV will show you many tips and tricks for combining DPaint's different tools to achieve spectacular effects with professional results. You will be shown how you can create effects such as 3D text, drop shadows, textures, color cycle animation, professional tiling techniques and much more. The various examples demonstrated will be helpful guides for anyone creating video graphics, multimedia presentations, or just wanting to learn more about DPaint IV.

It Takes An Art Department With Connections

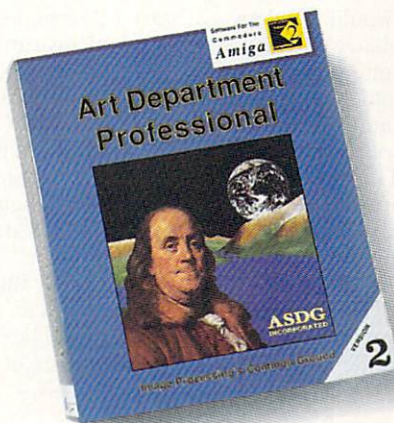


HOLLYWOOD

Sure, talent and good looks help, but in the real world, you've got to have connections.

This is true whether you want to star in pictures or just manipulate them.

Using **Art Department Professional (ADPro)** you can connect to just about any type of color input or output device such as video digitizers (PP&S and GVP), color scanners (Sharp, EPSON and others), film recorders (Polaroid and LaserGraphics), display boards (Impulse, GVP, Digital



Creations, DMI and many others) and all sorts of color and gray scale printers.

No matter which device you're controlling, **ADPro's** advanced image processing, ARexx programmability and powerful format conversion capabilities help you get the best results possible.

So, you provide the talent and good looks and let **Art Department Professional** provide the connections.



925 Stewart Street
Madison, WI 53713
608/273-6585

THE GAME PRESERVE

RED BARON

By Rob Hays

Could you do better against Baron von Richthofen than Snoopy did? **Red Baron** (Dynamix/Sierra, \$59.95) is your chance to test your aerial skills against not only the Red Baron, but also some of the finest pilots on both sides of World War I. From navigation (no satellite positioning system), to coordinated tactics (no radios), to dogfighting (no missiles), this war is up close and personal.

Your choices are many and varied in this game. You can dogfight against a famous ace, fly single missions, or begin a career. Aircraft choices are limited to types that were available at the time, and choosing a historic mission places you in the aircraft that was originally used. If you play the career game, you are assigned to a squadron and stationed in the same towns at the times the historical squadron was there.

You can adjust flight-skill and combat levels, as well as such aspects as the reliability of the guns. In addition to modelling the physical and aerodynamic characteristics



Are you a World War I flying ace?

of the aircraft, the tactics of the historical aces are also included. In real life, von Richthofen would not do a loop in combat, and you won't see him do one here.

The manual is packed with information on the aircraft, as well as historical background on the war and its participants. In addition, you receive area maps and a quick reference card.

There are some stiff requirements if you intend to climb into the cockpit: dual floppies or a hard disk (the

installation program is the best I've seen), one megabyte of memory, and Kickstart 1.2 or higher (there are no problems running under 2.04). True fast RAM (memory attached to the expansion bus) and a CPU speed of 14 MHz or higher are also recommended, for the game is too sluggish to be enjoyable on a standard 7-MHz system.

If you enjoy flight simulators and have an accelerated Amiga, it will be a long time before you tire of Red Baron.

Crib Notes

By Peter Olafson

Maybe it's the moon. Maybe it's spring. (Nah, it's still February as I write this.) Maybe it's the fact that, a few issues back, I pretended to know something about *The Immortal* (\$49.95). But, all of a sudden, I'm getting all this mail about *Electronic Arts'* isometric action adventure, which was released about two years ago. We're short on space this month, so I'm going to tackle a few hot spots in the game, and then move on to some mail-related matters. We'll be back to our usual lack-of-format next month.

• Lots of folks are stranded on Level 4—in each case by a ring of one kind or another. This “level” actually has several sublevels, and one of the rings you need is on the top and largest sublevel, in a place you'd probably rather avoid.

Using the flying carpet, follow the corridor with the firepits to its end. Here you'll find a piece of clothing, and within it a tiny ring. Now, through the door, back to the bend in the hall, across another firepit room on the rug (but do be direct, as the rug has a limited life), and have a nap in the room you'll find in the corridor off the other side.

You'll need to descend the ladder, defeat the trolls at the bottom, and then descend again to find Ana, the ring's owner. In exchange, she'll give you a ring and a clue to the other problem people are having on this level: Clockwise three rings around the triangle. Hey, this looks like Level 2 all over again. Naturally, people think the three rings in their inventory are the three intended. Well, they're right. *Not!* Rings are circles, and you're expected to walk clockwise around the triangle three times. Welcome to Level 5. ▶

BIRDS OF PREY

By Peter Olafson

Electronic Arts' long-awaited flight simulator, **Birds of Prey** (\$49.95) won't knock you out right away. My guess

is that it'll take a few days.

It's set in a mythic surf-and-turf environment pitting a Side A, supplied with

US and European planes, against a Side B that flies Soviet craft. After picking your side and airbase, you ▶

To locate vendors of the games reviewed, see the “Manufacturers’/Distributors’ Addresses” list on p. 84.

NEW

AMIGA ACTION REPLAY MK III

STILL ONLY
\$99.99

AMIGA A500/500+
FOR 2000/1500 VERSION \$119.99

THE WORLD'S MOST POWERFUL FREEZER-UTILITY CARTRIDGE

JUST LOOK AT THE UNMATCHED RANGE OF FEATURES

- **SAVE THE ENTIRE PROGRAM IN MEMORY TO DISK**
Special compacting techniques enable up to 3 programs to fit on one disk. Now saves directly to disk as Amiga Dos - reloads independently of the cartridge - even transfer to hard drive! Works with up to 2 Megs of Ram - even 1 Meg Chip Mem (Fatter Agnus).
- **SUPER POWERFUL TRAINER MODE**
now with DEEP trainer. Even better than before - allows you to generate more or even infinite lives, fuel, ammo. Perfect as a Trainer Mode to get you past that "impossible" level. Easy to use.
- **IMPROVED SPRITE EDITOR**
The full Sprite Editor allows you to view/modify the whole sprite set including any "attached" sprites. PLUS A RANGE OF IMPROVED FEATURES.
- **VIRUS DETECTION**
Comprehensive virus detection and removal features to protect your software investment. Works with all presently known viruses.
- **BURST NIBBLER**
Now this super disk copier program is built into Action Replay Mk III. Just imagine a superfast, efficient disk copier program at the press of a key - no more waiting.
- **SAVE PICTURES AND MUSIC TO DISK**
Pictures and sound samples can be saved to disk. Files are saved directly in IFF format suitable for use with all the major graphic and music packages. Samples are displayed as screen waveform.
- **PAL or NTSC MODES SELECTABLE**
Useful for removing ugly borders when using NTSC software. (Works only with newer Agnus chips).
- **SLOW MOTION MODE**
Now you can slow down the action to your own pace. Easily adjustable from full speed to 20% speed. Ideal to help you through the tricky parts!
- **MANY MORE INSTANT CLI COMMANDS**
like Rename, Relabel, Copy, etc.
- **RESTART THE PROGRAM**
Simply press a key and the program will continue where you left off.
- **FULL STATUS REPORTING**
At the press of a key now you can view the Machine Status, including Fast Ram, Chip Ram, RamDisk, Drive Status, etc.
- **POWERFUL PICTURE EDITOR**
Now you can manipulate and search for screens throughout memory. Over 50 commands to edit the picture plus unique on screen status "overlay" shows all the information you could ever need to work on screens. No other product comes close to offering such dynamic screen handling of frozen programs!!

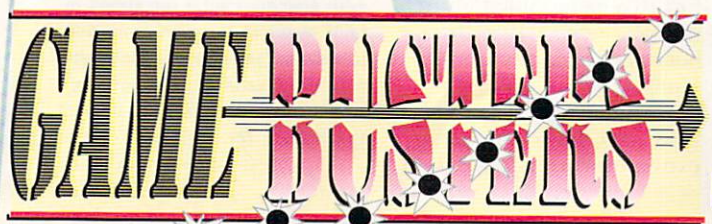
- **MUSIC SOUND TRACKER**
With Sound Tracker you can find the complete music in programs, demos, etc. and save them to disk. Saves in format suitable for most track player programs. Works with loads of programs!!
- **AUTOFIRE MANAGER**
From the Action Replay III preference screen you can now set up autofire from 0 to 100%. Just imagine continuous fire power? Joystick 1 and 2 are set separately for that extra advantage!
- **IMPROVED RAM EXPANSION SUPPORT**
Now many more external Ram Expansions will work with all Action Replay III commands.
- **DISKCODER**
With the new "Diskcoder" option you can now 'tag' your disks with a unique code that will prevent the disk from being loaded by anyone else. 'Tagged' disks will only reload when you enter the code. Very useful for security.
- **SET MAP**
allows you to Load/Save/Edit a Keypad.
- **PREFERENCES**
Action Replay III now has screen colour preferences with menu setup. Customise your screens to suit your taste. Very simple to use.
- **DISK MONITOR**
Invaluable disk monitor - displays disk information in easy to understand format. Full modify/save options.
- **IMPROVED PRINTER SUPPORT**
including compressed/small character command.
- **DOS COMMANDS**
Now you have a selection of DOS commands available at all times - DIR, FORMAT, COPY, DEVICE, etc.
- **FILE REQUESTOR**
if you enter a command without a filename, then a file requestor is displayed.
- **DISK COPY**
Disk Copy at the press of a button - faster than Dos Copy. No need to load Workbench - available at all times.
- **PLUS IMPROVED DEBUGGER COMMANDS**
including Mem Watch Points and Trace.
- **BOOT SELECTOR**
Either DF0 or DF1 can be selected as the boot drive when working with Amiga Dos disks. Very useful to be able to boot from your external drive.

PLUS A MACHINE CODE FREEZER MONITOR WITH EVEN MORE POWER!!

EVEN MORE FEATURES INCLUDING 80 COLUMN DISPLAY AND 2 WAY SCROLLING:-

- Full M68000 Assembler/Disassembler
- Full screen editor
- Load/Save block
- Write String to memory
- Jump to specific address
- Show Ram as text
- Show frozen picture
- Play resident sample
- Show and edit all CPU registers and flag
- Calculator
- Help command
- Full search feature
- Unique Custom Chip Editor allows you to see and modify all chip registers - even write only registers
- Notepad
- Disk handling - show actual track, Disk Sync, pattern etc.
- Dynamic Breakpoint handling
- Show memory as HEX, ASCII, Assembler, Decimal
- Copper Assemble/Disassemble - now with suffix names

REMEMBER AT ALL TIMES YOU ARE INTERROGATING THE PROGRAM IN ITS "FROZEN" STATE WITH ALL MEMORY AND REGISTERS INTACT - INVALUABLE FOR THE DE-BUGGER OR JUST THE INQUISITIVE!



CALL TOLL FREE- **1-800-962-0494** - ORDERS ONLY

GAMEBUSTERS

580 CAPE COD LANE SUITE 3B, ALTAMONTE SPRINGS, FLORIDA 32714.

CUSTOMER SERVICES/FAX (407) 788 7015

*ADD \$4.00 SHIPPING AND HANDLING (\$10.00 CANADA/MEXICO) ALL GOODS SHIPPED 2ND DAY AIR UPS

WE ACCEPT MASTERCARD/VISA/CHECKS/MONEY ORDERS or COD's (ADD \$2)

ORDERS NORMALLY DESPATCHED WITHIN 48hrs.

PLEASE MAKE CHECKS/MONEY ORDERS PAYABLE TO "COAST TO COAST"



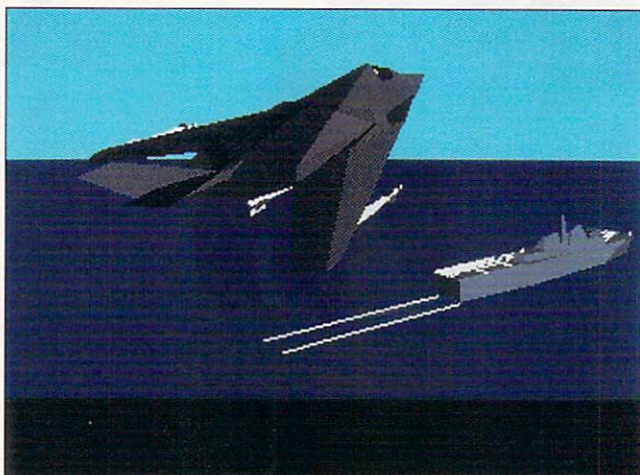
must choose among 12 mission types at four difficulty levels.

And, naturally, you pick a plane. Most flight simulators have only a handful of craft to select from. *Birds of Prey* has 27 Allied and 13 Soviet choices, including the 747 passenger liner, the C-130 prop-driven transport, the F-111 swing-wing fighter-bomber, and the experimental X-29. You can take a B-52H strategic bomber aloft, launch the X-15 rocket plane that's under its wing, and then fly that test-plane-as-missile into near space.

Unfortunately, all these planes have the same cockpit, but they perform with notable differences in flight, and that's the important thing. (The specs are laid out in detail, both in the program and in the last 66 pages of the excellent 188-page manual.)

So how does it fly? Well, I suspect that, at the higher detail levels, BOP would benefit from being played on a faster machine. But the frame rate is acceptable on an unaccelerated A500, and your Hawk Mk. 66—the British trainer that serves as the default craft—begins to zip a bit once that setting is reduced.

That's no great loss, either, as the designers—Jez "StarGlider" San's Argonaut Software—haven't gone out of their way to incorporate much surface detail. (There are, however, some lovely dithered skies and sunrises!) And BOP's invigorating



Forty planes await your command.

sense of speed doesn't rely simply on frame rate. Consider the fly-by feature used when on autopilot—your plane approaching the screen like a bat out of hell, to the accompaniment of the most thunderous engine sounds I've ever heard in a flight simulator.

In addition, Disk 1 of BOP has an astonishing introductory animation, whose speed and smoothness recall the demo for Psygnosis's forthcoming CDTV title, *PlanetSide*. Disk 2, however, is also bootable, so you can run the program without the intro. Nice touch!

The plane controls and information screens are also slick. The results of each key press are clearly reported on screen.

The program also has its share of oddities and rough patches. If you switch to side view when climbing,

the plane appears to be descending. BOP's save-and-load pilot screen is slow. The hard-disk installation script doesn't work as advertised. (Electronic Arts has indicated that Argonaut plans to produce a bug-fix revision.)

Actually, I don't share the most frequent complaint I've heard—that the computer-controlled rivals aren't aggressive enough. For me—an experienced but not-very-good Amiga pilot—they were just tough enough. Besides, this is more of a flying game than a fighting game, and I loved zipping from one modest battle to the next.

Even after four years of work, BOP is not the ultimate Amiga flight simulator. Sorry; that is still to come. So forget what you've heard, and start over. Give *Birds of Prey* a chance. It's fast and it's fun. I think you'll like it.

Back in the February issue, I told you how to get around the dragon at the bottom of the dungeon—a nasty customer—but not the old wizard Mordamir who follows him. (And he's much worse, as you've probably guessed by now.) I know, I know, you set out to save Mordamir. But hey, life goes on, people change and you look at things a little differently eight levels down when your old master steals your protection against the dragon and stands across the chasm sending lightning bolts at you.

Don't lose your cool. Like your encounter with the dragon, this requires timing and the right equipment. Your statue spells can handle the lightning, and when Mordy switches tactics to Sonic Blast, use Sonic Protection. He'll then come back to lightning again, and you should be left with one statue to fend off the spectre he sends against you—almost done now. You don't need to attack him. Just invoke the Magnetic Hands spell to remove his defense (the amulet), and let the dragon do his worst.

• **I Get Mail Dept.:** By the way, thanks to everyone who wrote to let me know about the story branch in *The Secret of Monkey Island* (Lucasfilm, \$59.95) that grows when you sink your ship with the native sculpture. No, it doesn't really affect anything, and, yes, it's worth trying for the fun of it.

Dan Collier, of Lake Wales, Florida, also filled me in on another scene I hadn't come across. It's apparently triggered if you steal the vase from the governor's mansion before completing the other two missions assigned by the Three Important-Looking Pirates. Dan indicates that if you get the meat from the kitchen at the Scumm Bar and the petal from the maze and then go directly to the mansion, the Gov and Guybrush have "quite a love scene" when Guy comes out of the water. Sheesh. Sounds like an Obsession commercial. Where that's saved-game file? Thanks, Dan!

By the way, you've probably noticed that I'm not dealing much with specific reader questions in print anymore (or even promising to answer 'em). I occasionally get mail like some people get firewood—"oh, just stack it up behind the house, Mr. Postman"—and

Continued on p. 64.

BATTLE ISLE; FIRETEAM 2200

By Neil Randall

The only similarity between *Battle Isle* (UBI Soft/Electronic Arts, \$49.95) and *Fireteam 2000* (Sim Systems/RAW, \$49.95) is that they're both science-fiction war games. In operation, quality,

and enjoyment, they're completely dissimilar. The enjoyment, unfortunately, derives from only one.

First off, let me get a gripe out of the way. *Battle Isle* is much too similar for com-

fort to a game called *Military Madness*, a 1989 TurboGrafx-16 game from Hudson Soft.

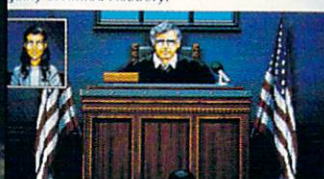
With that said, I must also insist that *Battle Isle* is an extremely strong game. It ►

HILL STREET BLUES

THE COMPUTER GAME



Miss Claire L. Brown, you have been found guilty of Armed Robbery.



Watch out for armed robber on East of town. Highway 101. Control. Let's be careful out there.



HILL STREET BLUES is the most honored series in the history of television with the stunning accomplishment of 26 Emmy Awards and numerous other international awards.

Now you can finally play the computer game in this re-created computer simulated city of Hill Street.

You take on the role of "Captain Frank Furillo" and by deploying the police officers under your control, you solve and control the crime rate. With help from nine of the most famous characters from the TV series, you can interact with up to nine crime incidents simultaneously, ranging from muggers to bank robbers, drug pushers and murderers. So "REMEMBER, LET'S BE CAREFUL OUT THERE!"

Amiga screens shown. Pictures of the actual TV series have been used with permission from MTM Production. Available for A500, A1000, A2000, A2500, A3000 and other computer formats. Retail Price: **\$39.95**. Visit your software retailer or call toll-free **1-800-783-8023** to order.



DIGITIZED PICTURES AND SOUNDS FROM THE TV SERIES



FANTASTIC 256 COLOR VGA 3-D GRAPHICS



INTELLIGENT CITY SYSTEM COMPLETE WITH TRAFFIC LIGHTS, SUBWAYS, TRAINS, AND OVER 300 DIFFERENT VEHICLES



OVER 400 MALE AND FEMALE PEDESTRIANS WITH INDIVIDUAL CHARACTERISTICS. SOME NICE, SOME NASTY.

 **Digitek
Software**

1916 Twisting Lane
Wesley Chapel, Florida 33543
(813) 973-7733

completely dispenses with the unwieldy interfaces too often found on computer war games, offering instead a slick, joystick-only system of movement and combat, and even such niceties as repairs, information gathering, and strategic viewing. Those who regularly play SSI-style war games will find Battle Isle lacking some options, but in the end, these options aren't really missed at all.

In Battle Isle, you are in control of one force while your opponent or the computer controls the other. Your goal in each mission is either to destroy all enemy forces or—and this is more fun—to capture the opposing headquarters building. You play through a series of 32 missions, and you have to win each one in turn to progress to the next. Apparently there are two bonus missions as well, but I'm stuck in mission #22 and have yet to see them. UBI Soft promises add-on missions as well.

The strength of the system of missions is that it effortlessly succeeds in introducing you to an ever-increasing complexity. Each mission takes place on a unique map, and most of them include a type of unit that you have neither con-



Test your tactics in Battle Isle.

trolled nor opposed heretofore. As you move through a mission, you gradually learn how to fight with the new elements of your land, air, and naval forces, until, in the final missions, you must concern yourself with all of them at once.

The game itself is entirely joystick-controlled. Each map is divided into hexagons, and the joystick moves the cursor from one hexagon to another. When the cursor is on a hexagon containing an enemy piece, you can find out what it is, but not much more. When it's on one of your own units, you can perform one of several ac-

tions. By holding down the firebutton and moving the joystick up, down, left, and right, the cursor icon changes to signify each possibility. When you finally have the icon you need, release the button to perform the action.

One final strength of the game is that each stage of Battle Isle plays quickly and equally well against the computer or a human opponent. This is a superb late-night strategy game, with a very worthwhile system. You'll want to install this one on your hard disk.

Everything Battle Isle does right, Fireteam 2200

seems to do wrong. First of all, the main battle display offers some of the worst graphics to appear on an Amiga game. Not only are they unattractive, they're also counter-productive. Figuring out where your units are is tough enough; trying to decipher which way they're facing and what kind of terrain they're in is next to impossible.

The game's interface isn't much better. Its keyboard-only control is both unwelcome and downright difficult to use, and it takes an inordinate amount of time to learn how to perform crucial actions. Moreover, the computer updates the battlefield every six seconds, and during the updates (which themselves take a few seconds), you will find yourself hitting the keyboard futilely.

What is good is the game's premise and wealth of detail. Only the most dedicated gamers (who have one megabyte of RAM) are going to bother playing this thing for long, however, and then only if financial restraints mean they can buy no new games for a long while. Fireteam 2200 would be marginally acceptable on an old IBM-PC; on an Amiga, it's not worth the effort it takes to load it.

THUNDERHAWK

By Jeff James

You take the controls of a high-tech helicopter gunship for some frantic target-busting action in **Thunderhawk** (Virgin Games, \$49.99). You're not just any average helicopter jockey, however; you're an agent for MERLIN, a secret military organization commissioned by the United Nations. Your job is to fly to world hot spots and bring the irksome troublemakers to justice in this engaging mixture of

arcade, role-playing, and strategic elements.

You start in the common room. From this location you can fly a flight simulator, view your combat awards, save and load games, or be briefed on your forthcoming mission. The war room supplies the strategic element: You have six theaters of war to choose from, including the Middle East, Southeast Asia, and Central America.

In the briefing room you're warned about the threats that you may meet in the combat area, usually consisting of SAMs, MIGs, and anti-aircraft fire. Complete with a flickering black-and-white film of the target area and a curmudgeonally commanding officer, the briefings are a nice realistic touch.

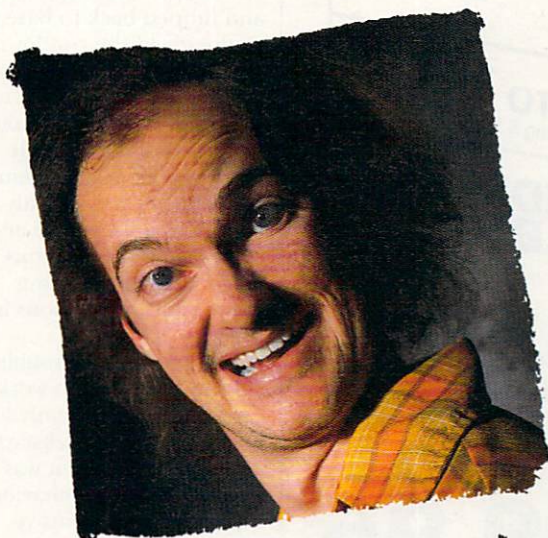
Next, you select your weaponry, then take off from your airbase, which is usually near the target. In the air,

Thunderhawk is a marvel. The frame rate is easily one of the fastest I've seen on the Amiga, with the landscape smoothly gliding under your craft. Granted, most of the landscape is rather bare (usually only a few hills, buildings, and such), but it's still a joy to fly over it.

Controls are simple: All the flying, target, and weapon selection is done with the mouse, while the ►



THIS OPPONENT IS PROGRAMMED
TO BE CHALLENGING.



this one wants to rip your
lungs out.

If you think you're good at games, then let's have some real fun. When you're online with GENie® Multi-Player Games, you're playing real people, in real time. Some of the best players around the world. □ Splash a bandit in *Air Warrior*®, and you've just taken out eight other guys, who'll be back gunning for you. Blast a *MechWarrior*® in *MultiPlayer BattleTech*™, and who knows? Could be that jerk from the coast. Could be a mercenary who's looking for a few good friends. □ With GENie, the possibilities are endless, the

people are terrific, and even the prices are competitive. So put some new life into your joystick, and sign on. We'll see just how good you are. □ Sign up now: 1. Set your modem for half duplex (local echo) at 300, 1200 or 2400 baud. 2. Dial toll free — 1-800-638-8369. Upon connection, enter HHH 3. At the U# = prompt, enter XTX99313, Amiga92 then press RETURN 4. Have a major credit card or your checking account number ready. □ For more information in the U.S. or Canada, call 1-800-638-9636.



AIR WARRIOR®



MULTIPLAYER BATTLETECH™




STELLAR EMPEROR™

GENie®
multi-player games

100% ORGANIC OPPONENTS

Air Warrior is a registered trademark and Stellar Emperor is a trademark of Kesmai Corporation. MultiPlayer BattleTech is a trademark and MechWarrior and BattleTech are registered trademarks of FASA Corporation.

Circle 18 on Reader Service card.



**Re- , Yo
RGB-Monitors**

Use It 4

SUPER NES FAM **NEO GEO** **SEGA**

Attention Getter

NES2 S-VHS

RGB CABLES \$18.00 TO \$57.50
+ shipping & handling

FREDMOND CABLE

For The Dealer Nearest You!

EAST COAST 615-478-5760 WEST COAST 206-882-2009

MasterCard VISA

Circle 172 on Reader Service card.

postscript type 1
70 fonts 69.95

For PageStream 1.8 to 2.2 and Professional Page 1.2 to 3.0

ProStream Plus fonts by Allied Studios

BOULMICH Arctic
Black Chancery Crillee
Playbill GoodCity Borzoi
SLABFACE GREEN CAPS
luxembourg SHOWBOAT
POST CRYPT Upsilon

60 display/headline fonts - 10 dingbat fonts

Send check or money order - Call for COD

Specify ProPage or PageStream versions - Add \$3.00 for shipping.

Allow 2 to 3 weeks for delivery. For sample printout of all fonts, send \$3.00

One Way Media

1035 Guerrero, San Francisco, CA, 94110
Telephone 415 824-8774

Circle 159 on Reader Service card.

GAME PRESERVE

toggling of night vision and your electronic counter measures (ECM) equipment (chaff, jammers, flares) is controlled by a handful of keys. Thunderhawk has managed to cut back on the overwhelming multitude of keyboard commands that you usually find in many simulators, and this makes for a lean and quick playing experience.

After you've pummeled your target into oblivion and limped back to base, you're given the rundown on how well your mission went. Then you're back to the briefing room for your next mission, filled with more challenges and danger. This format roughly continues until you've accomplished the missions in all six theaters, earning awards and promotions in the process.

I had no end of trouble getting this game to work on my A3000. I could only load it when running Kickstart 1.3, and even then it was prone to strange behavior, such as an unresponsive mouse and scrambled game screens. It did work fine on other Amiga models running AmigaDOS 1.3, although it did seem to have problems with the new Ami-

gaDOS 2.04 ROMs found in A500s and A2000s.

Hard-drive installation isn't supported, and the disks are copy protected with disk-based and manual-oriented schemes. The requester for saving and loading games is another sore spot, seeming rather cumbersome and awkward to use. Finally, the lengthy opening animation cannot be bypassed—every time you reboot Thunderhawk, you must sit through it.

If it sounds as though I have mixed feelings towards Thunderhawk, I do. The fast frame rate, simple controls, and well-done briefing sequences are a joy to experience, and the sound is exceptionally well done. Unfortunately, it seems that Thunderhawk was rushed across the Atlantic (it was programmed by Core Design of the U.K.) without thorough testing on North American Amiga hardware.

If you have a fairly uncomplicated setup (no A3000, no AmigaDOS 2.0, no hard disk), Thunderhawk could be a blast. As matters stand, it shows a great deal of promise that is unfortunately frustrated by a cumbersome implementation.

CORPORATION

By Jeff James

A magnificent mixture of a Dungeon-Master-style interface with a futuristic, hi-tech game world, **Corporation** (Virgin Games, \$49.99) offers a challenging diversion from the hackneyed role-playing norm of ogres and hit-points.

In the hard-edged world of the 21st Century, the malevolent Universal Cybernetics Corporation (UCC)

has begun illegal genetic experiments to create the ultimate killing machine. As a Zodiac agent, you must enter the 16-level headquarters of the UCC and return with evidence to prove the research is taking place.

Before embarking on your mission, you select a character from the two robots and four humans (two male and two female) available. You can outfit yourself with an impressive array of equipment: five handguns, four

COMPUTER ANIMATION FROM VIDEO

PRICE
\$149.00

TAKE

2

ACTION



MR ROMBO

For local distributor details
Tel: (44) 506 466601

- Take 2 is compatible with any Amiga.
- Supports 2, 4, 8, 16, 32 and Ham colour modes.
- Load and Save IFF images or D. Paint Anims.
- Uses traditional animators Dope sheet layout.
- Up to 4 levels of animation and 4 channels of sound.
- Playback at 24 or 25 frames per second. (Real Time).
- Further manipulate your image within any popular art package.
- Add "Vidi-Amiga" or The "Complete Colour Solution" to digitise your drawings or images directly from within **Take 2**. This will allow you to draw with a pencil, its easier than a mouse.



APPLICATIONS

- Traditional animation.
- Storyboards
- Product presentations.
- Home line tester.
- Cartoon Productions, both visual and sound.

Take 2 is a must for computer artists and enthusiasts of any age. It will cater for both amateur and professional applications. So get the most out of your computer and open up your imagination to **Take 2**.

CONTENTS

- Comprehensive and easy to follow manual.
- Disks
- Sample sounds and animations.
- Animators Peg Bar (to hold your paper into position while drawing or digitising).
- Example line drawn animations for you to get started with.

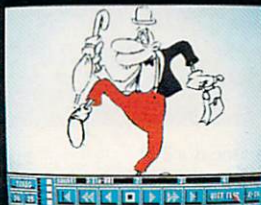
PAL OR NTSC VERSIONS AVAILABLE

ROMBO PRODUCTIONS
BAIRD ROAD LIVINGSTON SCOTLAND EH54 7AZ

☎ (0506) 466601

FOR COMMODORE — AMIGA — (ALL MODELS)

Circle 43 on Reader Service card



These Images
have been drawn
with a pencil,
digitised
then coloured
using D. Paint 3.



Fly with the best.

Scenery Animator 2.0



Scenery Animator is a 3-D landscape rendering and animation program. You can fly through real-world landscapes from US Geological Surveys (Yosemite and the Grand Canyon included), or explore imaginary fractal landscapes like the one shown above.

"...I highly recommend this piece of software. Scenery Animator is a versatile, powerful, and extremely satisfying program that will bring you many hours of enjoyment."
Amiga World, December 1991

Scenery Animator 2.0 features:

- * Realistic 3-D trees, clouds, lakes, oceans, and snow
- * Infinite fractal landscapes
- * Automatic camera banking
- * Gradient sky shading
- * Built-in animation system
- * 24-bit color and DCTV support
- * Requires 2 megabytes

See it at your local dealer today!

Natural Graphics

P.O. Box 1963, Rocklin CA 95677
Phone (916) 624-1436

Circle 179 on Reader Service card.

Attention Foreign Computer Stores/ Magazine Dealers

You have a large technical audience that speaks English and is in need of the kind of microcomputer information that TechMedia provides.

Provide your audience with the magazines they need and make money at the same time. For details on selling *AmigaWorld* and *RUN* contact:

Linda Greenblatt
World Wide Media
115 East 23rd St.
New York, NY 10010
(212) 420-0588
Telex: 798269

GAME PRESERVE

armor types, grenades, power packs, bombs, lock-picks, a backpack computer, a jetpack, and a plethora of other hi-tech gadgetry.

Corporation's approach to movement is ingenious; instead of clicking on separate buttons to move your character, a combined movement square allows quick and direct movement. Click in the center of the square to stop, at the top to go forward, at the bottom to go backwards, and at the sides to slide sideways. The farther you click from the center of the square, the faster you move.

A central view screen showing the action is flanked by two humanoid outlines that display your character's health and your equipment's status. At the bottom of the screen are the controls to click for object manipulation and movement.

Graphics are well done, especially the fluid, animated movement of your adversaries. Monsters don't simply appear or lurch toward you in the jerky gait of a looping animation. Using a method called "bitmap scaling," beasts that move toward

you gradually become larger and more distinct, eventually filling your screen with hostility. All sorts of background sound effects add to the spooky atmosphere.

Gameplay is decidedly arduous; within moments of my arrival at UCC headquarters, I was beset by a horde of energy-spitting robotic spiders. In addition to the bestiary of robotic and artificial life forms that impede your progress, security cameras, pressure plates, infra-red warning devices, and dozens of other futuristic traps and pitfalls are waiting for you. For help, you can access such devices as computer terminals, elevator controls, and security access panels.

Corporation requires only 512K of RAM to operate, and although it isn't hard-disk installable, games can be saved to disk. The excellent introductory animation refused to work on an A3000, but the game itself ran fine. With its crisp presentation, challenging gameplay, and intuitive interface, Corporation is a role-playing experience not to be missed.

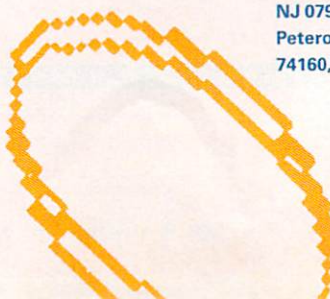
From p. 58.

there's a very wide range to the questions therein. Questions about games released when the Amiga had 64K and a cassette drive (just kidding). Questions about things I've already answered—twice.

So, I've decided to focus on a current game or two in the hope of helping as many folks as possible at one time. If there's something you'd like to see covered in this fashion, write and say so. If I can, I'll do it. (I've had a few votes for *The Immortal* and *The Jetsons* already.) If I can't...well, I can always use more firewood (grin).

I've also been getting the occasional letter from folks who are evidently playing illegal copies of games. (They're asking questions that either concern copy protection or that indicate they don't have the docs.) Naughty, naughty. Coincidentally, all these questions have exactly the same answer: Put the pirated disk in df0:, select it with the mouse and choose "initialize" from the Workbench menu. Your computer will solve the problem for you.

If you're having trouble with a game—"I can't get the dice into that little slot"—you can write to me at: 25 Belmont Ave., Madison, NJ 07940 or send electronic mail to Peteroo on GENIE and Portal and 74160,3053 on CompuServe. ■



Introducing the NEW 3-PART SERIES...

How to Animate

From the editors of *AmigaWorld Magazine* comes the most definitive series on animation...and how to do it yourself!

Now, in three easy-to-follow videos, you will learn the history of animation; software and hardware available for animators and techniques offered by the leaders in the field of animation.

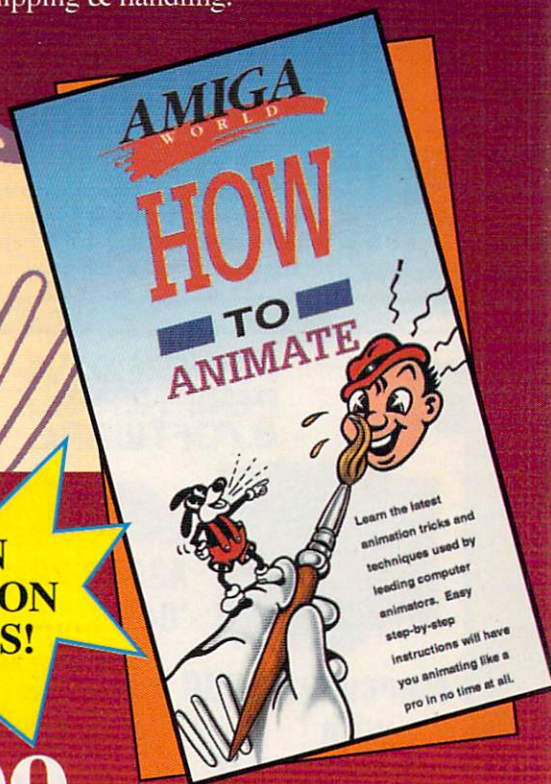
How to Animate, Part I covers the various types of software available and their applications such as Deluxe Paint IV, Lightwave and Imagine. You will learn about the many features of 2D and 3D software and some tools that make those programs unique. Part I will describe animation utility software; describe what they are and why you should buy them. You will also see artists' renditions using the leading animation software packages.

TechMedia Video is pleased to make this exclusive

offer **BUT HURRY...** this is available for a limited time only so order now!

YES! I want HOW TO ANIMATE, PART I. I understand it is offered for only \$29.95 plus \$2.95 shipping & handling.

**LEARN
ANIMATION
SECRETS!**



1-800-824-5499

Hurry while supplies last!



For shipping & handling please add \$2.95. Canadian orders add 7% GST. California orders add 7.25% tax. Make check or money order payable to: TechMedia Video, PO Box 2151, Salisbury, MD 21802.

Available in VHS. Allow 4-6 weeks for delivery. TechMedia is the licensed North American distributor of AmigaWorld Videos. Amiga is a registered trademark of Commodore Amiga, Inc.

**TECHMEDIA
VIDEO**

PO Box 2151, Salisbury, MD 21802
410-543-1989

Also see your local Amiga Dealer for these videos.

U.S. ORDERS ONLY:
800-872-8882
CANADA: 1-800-548-2512

CUSTOMER SERVICE OR
310-214-0000
ORDER STATUS

4453 Redondo Beach Blvd., Lawndale, CA 90260 - Mon-Sat 8-6 PST - FAX: 310-214-0932

**DRIVES, HARD DRIVES
AND CONTROLLERS**

AT DRIVES & CONTR
AD IDE 40 AT BUS 3.5 CTRLR 99.00
AD IDE 44 AT BUS 2.5 CTRLR 119.00

SCSI CONTROLLERS

ADVANTAGE 2000 SCSI 99.95
IVS GRANDSLAM 2000 239.00
IVS GRANDSLAM 500 299.00
IVS THOMPSONCARD A2000 PROF 159.00
IVS THOMPSONCARD A500 PROF 179.00

FLOPPY DRIVES

A2000 INT. DISK DRIVE 99.95
A3000 INT. DISK DRIVE 99.95
ARNDORF EXTERNAL FLOPPY 94.95
ROCLITE FLOPPY DRIVE 94.95
ROCLITE FLOPPY BLACK 99.95

HARD DRIVES

MAXTOR 212 SCSI HD 999.00
MAXTOR 340 SCSI HD 1199.00
MAXTOR 635 SCSI 3.5 HD 1349.00
QUANTUM 62MB LPS SCSI HD 239.00
QUANTUM 105MB LPS SCSI HD CALL
QUANTUM 120MB LPS SCSI HD 399.00
QUANTUM 210MB SCSI HARD DRIVE CALL

QUANTUM 240MB LPS SCSI HD 799.00

REMOVABLE MEDIA

STQUEST INTERNAL 45MB DRIVE 329.00
STQUEST INTERNAL 80MB DRIVE 439.00
EXT. BOX W/ P/SUPPLY FOR ABOVE 119.00
STQUEST CARTRIDGE 45MB 89.00
STQUEST CARTRIDGE 80MB 129.00

CSM PRODUCTS

COMMODORE SOFTWARE
AMIGA LOGO 59.95
AMIGA VISION 99.95
TCP/IP NETWORKING SOFTWARE 139.00

**COMMODORE
REPLACEMENT PARTS**

A1000 KEYBOARD ONLY 99.00
A2000 KEYBOARD 129.00
A3000 POWER SUPPLY 299.00
A500 DRIVE REPLACEMENT 159.00

**COMMODORE
ACCESSORIES**

A10 STEREO SPEAKERS W/AC ADAPT. CALL
A1011 EXTERNAL FLOPPY 3.5" FDD 139.00
A1600 1200 BAUD MODEM 49.95
A2292 MULTI-SERIAL BFD 299.00
A2298 AT BRIDGECARD 429.00

A2320 DISPL. ENHNCR. FOR A2000 239.00
A520 COMPOSITE ADAPTOR 41.95

ACCELERATORS

FOR GVP'S
ACCELERATORS SEE OUR
GVP FULL PAGE AD

MESA MIDJET RACER 25MHz ECON. 399.00
MESA MIDJET SONIC ECONOMY 499.00
MESA MIDJET 25MHz 68000 599.00
MESA MIDJET 33MHz 68000 699.00
MESA MIDJET RAM 2MB 279.00

**PRINTERS AND
PRINTER SUPPLIES**

PRINTERS

CITIZEN 280X8 9 PIN 195.00
CITIZEN 68X130 24 PIN 299.00
DESKJET 500 429.00
LASERJET IIP WITH EP-L TONER 1199.00
PAINTJET PARALLEL PRINTER 999.00
QMS PG-410 LASER
POSTSCRIPT PRINTER 1999.00

PRINT CARTRIDGES

CITIZEN COLOR KIT 49.95
FOR GSX140 & 200X 49.95
DESKJET BLACK CART 19.95

DESKJET PINK COLOR KIT STARTER 34.95
EP-L TONER CARTRIDGE 79.95
LASER PRINTER TONER 79.95
EP-S TONER CARTRIDGE 99.95
LASER PRINTER TONER 99.95
OKIMATE BLACK RIBBON 4.99
OKIMATE COLOR RIBBON 5.99
PAINTJET BLACK CARTRIDGE FOR XL 25.95
PAINTJET COLOR CART 29.95

**LASERJET PRINTER
CARTRIDGES**

PLOTTER IN CART P E 299.00
PACIFIC PAGE P E POSTSCRIPT - HP 419.00
PACIFIC 4 MEM. 2MB L-JET HP-III 199.00

PRINTER ACCESSORIES

DESKJET INK CLEANING W/MKMIN 3.99
PAINTJET CUT PAPER 17.95
PAINTJET FINT CRTG 149.95
PAINTJET PAPER CATCH 22.95
PAINTJET TRANS FILM 64.95
PAINTJET 2-FOLD PAPER 17.95

**MONITORS AND
MONITOR ACCESSORIES**

MULTISYNC MONITORS
SEMD 1440 MULTISYNC 619.00

SONY 1302A 899.00
SONY 1304 MULTISYNC 779.00

INPUT HARDWARE

MIRACLE KEYBOARD 359.00
SKETCH MASTER 12X12 499.00
SKETCH MASTER 12X18 619.00
WIZ DRAWING TABLE 9 X 11 299.00
X-SPES 30 109.95

SCANNERS/DIGITIZERS

EPSON E3000C SCANNER 1199.00
COLOR/256 GRAY 1199.00
HAND SCANNER, GOLDEN IMAGE 229.00
SHARP JX100 SCANNER 499.00

AUDIO/MUSIC

AMAS MIX SAMPLER 109.00
A500/2000 VERSION 2.0 109.00
GVP DIGITAL SOUND SAMPLR 95.00
ECE MIDI A1000 49.95
ECE MIDI PLUS A500/A2000/A3000 49.95
EUREKA MIX 500/2000 39.95
MMX GOLD INSIDER 64.95
PERFECT SOUND 3.1 A500/A2000 99.95
PHANTOM MIX INTERFACE 299.00

EXPANSION/PORTS

BONAC TOWER 299.00

DENSEX EXTENDER BUS 95.00
DUAL SERIAL BOARD 299.00
PRINTERFACE IVS 79.95

EMULATORS

A MAX II EMULATOR
MAC EMULATOR SYSTEM 129.00
AT BRIDGEBOARD (SEE CSM LISTING)

POWER SUPPLIES

BIGFOOT 200 POWER SUPPLY 67.95
IVS POWER SUPPLY 99.95

CHIPS (VARIOUS)

68882-25 MATH COPROC 199.00
68882-33 MATH COPROC 299.00
IC AGNUS: FASTER 1MB CSM 8272 99.00
IC AGNUS: SUPER FAT
2MB A3000 AGNUS CHIP 99.00
KICKSTART 1.3 ROM 39.00

MODEMS

SUPRA 2400 BAUD MODEM 99.95
SUPRA 2400 MBP PLUS 129.00
SUPRA MODEM 2400Z PLUS 159.00
SUPRA MODEM 3000 V.32 BIS 399.00

PAL SPECIFIC HARDWARE

VIDEO VIEW MEDIATION PAL 159.00



The Art Department Professional Ver. 2.1
Art Department Pro gives you the most powerful image processing system ever offered for the Amiga. Now with JPEG compression and 24-Bit printing \$159⁰⁰

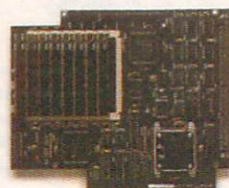
Epson ES-300C Scanner

600 DPI, 24-Bit full page color scanner \$999⁰⁰
With ASDG Driver Bundle .. \$1079⁰⁰



**NEW
Lower Price!**

**PROGRESSIVE
PERIPHERALS
& SOFTWARE**



**Mercury A3000
with FREE
Imagine 2.0
\$2149⁰⁰**



**A2000 28mhz
'040 \$1695⁰⁰**



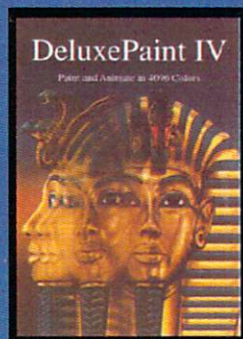
**ProRAM 64mb
expansion card for
A3000 with 0k ... \$369⁰⁰**



Ultra Design
A Great CAD Package
at a GREAT price .. \$99⁹⁵

DeluxePaint IV

The King of Paint and Animation



"And you thought
Tut was ancient art!"

\$109⁰⁰

**New Version
Special**

- Full-screen metamorphosis
- Scalable fonts
- Optimized HAM painting modes
- Improved support for Amiga Dos 2.04
- Palette and range requester enhancements
- Still easy to use!



**NEW!
Ver. 4.1**

Best International
freight service and
low, low rates via:



Overnight International Shipping Including Canada as low as \$15

Most rates cheaper than Express Mail at the Post Office!

MINIGEN PAL GENLOCK 299.00

MEMORY EXPANSION

RAM CHIPS

MOST RAM CHIP SIZES
AVAIL AT ECONOMICAL
PRICES (CALL)

A500 INTERNAL RAM BOARDS

BASEBOARD A500 0.4 MB 69.00
SUPRAM 500 1/2 MB 47.00

A500 EXTERNAL RAM BOARDS

SUPRAM 500K 1MB 135.00
SUPRAM 500K 2MB 199.00
SUPRAM 500K 4MB 429.00

A2000 RAM BOARDS

SUPRAM 2000 2MB RAM 179.00
SUPRAM 2000 4MB RAM 240.00
SUPRAM 2000 6MB RAM 299.00
SUPRAM 2000 8MB RAM 379.00

VIDEO SOLUTIONS (SOFTWARE AND HARDWARE)

IMAGE PROCESSING

SOFTWARE

ART DEPARTMENT 52.95
ART DEPARTMENT PRO. V 2.0 179.00
ART DEPARTMENT CONVERSION PAK 52.95
ART DEPT LOADER TGA ADDG 36.95
ART DEPT LOADER TFF 5.0 X 36.95
IMAGEMASTER PROFESSIONAL 149.00
PIXIMATE 40.95
RASTER LINK 119.00

3D RENDERING/ ANIMATION SOFTWARE

ANIMATION STATION 39.95
BROADCAST 3D FONTS - IMAGINE 64.95
BROADCAST 3D FONTS - LIGHTWAVE 64.95

CALIGARI 2 299.00

DES DISK, DINOSAUR 19.95

DES DISK, ARCHITECTURAL 19.95

DES DISK, SFACE 19.95

DES DISK, FUTURE 19.95

DES DISK, HUMAN 19.95

DES DISK, INTERIOR 19.95

DES DISK, MICROBOT 19.95

DES DISK, WOODLAND 19.95

DES DISK, NEW YORK CITY 19.95

DES DISK, VINTAGE CRAFT 19.95

DRAW 4D PROFESSIONAL 199.00

IMAGINE 1.1W/FREE VIDEO 119.00

IMAGINE 2.0 299.00

PIXEL 3D 2.0 69.95

REAL 3D V1.4 299.00

SCULPT ANIMATE 4.0 299.00

TECHX PROFESSIONAL 79.95

3D PROFESSIONAL CALL

VIDEO UTILITIES

PRITON TRANSPORT CONT 155.95

PROMOTION 59.95

VIDEO TOOLS 179.00

DESKTOP VIDEO

BROADCAST TITLER II 229.00

PRO VIDEO POST 199.95

PRO VIDEO CG II 129.00

SCREEN MAKER 24 BIT 62.95

TV SHOW 2.0 69.95

TV TEXT PROFESSIONAL 99.95

VIDEO EFFECTS 3D 112.00

VIDEOTITLER 3D 69.95

VIDEO ENHANCEMENT HARDWARE

CHROMA KEY 915.00

COLOR SPLITTER 109.00

DIV RESOLVER BOARDS CALL

FLICKER FIXER 249.00

FRAMEGRABBER HARDWARE

FRAMEGRABBER 419.00

FRAMEGRABBER/256 GRAY 499.00

GENLOCKS

ALTERIMAGE GENLOCK 179.00

MINIGEN GENLOCK 199.00

SUPERGEN 2000S 1350.00

SUPERGEN GENLOCK 649.00

EDITING HARDWARE

BCD 2000A 799.00

BCD 5000 1995.00

NUCLEUS SINGLE FRAME 399.00

CONTROLLER 399.00

PERSONAL TBC TIME-BASE 949.00

CORRECTOR II 949.00

HOT INTEGRATED VIDEO 299.00

PERSONAL VECTRASCOPE 799.00

VIDEO BLENDER 995.00

VIDEO TOASTER 2.0 CALL

PAL SPECIFIC VIDEO HARDWARE AND

SOFTWARE

FLICKER FIXER PAL 399.00

FRAMEGRABBER 256 GRAY PAL 499.00

FRAMEGRABBER PAL VERS 449.00

PRO VIDEO POST PAL 119.95

VIDEO EFFECTS 3D PAL 119.95

BUSINESS SOFTWARE

ACCOUNTING

DESKTOP BUDGET 40.95

HOME FRONT 2.0 54.95

PHASAR 4.0 59.95

SERVICE INDUSTRY ACC. 199.00

DESKTOP PUBLISHING

NO FONT 69.95

NO OUTLINE 74.95

PAGETREAM 2.2 199.00

PROF. PAGE TEMPLATES 95.95

PROFESSIONAL PAGE 3.0 199.00

INTEGRATED BUSINESS SOFTWARE

DESK BUSINESS MGMT 132.00

WORKS PLATFORM 99.95

SALINGSCRIPT PROFESSIONAL 74.95

SPREADSHEET

ADVANTAGE 119.00

MAXPLAN PLUS VERSION 2.0 69.95

PROFESSIONAL CALC 199.00

SUPERPLAN 64.95

DATABASES

FAMILY TREE VERSION 2 49.95

SUPERBASE PERSONAL 2 69.95

SUPERBASE PROFESSIONAL 4 249.00

WORD PROCESSING

EXCELLENCE VERSION 2 69.95

FLOW 3.0 57.95

FINAL COPY 64.95

PROPER GRAMMAR 57.95

PROSCRIPT 32.95

PROWRITE 3.2 69.95

QUICK WRITE WORD PROCESSOR 44.95

TRANSWRITE 39.95

WORD WHAT WHERE WHEN 51.95

WORD PERFECT 69.00

WORD PERFECT LIBRARY 79.95

HOME/PRODUCTIVITY

CYBERUS PROF. REL. 2 59.95

HYPERBOOK GOLD DISK 64.95

NAG PLUS 3.1 64.95

OFFICE GOLD DISK 159.00

PROPER GRAMMAR 57.95

TOP FORM 52.95

DPS Personal TBC II

Now with proc amp control and color balancing

\$849⁰⁰

Newtek Video Toaster 2.0

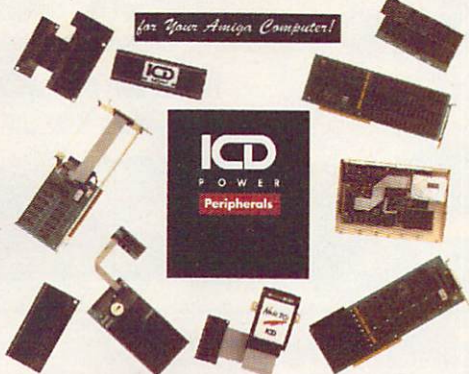
Software Upgrade Package

This Month Only \$289⁰⁰

Limited to stock on hand

The ICD Advantage

for Your Amiga Computer!



AdSpeed™ \$179⁰⁰
Best overall performance of any accelerator in it's price range.

Flicker Free Video™ \$249⁰⁰
Eliminates interface flicker for any Amiga computer.

Novia 201™ \$239⁰⁰
The smallest hard drive and interface in the world for your Amiga 500. Fits internally.

Novia 601™ \$579⁰⁰
Now you can have the Novia with a 60 meg 2.5 inch hard drive.

Prima 521™ \$379⁰⁰
Now mount 52 megs and a 3.5 inch IDE drive internally in your Amiga 500, 1000 or 2000.

Prima 1051™ \$549⁰⁰
105 megs internally in your 500, 1000 or 2000.

AdIDE™ 40 Kit \$149⁰⁰
Smallest Amiga hard drive interface made. For IDE (AT) drives.

AdRAM 540 w/0k \$89⁰⁰
AdRAM 560 w/2mb \$239⁰⁰

AdSCSI 2000 \$99⁰⁰
High Speed SCSI Hard Card

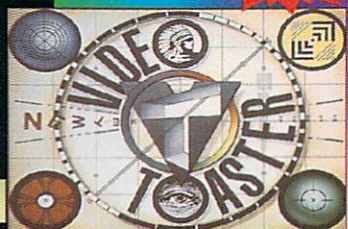
Shuffle Board™ \$29⁹⁵
Reroutes I/O: to the external floppy connector. Boot from an external floppy. For an Amiga 500 or 1000.

Newtek Video Toaster

\$2099⁰⁰

v.2.0

Special



DCTV

From Digital Creations

Full NTSC Color Display
\$399⁰⁰ and Digitizer.



DCTV: A guided tour

This easy-to-follow, comprehensive VHS tutorial will tell you all you need to know about DCTV. **\$26⁹⁵**



Prices Effective April 1, 1992

Circle 13 on Reader Service card.



U.S. ORDERS ONLY:
800-872-8882
CANADA: 1-800-548-2512

CUSTOMER SERVICE OR
310-214-0000
ORDER STATUS

4453 Redondo Beach Blvd., Lawndale, CA 90260 - Mon-Sat 8-6 PST - FAX: 310-214-0932

EDUCATIONAL SOFTWARE

GENERAL EDUCATIONAL

BIBLE READER STUDY	44.95
CROSSWORD CONST SET	22.95
DISTANT SUNS DEEP SKY OBJECTS	18.95
DISTANT SUNS SKYMAP LVL 1	
STAR CATALOG	15.95
DISTANT SUNS VERSION 4.0	57.95
DISTANT SUNS YALE BRIST	
STAR CATALOG	12.95
MAPLE V	CALL
MATHVISION	119.00
MATH ODYSSEY	51.95
MATH-AMATION	48.95
MAVIS BEACON TYPING	34.95
WHERE IN EUROPE	
IS CARMEN SAN DIEGO	34.95
WHERE IN THE U.S.A.	
IS CARMEN SAN DIEGO	34.95
WHERE IN THE WORLD	
IS CARMEN SAN DIEGO	34.95
WHERE IN TIME	
IS CARMEN SAN DIEGO	34.95
WORLD ATLAS 2.5	32.95

ELEMENTARY

EDUCATIONAL

BARNEY BEAR GOES TO SCHOOL	29.95
BARNEY BEAR GOES CAMPING	29.95
BARNEY BEAR GOES FARM	29.95
BARNEY BEAR MEET SANTA	29.95
BARNEY BEAR TO SPACE	29.95
KATER FARM	25.95
KINDERAMA	19.95
LAND OF THE UNICORN	32.95
LETTERS FOR YOU	12.95
MATH A MAGICIAN	25.95
MATH BLASTER PLUS	22.95
MATH WIZARD	19.95
MOOSE	25.95
NUMBERS COUNT	13.95
OPPOSITES ATTRACT	12.95
READ-A-RAMA	18.95
SPELLAFARI	23.05
AUDIO GALLERY SPANISH	54.95
AUDIO GALLERY JAPANESE	74.95
AUDIO GALLERY FRENCH	52.95
AUDIO GALLERY CHINESE	74.95
AUDIO GALLERY GERMAN	54.95
JAPANESE I	27.95
LINKWORD FRENCH	19.95

LINKWORD GERMAN	19.95
LINKWORD ITALIAN	19.95
LINKWORD RUSSIAN	19.95
LINKWORD SPANISH	19.95

FONTS

GENERAL FONTS

KARA ANIMFONTS 1	29.95
KARA ANIMFONTS 2	29.95
KARA ANIMFONTS 3	29.95
KARA ANIMFONTS 4	35.95
KARA FONTS HEADLINES 1	44.95
KARA FONTS HEADLINES 2	39.95
KARA FONTS HEADLINES 3	46.95
KARA FONTS STARFIELD	34.95
KARA FONTS SUBHEADS	39.95
MASTERPIECE FONTS	159.95
PROF. FONT LIBRARY	48.95
600 AMIGA FONTS	19.95

DTP/PAGESTREAM FONTS

PAGESTREAM FONT PACK 1	48.95
PAGESTREAM PLUS PACK	48.95
PAGESTREAM NEWSLETTER FONTS	64.95
PAGESTREAM STARTER FONTS	64.95
PAGESTREAM DESIGNER FONTS	129.00
PAGESTREAM CLASSIC FONTS	129.00

DTP/PROWRITE FONTS

PRO FONTS VOL 1	22.95
PRO FONTS VOL II PROWRITE FONTS	22.95

DTP/PROFESSIONAL PAGE FONTS

PROF. PAGE OUTLINE CG	129.00
GOLD DISK DECORATOR	34.95
GOLD DISK DESIGNER	34.95
GOLD DISK PUBLISHER	34.95

VIDEO/TOASTER FONTS

1ST PRIZE TOASTED FONTS SET 1	49.95
BREAD AND BUTTER	
VIDEO TOASTER FONTS	64.95
CINNAMON TOAST FONTS VOL 1	64.95
CINNAMON TOAST FONTS VOL II	64.95
GOLD DISK VIDEO FONTS SAN BENITO	64.95
G.D. VIDEO FONTS SAN BENITO 2	64.95
GOLD DISK VIDEO FONTS SERIF	64.95
GOLD DISK VIDEO FONTS DECORATIVE	64.95
GOLD DISK VIDEO FONTS DECORATIVE	64.95
KARA TOASTER FONTS VOL 1	59.95
KARA TOASTER FONTS VOL II	59.95
MASTERPIECE TOASTER FONTS	99.95

GRAPHICS SOFTWARE

AND HARDWARE

ANIMATION SOFTWARE

ANIMAGIC	87.95
DISNEY ANIMATION STUDIO	79.95
THE DIRECTOR V2.0	74.95
DIGITAL LANDSCAPE	79.95
FRACAL PRO 5.0	CALL

MAP MASTER FOR IMAGINE	45.95
MAP MASTER FOR LIGHTWAVE	64.95
SCENERY ANIMATOR	64.95
SCENERY ANIMATOR DATA GRAND CANYON	18.95
SCENERY ANIMATOR DATA YOSEMITE	18.95
SCENERY ANIMATOR DATA GAIJI	18.95
SURFACE MASTER FOR IMAGINE	25.95
VIDEOSCAPE 3D	119.00
VISTA 1.2	37.95
VISTA PROFESSIONAL 2.0	62.95
VISTA CALIFORNIA DATA DISK	29.95
VISTA FLAMING GORGE DATA 2	29.95
VISTA GRAND CANYON DATA 1	29.95
VISTA GRAND CANYON DATA 2	29.95
VISTA JACKSON HOLE DATA 1	29.95
VISTA MARS SCAPES	29.95
VISTA WESTERN U.S. DATA DISK	29.95

CLIP ART DISKS

MATERIALS TEXTURE STONE SURFACES	28.95
----------------------------------	-------

PRO FILLS 2

PROF. PAGE STRUCTURED CLIP ART	38.95
SOFTCLIPS VOLUME I CLASSIC	44.95
SOFTCLIPS VOLUME II PEOPLE	44.95
SOFTCLIPS VOLUME III COLLECTORS	44.95
SOFTCLIPS VOLUME IV ANIMALS	44.95

CAD

ACAD TRANSLATOR	139.95
BOARD MASTER	64.95
DYNA CAD	899.00
FLO FLOORPLAN CONSTRUCT	44.95
INTROCAD	34.95
INTROCAD PLUS	64.95
INTROCAD PLUS FLOWCHART SYMBOLS	25.95
PRO BOARD PERSONAL	89.95
PRO BOARD/NET PACKAGE	229.00
PRO BOARD/NET PACKAGE PAL	229.00
PRO NET PERSONAL	89.95

PAINT/DRAW SOFTWARE

DELUXE PAINT IV	119.00
DESIGN WORKS	79.95
DIGI PAINT 3	64.95
PROFESSIONAL DRAW	119.00
PROTECTOR 2.1	189.00
SPECTRA COLOR	54.95

GENERAL VIDEO



MegAChip
2000/500

\$219.00 w/o Agnus
\$299.00 with Agnus



D K B
MultiStart II \$59.95
Provides for Amiga 500's & 2000's to
operate under Workbench 1.3 & 2.0!

DKB 2632 Ram Expansion
Now expand your Amiga up to 112
megs of 32 Bit memory if you own
the CBM A2632 Accelerator board.
With 4megs \$599.00



Supra Corporation

Modems

Supra 2400 Baud Modem	89.95
Supra 2400 MNP Plus	135.00
Supra 2400ZI Plus	179.00
Supra FAX Modem	\$309.00



This new 9600bps modem has
MNP5 and V.42bis, V.32bis
error correction and data
compression.

SupraRam 2000
2/8mb Board
\$179.00



SupraRam 2000 4mb RAM	240.00
SupraRam 2000 6mb RAM	299.00
SupraRam 2000 8mb RAM	379.00

SupraRam RX 1MB	135.00
SupraRam RX 2MB	199.00
SupraRam 500 512k	47.00

Due to industry fluctuation, RAM prices are subject to change without notice



The Kitchen Sync

\$1599.00

Two Complete TBC's on one card
Works with any video source
S-VHS and Hi-8 compatible
Optional Y/C output
**Great for use with the
Video Toaster**

DIGITAL

CREATIONS

Digital Graphics Library

SCREEN-MAKER

Our Wedding

This is one of the	
100 Background Images	
24-Bit IFF	40 HAM Images
\$62.95	\$44.95

This is one of the	
25 STILL IMAGES	
24-Bit	HAM
\$55.95	\$44.95

U.S. ORDERS ONLY:
800-872-8882

CANADA: 1-800-548-2512

CUSTOMER SERVICE OR
310-214-0000

ORDER STATUS

4453 Redondo Beach Blvd., Lawndale, CA 90260 - Mon-Sat 8-6 PST - FAX: 310-214-0932

SPEEDBALL 2	29.95	STAR CONTROL	29.95	STRIP IN DATA 5	19.95	POPULOUS	29.95	CURSE OF AZURE CLUES HUNT BOOK	8.95	ULTIMA V WARRIORS OF DESTINY	35.95
SWORD OF SODAN	15.95	STRATOS	22.95	WAR/STRATEGY		POPULOUS II	38.95	DEATH KNIGHTS OF KRYNN	24.95	FLIGHT SIMULATORS	
UTOPIA	39.95	TETRIS	24.95	BATTLE COMMAND	34.95	POWERMANAGER	32.95	DRAKIDEN	38.95	A-10 TANK KILLER	32.95
ACTION/STRATEGY			ADULT GAMES			CARDINAL OF THE KREMLIN	32.95	DUNGEON MASTER	19.95	ARBOUS 329	CALL
BATTLE CHESS	31.95	CENTERFOLD SQUARES	19.95	HARPOON	41.95	CENTURION DEFENDER OF ROME	34.95	DUNGEON MASTER EDITOR	18.95	BIRDS OF PREY	34.95
CHECKMATE	35.95	LEISURE SUIT LARRY	25.95	HARPOON BATTLEBET #2	29.95	HARPOON	41.95	DUNGEON MASTER HINTBOOK	11.95	CHUCK YEAGER'S ADVANCED FLIGHT	27.95
DUNOVAR	22.95	LEISURE SUIT LARRY II	35.95	NORTH ATLANTIC CONVOY	29.95	HARPOON BATTLEBET #3	29.95	DUNGEON MASTER CHADS STRIKES BACK	19.95	F15 STRIKE EAGLE II	38.95
M1 TANK PLATOON	35.95	LEISURE SUIT LARRY V	39.95	THE MEDITERRANEAN CONFLICT	29.95	HARPOON SCENARIO EDITOR	27.95	DUNGEON MASTER MAPS +	12.95	F16 COMBAT PILOT	13.95
PORTS OF CALL	14.95	SEX OLYMPICS	24.95	HARPOON CHALLENGER PACK	32.95	KING'S QUEST IV	39.95	OUT OF THIS WORLD	42.95	F18 INTERCEPTION	13.95
RAILROAD TYCOON	39.95	STRIP PUNKER III	29.95	OVERLORD	32.95	MEDIAVAL WARRIOR	29.95	RISE OF THE DRAGON	39.95	F18 STEALTH FIGHTER	34.95
SIN CITY	32.95	STRIP IN DATA 1	19.95			OVERLORD	32.95	ROMANCE OF THE 3 KINGDOMS II	44.95	FALCON	32.95
SIN CITY GRAPHICS #1		STRIP IN DATA 2	19.95					SECRET OF THE SILVER BLADE	34.95	FALCON MISSION DISK	15.95
ANCIENT CITIES	22.95	STRIP IN DATA 3	19.95							FALCON MISSION DISK 2	15.95
SIN CITY GRAPHICS #2		STRIP IN DATA 4	19.95							FIGHTER DUEL	29.95
FUTURE CITIES	22.95									FLIGHT SIMULATOR II	32.48

Trumpcard 500 AT

NEW low cost, high speed hard disk controller/ RAM expansion for the Amiga 500

\$229⁰⁰

NEW!

INTERACTIVE VIDEO SYSTEMS

PIXEL 3D 2.0

The most powerful 3D object utility for the Amiga computer!

\$69⁰⁰

Convert bitmaps to 3D objects, get rid of redundant points and convert from one format to another!

FireCracker 24

\$799⁰⁰
2 Meg Version

- High-resolution • 16.8 Million Colors
- 24-Bit graphics display card
- Works on the Amiga 2000 and 2500

New Version! ProWrite 3.2

Now the all-time best-selling word processor supports Postscript output

- Audio/Video Scriptwriting.
- Arexx support.
- 100,000 word Spell Checker.
- Thesaurus with 300,000 word cross reference.
- Supports columns.
- Wraps text around graphics.
- Mail Merge

\$99⁹⁵

Beetle Mouse

\$34⁹⁵

\$49⁹⁵

=KB-Talker=

Use a standard IBM AT keyboard on your Amiga

Charts & Graphics

\$64⁹⁵

- Over 45 Chart Types
- GrayScale PostScript
- Color PostScript
- 2D & 3D Charts
- IFF Backdrops
- IFF Chart Objects
- Automatic Legends
- Automatic Tables
- Combine Chart Types

Gold Disk VIDEO DIRECTOR

only \$169⁰⁰!

- Complete Video Editing System for everyone with a camcorder, VCR and an Amiga!
- Quickly and easily catalog and edit the best moments from your video tapes!
- Includes hardware to control most camcorders and VCR's!

INOVAtronic

CanDo v.1.6 \$89⁹⁵

Interactive audio-visual authoring software lets non-programmers build custom applications.

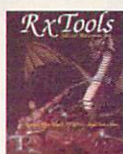
Directory Opus \$36⁹⁵

The New Wave Directory Utility opens files, launches applications, plays anims & sounds and has a host of other file-related features.

Visit our Amiga Superstores!

South Bay: 4453 Redondo Beach Blvd. - Lawndale, CA 90260 - Mon-Sat 11-7 PST -Phone: (310) 542-2292
Westside: 318 Wilshire Blvd. - Santa Monica, CA 90401 - Tues-Sat 11-7 Sun 11-5 PST-Phone: (310) 394-7779

FLIGHT OF THE INTRUDER 42.95	LIFE AND DEATH 32.95	SPORTS ENTERTAINMENT	JACK NICKLAUS UNLIM. GOLF & DES. 38.95	CLASSIC BOARD GAMES 36.95	KEYBOARD TEMPLATES FOR TOASTER CO.
GUNSHIP 35.95	MERCHANT COLONY 27.95	48 SPORTS GAMES 34.95	MICROPHONE "GREENS" 38.95	VRATH OF THE DEMON 34.95	TOASTER SWITCHER, DCTV & OPANT IV.
KNIGHTS OF THE SKY 42.95	RISE OF THE DRAGON 35.95	ABC MAJOR EVENT BOXING 34.95	NASCAR CHALLENGE 34.95	ADVANCED MILITARY SYSTEMS 28.95	FOR AMIGA 500/2000/3000 CALL
MIG 29: ACCOLADE 38.95	SEARCH FOR THE KING 33.95	BO JACKSON BASEBALL 38.95	PGA TOUR GOLF 34.95	AMERICAN HERITAGE DICTIONARY 48.95	INPUT ACCESSORIES
PRO FLIGHT: TURNOAD SIM. 44.95	SECRET OF MONKEY ISLAND 38.95	BLACK JACK ACADEMY 14.95	PRO TENNIS TOUR 2 34.95	ELECTRONIC COOKBOOK 38.95	ALFA DATA CRYSTAL TRACKBALL CALL
RED BARON 33.95	SHOGUN'S CASTLE DRAGON'S LAIR 34.95	BRIDGE 8.0 25.95	PROF. FOOTBALL SIM. 22.95	FRED FISH COLLECTION 48.95	BEEBLE MOUSE (ASSORTED COLORS) 34.95
SCENERY DISK STARTER 37.95	SPACE QUEST III 38.95	FAST EDDIE'S POOL 22.95	SUPERCAR'S TESTDRIVE II DATA DISK 14.95	MY PAINT 28.95	SONIC OPTICAL MOUSE (W/CL. I.I.D.E.) 79.95
THUNDERBARK 34.95	SPACE QUEST IV 42.95	GRETZKY HOCKEY 2 42.95	TESTDRIVE II THE DUEL 32.49	TIME TABLE BUSINESS & POLITICS 44.95	GOLDEN IMAGE 2 BUTTON MOUSE 39.95
THEIR FINEST HOUR DATA DISK 1 12.95	SPIRIT OF EXCALIBUR 32.49	HARDBALL II DATA DISK 12.95	WORLD CIRCUIT GRAND PRIX 39.95	TIME TABLE SCIENCE & INNOVATION 41.95	GOLDEN IMAGE CORDLESS MOUSE CALL
GRAPHIC/ADVENTURE	STARFLIGHT 34.95	HOCKEY LEAGUE SIM 22.95	CDTV TITLES	WORLD VISTA 34.95	TRACKBALL AMTRAC 59.95
ALICE IN WONDERLAND 38.95	STARFLIGHT CLUE BOOK 8.95	HOYLE BOOK OF GAMER 22.95	NASA: THE FIRST 25 YEARS 15.95	ACCESSORIES/MISC	
ELVIRA THE FANTASY ADVENTURE 38.95	STARFLIGHT II 34.95	HOYLE BOOK OF GAMES 2 22.95	BARNEY BEAR GOES TO SCHOOL 27.95	FLICKER MASTER 12.95	
HEART OF CHINA 38.95	TIME WARP DRAGON'S LAIR II 34.95	INDIANAPOLIS 500 34.95	CASE OF THE MISSING BLANKET 34.95	DUST COVERS AND KEYBOARD 12.95	
FUTURE WARS 32.95	WILLY RENSON 38.95	ISLAND 28.95	ALL DOGS GO TO HEAVEN 35.95	SKINS AVAILABLE CALL	
GODFATHER 38.95	WRATH OF THE DEMON 28.95	JACK NICKLAUS COURSE 5 14.95	CASE OF THE CAUTIOUS CONDON 35.95	CABLES FOR MOST NEEDS/USES AVAILABLE CALL	
	VENGEANCE OF EXCALIBUR 32.95	JACK NICKLAUS GUIDE BOOK 9.95			



Workbench Management System
\$32.95



Brigade Commander
\$29.95

TTR Development

Fusion Forty '040 Board



\$1449.00

- 25mhz, with free upgrade to 28mhz
- Accepts wide variety of memory configurations.
- Lowest cost '040 board for Amiga 2000

TTR 20mb Floptical Drive



Internal \$499.00
While supplies last!

MR Backup Professional

\$32.95



Teacher's Toolkit

\$34.95



Centaur Software



Fantastic Voyage:
The Computer Game
"Incredible!"
"*****" 5 Stars
- Info Magazine
\$34.95



World Atlas
3 Disks of info on
over 170 countries +
255 maps.
\$32.49
NEW! Version 2.5



B.A.D. Ver.4.0
Best selling disk
optimizer for all
Amigas. Speeds floppy
and hard drives by up
to 5 times!
\$29.95



MindLink
The hottest, newest,
super-powerful
modem package.
\$28.95



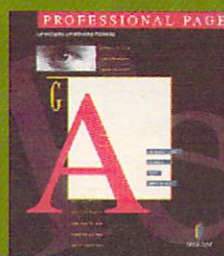
Pro-Net
ProBoard
\$289.95 **\$299.95**
For a limited time only, buy
ProNet and get ProBoard Free
For innovative schematic capture and
PCB layout. A complete solution from
schematic to PCB.



MyPaint
The best children's
paint program for the
Amiga.
\$29.95



Pixound
Musical Graphics
Player
"Incredible!"
"*****" 5 Stars
- Info Magazine
\$56.95



\$199.00

Professional Page 3.0

The Latest Upgrade for the
Professionals Choice in DTP

- Page & Function Genies give total ease of use
- Irregular text wrap
- Adobe type 1 font support
- Mail merge and hot link to spreadsheet
- 7 New Compugraphic Fonts
- New Undo feature



\$199.00

Draw 4D Pro

Finally! Professional, User Friendly 3D rendering & animation for the Amiga! Renders any Amiga mode plus 24-Bit. Easy texture mapping! Great Manual. Direct DCTV support! Output 3D PDraw Clips! Video and Publishing!

- Unlimited Lights that animate
- Parallel Spaces to work in
- Double buffered real-time editor
- Phong/Gouraud/Facet
- Built-in Font Editor
- Unlimited points per polygon
- IFF/IFF24/Anim/Clip output

Prices Effective April 1, 1992

Circle 13 on Reader Service card.



The Creative Computers Low-Price Guarantee.

Creative Computers is the service and low-price leader and the largest Amiga mail-order company. Check out the prices in this ad, then in the unlikely event that you find a lower price anywhere else in this magazine, we'll beat it! **

Commodore Amiga 500DS

Comes with: 3.5" Floppy Drive, Mouse, Joystick, bundled with the following software packages:



Kindwords,
FusionPaint, Indiana
Jones and the Last
Crusade, F40 Pursuit,
and F/A-18
Interceptor.

SPECIAL PRICE \$399

**FREE 1200
Baud Modem
with this
system
purchase**

Commodore
AMIGA
Authorized Sales and Service



**Amiga
2000**

**Amiga
3000**



Creative Computers has
the largest and best
equipped fully Authorized
Amiga service center.

ORDER BY PHONE -OR- MAIL IN THIS FORM

1. Call for most current prices and shipping rates.
2. Mail this order form to:
CREATIVE COMPUTERS at: 4453 Redondo Beach Blvd., Lawndale, CA 90260
3. Credit card orders only shipped to billing address.

Name _____
Address _____
City _____ State _____ Zip _____
Country _____
Day Phone# () _____ Night Phone# () _____

QTY.	PRODUCT NAME	UNIT PRICE	TOTAL

8.25% SALES TAX (CA. RES. ONLY)

SHIPPING METHOD: (Call for rates)

- ☐ UPS Ground ☐ Airborne Express
☐ DHL - International orders
☐ Other _____

SHIPPING

TOTAL

OFFER CODE:
P2540111

**Method of
Payment**

- ☐ Check ☐ Money Order ☐ Visa ☐ MasterCard
☐ American Express ☐ Discover

CREDIT CARD USERS ONLY:

Credit Card # _____ Exp. Date ____ / ____
Signature _____

The Creative Computers Exclusive Money Back Guarantee Program (CC-MBG)

When you purchase any accelerators, floppy drives, memory expansions, hard drives and hard drive controllers or any GVP Hardware from **Creative Computers**, you are protected by a full 30-day, No-Questions-Asked Money Back Guarantee!

Are you in the market for a GVP Impact Vision but don't know if it will work right with your set-up? Or are you waiting for your Amiga to compute but don't know what an accelerator will mean in practical terms to you? You need not wait any longer. Just buy it from us, and if you don't like it, send it back for a full refund!

OUR POLICIES

CC-MBG Policy: Limited-time offer expires 5/31/92 and only applies to the above listed categories only. You must call Customer Service to obtain a Return Authorization number before sending the item(s) back. The item(s) must be in original condition and in original packaging. No damaged items will be accepted. Refunds issued within 14 days of receipt of the returned item(s). Refund is limited to \$2,000 per customer.

CUSTOMER SERVICE: For tech support call 210-542-2282 from 11 a.m. to 7 p.m. PST. Call for all other shipping information. Educational, corporate and aerospace purchase orders accepted. No surcharge for Visa/MasterCard; 4% surcharge for American Express; 1% surcharge for Discover.

RETURN POLICY: Call Customer Service at (210) 542-2282 for return authorization. All returns without authorization number (RMA#) will be refused. Returned products must be in original condition and packaging and must be sent back within 30 days of our invoice date. No refunds, please. Defective product exchanges only. We make no guarantee for product performance. Exchanges with unlike products are at our option and subject to a 20% re-stocking fee.

CONDITIONS: Prices and availability of product are subject to change without notice.

MAIL IN ORDERS: Send money orders or cashiers check for fastest service. Personal checks - up to 10 days to clear. Include: Name, Address and telephone number (no P.O. Boxes, please). If ordering by credit card include expiration date and billing address. Call for exact shipping rates.

INTERNATIONAL: Toll free ordering: 1-800-542-2282. For Canada, P.O. #100 - Minimum order \$50. All other countries: minimum order \$100. For Visa and MasterCard orders you must fax or mail a signed photocopy of your credit card - front and back. Please have your credit card number handy before calling.

INTERNATIONAL PHONE NUMBERS: Orders only please. Canada 1-800-542-2282; Italy 1670-74000; United Kingdom 0200 69-1170; France 10-0000-1000; Australia 0014-800-125-712; Switzerland 040 65-3420.

****PRICE GUARANTEE:** U.S. Only. Applies to all merchandise advertised by all authorized dealers except merchandise on sale. We will give you our "delivered" price lower than the other dealer's "delivered" price.



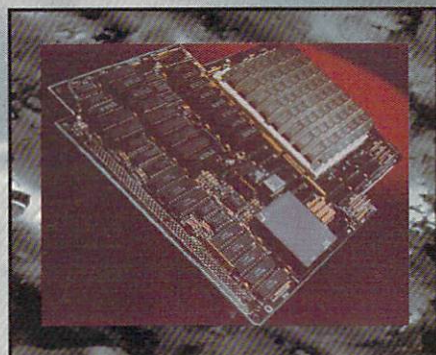
Overnight Shipping via:



Prices Effective April 1, 1992

**Even Newer,
Lower
Prices!**

**A Ton of Great
New Products from**



**G-Force 040:
28Mhz 68040
accelerator for
the Amiga
3000 with
2megs
\$2099⁰⁰**

New G-Force 030 Combo Accelerators

G-Force 030-Combo 40/4 .. \$1189⁰⁰

- 68030 running at 40mhz
- 68882 running at 40mhz
- 4mb of 32-Bit RAM (16mb max.)
- Onboard Series II SCSI Controller
- Hard Drive mountable
- All on one board

G-Force '030 50/4 \$1569⁰⁰

- 68030 running at 50mhz
- 68882 running at 50mhz
- 4mb of 32-Bit RAM (16mb max.)
- Onboard Series II SCSI Controller
- Hard Drive mountable
- All on one board

SIMM32-1MB/60 Call

SIMM32-4MB/60 Call

Combo Accelerator/ Hard Drive bundles

(The best selling GVP accelerator with a large Quantum Hard Drive factory installed. Save a bundle! Also includes a GVP Series II SCSI controller on board.)

**G-Force 030-Combo 25/1/
no drive w/68882 math co-proc. .. \$685⁰⁰**

**G-Force 030-Combo 40/4/
120Q w/68882 math co-proc. \$1529⁰⁰**

**G-Force 030-Combo 50/4/
240Q w/68882 math co-proc. \$2129⁰⁰**

DSS-8 \$95⁰⁰

Record, edit, compose...with a high-quality, stereo sound sampler. Includes a fast, powerful, easy-to-use editor and a self-contained 4-track sequencer



Scala 2000/NTSC Titling \$249⁰⁰

Scala 500/NTSC Titling \$149⁰⁰



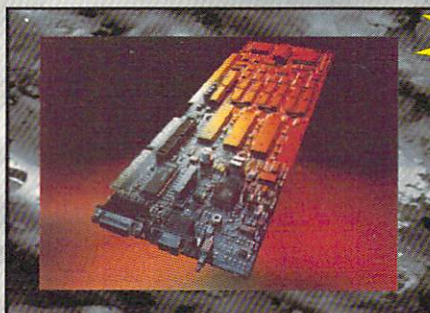
Hard Cards

Series II A2000 SCSI Hard Disk and RAM Card:

- A2000-HC8+0/52Q-LPS \$379⁰⁰
- (Quantum 52Mb Hard disk)
- A2000-HC8+0/120Q-LPS \$519⁰⁰
- (Quantum 120Mb Hard disk)
- A2000-HC8+0/240Q \$839⁰⁰
- (Quantum 240Mb Hard disk)

GVP OPTICAL/REMOVABLE MEDIA

- GVP WT-150 Tape Drive \$639⁰⁰
- SQ555 SyQuest 40mb Removable with cartridge and HC8 Controller \$599⁰⁰
- SQ800 SyQuest 80mb Removable with cartridge and HC8 Controller \$719⁰⁰



Impact Vision 24

**16 Million colors, 24-Bit
Frame Buffer + Genlock +
Framegrabber + Flicker-
Eliminator + PIP + Video
Titler +**

3D Modelling System.

A3000-IV24 \$1879⁰⁰

A2000-IV24 Adapter .. \$49⁰⁰



**NEW IBM AT
compatibility
option**

A500 HD+

The Series A500 HD8+ uses the same technologies of it's powerful A2000 cousins and additional features like: Exclusive Game Switch, Fast RAM Expansion up to 8MB, External SCSI Port, Free dedicated universal power supply!

New PC286 Module

(Optional PC286 AT compatibility. 16Mhz 286 board which plugs inside hard disk unit) \$399⁰⁰

- A500-HD+/52Q \$499⁰⁰
- (Quantum 52Mb Hard disk)
- A500-HD+/120Q \$649⁰⁰
- (Quantum 120Mb Hard disk)
- A500-HD+/240Q \$899⁰⁰
- (Quantum 240Mb Hard disk)

Prices Effective April 1, 1992

Circle 13 on Reader Service card.

From p. 26.

MEGACHIP 2000/500

MULTISTART II

SECUREKEY

DKB SOFTWARE

Add flexibility and security to your system.

By Michael Hanish

LONG LIVE THE entrepreneurial spirit! *DKB Software* has recognized three needs of Amiga users and filled them with effective, simple, and inexpensive hardware solutions.

SOLUTION #1: MEGACHIP 2000/500

Until the release of the Enhanced Chip Set (ECS), the maximum amount of chip RAM (the section of memory used for graphics and sound processing) available to Amiga 2000 and 500 owners was 512K. With the ECS Agnus installed, A2000s and A500s can access one megabyte of chip RAM, but they still lag behind the A3000, which, with its special circuitry and ECS Agnus, can access two megs of chip RAM and manipulate more and larger graphics and sound files. **The MegaChip 2000/500** (\$299.95) evens the score.

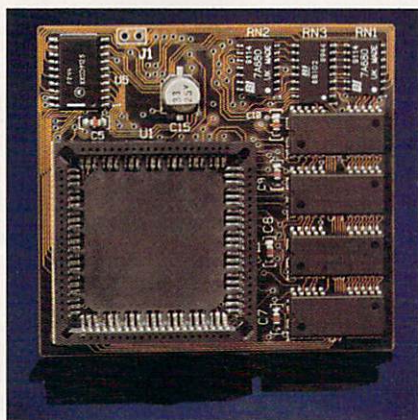
A daughterboard that plugs into your A2000's or A500's Agnus socket, the MegaChip 2000/500 gives you up to two megs of chip RAM. The board comes populated with one meg of memory, but you must supply the A3000 two-meg ECS Agnus chip to drive it.

Installing MegaChip is most definitely not for the faint of heart. (Being somewhat of a hardware wimp, I enlisted the help of an authorized service person. Plus, opening the case yourself voids your warranty.) Believe the manual when it says removing the original Agnus from your motherboard without the proper chip-pulling tool is next to impossible. It is all too easy to destroy the socket by trying to pry the chip out. Not having the correct tool, we removed the chip by stripping the machine down to the motherboard, removing it, and gently pushing the chip out from below. This works, but is *not* recommended. Details of the rest of the installation vary according to the model and configuration of your Agnus.

Follow the steps that are thoroughly described and clearly illustrated in the manual, then double-check your work

before reassembling the machine. When you reboot your upgraded Amiga, open a Shell and type `AVAIL`. If you were successful, the amount of available chip RAM listed should be slightly over the two-meg mark.

In operation, MegaChip is completely transparent, except that it gives you more space to perform graphic- and audio-intensive operations. With it, you can have up to ten megs of RAM instead of the previous limit of nine. The MegaChip board was recently redesigned into a smaller size, both for easier installation and greater compatibility with a wider variety of add-on boards and configurations. It works flawlessly under Workbench 1.3 and 2.0. Without doubt, this is one of the



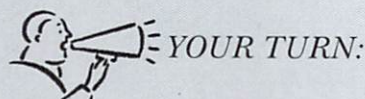
MegaChip gives your A2000/A500 two megs of Chip RAM.

best and simplest hardware improvements you can make to your system's performance.

SOLUTION #2: MULTISTART II

While many users want the power and flexibility of the 2.0 operating system, they also need 1.3 to run favorite older programs or games that break under 2.0. **MultiStart II** (\$59.95, without ROMs) lets you install and use both 1.3 and 2.0 in A2000s and A500s. Your choice of the default ROM for booting is determined by a simple jumper placement or by which ROM you insert in which socket.

Installation requires removing the old ROM from the motherboard, inserting it and the new ROM in MultiStart II, and working the daughterboard into the motherboard's socket. All the options and other installation details are thoroughly covered in the manual. Be careful, however, of two problem spots: First, the pins on the MultiStart II board seem fragile, so scsaw them carefully into the ROM



Installation of the MultiStart II card on my A500's Rev 6a motherboard was a bit more demanding than I anticipated. The original MS board I received worked on a Rev 5 or lower. The DKB service tech was very helpful, and the new board arrived promptly. Unfortunately, the installation manual was not updated, and no addendum was included. After following the original instructions and receiving a blank, fuzzy screen at boot-up, I eventually discovered that the board had to be configured for A2000 operation, not set for the A500. I have had no problems, since. The board works great.

Jeff Crystal
Houghton Lake, Michigan

socket. Second, the installation, as with MegaChip, involves attaching a clip to a particular pin on the Gary chip. In the version I used, the clip's wire is about two inches too short to make a neat run attachment; it's a tight fit in an A2000, but it reaches. DKB says it has lengthened the wire by about an inch on the newer models. Make sure to check all your work before reassembling the machine.

To run with the option of using either operating system, you must modify your hard-disk layout and startup-sequence. (The manual clearly covers both alterations.) Basically, the default system stays where it is on Workbench, and the second system resides in a drawer. The new startup-sequence checks to see which ROM is active, makes the proper assignments, and executes the appropriate startup-sequence. Changing systems is as simple as holding down the Control and Amiga keys for five to six seconds. I have never had a problem running MultiStart II, and I recommend it highly if you need to access both operating systems.

SOLUTION #3: SECUREKEY

Need to lock up your data? **SecureKey** (\$124.95), a card for the A2000 or A3000, lets you boot only after you enter a password. The board slides simply into one of the 100-pin slots, an easy and well-documented installation. When you power up the computer, you are confronted with a screen asking for the password.

The first time you boot, you enter your new password, verify it, and proceed. After that, on each power up or warm boot, you have three tries to get

it right, after which you are denied access. To try again, reboot. You can change the password at any time; just enter the old one, and then its replacement. One word of caution: Make sure you have a record of the password in case you forget. There is no way to recover it from the card, but registered owners can get a new key from DKB. This board, like DKB's others, works flawlessly and transparently.

All three boards are simple and elegant hardware solutions to system needs, doing exactly what they promise. DKB's technical support will be there for you if you have any problems, but you probably won't. I highly recommend these three products.

MEDIA SHOW

GOLD DISK

Put it all on the line.

By Greg Morris

IF YOU LONG to do multimedia stunts but face budget restrictions, **Media Show** (\$129.95) from **Gold Disk** is worth a look. With this scaled-down version of ShowMaker (Gold Disk), you can combine pictures, animations, music, and sound effects for complete video productions without complex—and expensive—equipment.

As in its full-featured brother, MediaShow's heart is the scene window, which displays a timeline containing the video, title, music, and sound-effects tracks. The timeline, in conjunction with other event-parameter windows, lets you not only coordinate events, but also specify effects, fonts, and other options.

For example, to display some previously digitized video or Amiga-generated graphics, you add a video event to the timeline: Simply click on the track labeled "Video" and drag the mouse pointer to the point in time where you want your video event to end. Once you release the mouse button, a requester appears asking you to select the file for this event—either a picture or animation file, as there is no support for incoming live video. Next, a video-event window displays information such as the resolution of the picture, how much memory it uses, and a reduced version of the image. Additional video-event options include several wiping effects, and, for animations, the speed of playback.

If you want to overlay titles on top of video events, simply add a title track into the scene window in the same manner as the video track. You can select type style and size, as well as what effect, color, and motion to apply to the text. Once you make your selections, you can enter several lines of text directly into the title-event window. The Preview option lets you see how your current selection will look when the entire production is played. If you don't like what you see, it is very easy to modify it and try again.

THE SOUND OF MUSIC

In addition to pictures and titles, you can add music files (IFF SMUS) to the timeline in the music track. When you select this track, the music-event window appears, allowing you to specify the tempos, looping options, and locations of the instruments used. Unfortunately, you must specify where the instrument files are located every time you add new music, even if the instruments are always in the same place. It would be nice to have some kind of default option for locating instrument files.

You can add sound files to any one of the four specific outputs found in the scene window. There are tracks labeled L1, L2, R1, and R2 for the two left and right audio channels, respectively.

Once you have made all your selections, click on the Play button and experience either your entire production or just a portion of it. During the testing of this feature, however, the image movement was a little jerky at times in some of the display updates on my three-megabyte, unaccelerated Amiga 2000 (no disk access was involved, either). This problem could be solved with an accelerated machine, a solution I support for professional use. Another drawback for professionals is the inability of the program to control video recorders, which is a strength of the more expensive ShowMaker. You can, however, record your presentation to videotape by using a standard genlock.

Editing a production is very easy to do. You can highlight events and copy, delete, or shift them in time, much as you would perform cut-and-paste operations in a word processor. There are three ways of editing: You can move one event in time and not affect any other events; move a particular event on a track so that all the other events are adjusted accordingly in time; or move all tracks as a group. Additionally, if the mouse pointer is not specific enough, you can adjust starting and

ending times more accurately through special gadgets on the scene window.

Even though entering information on the scene window was easy, the response to my mouse selections was a bit sluggish on my unaccelerated machine, especially when I was dragging the mouse pointer along the timeline while adding or editing an event. There is also a delay before a production begins while the program preloads several picture and sound files into memory. Even performing a minor change to the production causes the program to load everything into memory again, even the files that you did not update. This adds a lot of time when you're trying to make adjustments. What's more, there is no undo option, so once you make a change, there is no turning back.

There were a couple of other unusual things that I noticed with version 1.11 of MediaShow. Just after loading a saved production, I saw that on the Edit menu the selected edit-mode option doesn't always match the event window's edit-mode box. Once you load your production, however, selecting a different edit mode (through either the menu or event window) keeps the two synchronized.

DON'T BELIEVE EVERYTHING YOU READ

As far as the user manual is concerned, the on-disk ReadMe file explains that several changes were made in the software since the manual was printed. There is some resulting confusion, because most of the pictures in the manual showing the scene and event windows do not match what you see on the screen. I hope future manuals will more accurately reflect what you see on the screen. Other than these outdated pictures, the manual does a good job of explaining how to install and use the program. It takes you step by step through creating a production, and it is augmented by on-disk tutorials.

As an added bonus, Gold Disk includes two separate programs called Paint and Music. These provide you with the basic tools needed to create picture and sound files for use in the MediaShow program. These programs do not contain the elaborate features offered in other well-known drawing and music programs, but they work if you have no alternatives.

MediaShow is a very easy-to-use program for creating sequenced video productions for display on your Amiga. The learning curve is minimal, and you will be very quickly on your way. ►

However, because of the lack of smoothness in some of the video displays and the sluggish response during timeline manipulation, the program doesn't live up to its full potential on a stock Amiga. For home productions and other small projects, by all means consider MediaShow; but for professional use, I would look elsewhere.

VOYAGER, THE DYNAMIC SKY SIMULATOR

CARINA SOFTWARE

A good tool to complement your telescope.

By Gene Hamm

IF YOU'VE EVER wanted to view an eclipse without going blind or watch the stars all night without freezing to death, then **Voyager, the Dynamic Sky Simulator** (\$124.95, Carina Software) is the program for you. A friend of



Voyager lets you see such sky figures as the Bull, the Hunter, and the Twins.

mine had to go to Baja Mexico to see stars as clearly as Voyager shows them.

It's like having a planetarium on your Amiga. You can gaze at the stars and planets as they would appear from any location on the Earth or in space, and you can go forward or backward in time to see how the universe changes over millennia. You can even look at the Big Dipper from such a remote point in time or space that it doesn't

look like the Big Dipper any more. For serious astronomers, three optional Sky Data disks are chock full of additional stars if those on the Voyager disk aren't enough.

When you load the program, you see a sky full of stars, each one about a pixel in diameter—so small that they could be flyspecks on your monitor. Center the cursor on any one and click the mouse button to call up a display box that has more information on that little flyspeck than you probably want to know.

Interested in another star? Horizontal and vertical scroll bars and zoom control buttons allow you to move freely about the sky. You can bypass the zoom buttons by holding down the left mouse button and dragging a box around any section of sky you want to see at closer range. If you want to see the stars from your backyard, you can custom design the horizon to imitate your immediate surroundings. For realism, you can make the ground opaque, or, to see through the Earth, you can make it transparent.

You can fix on one star and track it all night, or fix on the horizon and watch the sky rotate around you. Control buttons turn on displays of planets, stars, deep sky objects (galaxies and so on), outlines of constellations, and grid lines. These can be viewed separately or all at once. The more that is displayed, the more your machine slows down, but the speed at which pictures are shown is still remarkably fast. If you find an especially interesting screen, you can print it, and in doing so you can save wear and tear on your ribbon or toner cartridge by reversing the colors to output black stars on a white sky.

IT'S ALL HOW YOU LOOK AT IT

You have a choice of four view modes for seeing the whole known universe at once. The Star Atlas view shows it in the form of a flat map, while the Local view adapts the Star Atlas view to display the universe as it would appear from your local position on Earth. In the Full view, the universe resembles a mural that scrolls horizontally in an endless loop, as if it were going past your car window. The Celestial Sphere view is a fish-eye 180-degree display of one-half of the sky, and this is the most cosmically mind-blowing panorama in the Voyager program. I'm sure the programmers intended you to feel as though you were inside a dome, but because concave and convex are perceived subjectively, I feel I am *outside*

Continued on p. 88.

Where Do You Go for Help When You're the Expert?

BIX - the Online Service for People Who Know Amiga!

- Get quick answers to tough coding questions
- Interact with other Amiga developers
- Download source code, utilities, and other programs for the Amiga
- Keep up with the latest Amiga developments
- Send and receive private e-mail with binary attachments
- Chat with other Amiga users in real time

You can become a BIX subscriber today for only \$13 per month! Choose from 2 affordable usage plans, and enjoy local access from over 600 locations throughout the continental U.S.

Join BIX Today!

1. Via modem, dial 1-800-225-4129
2. At the "login:" prompt, enter "bix"
3. At the "Name?" prompt, enter "bix.amiga"

Questions? Call 1-800-695-4775

BIX is a service of
General Videotex Corporation
1030 Massachusetts Avenue,
Cambridge, MA 02138
1-800-695-4775
617-354-4137

PREMIER PRODUCTS OF THE MONTH

GOLDENIMAGE®

RAM Expansion 4 MB RAM

for Amiga 500

Attractive Case Simply
Plugs into Side Expansion Port.
Comes with

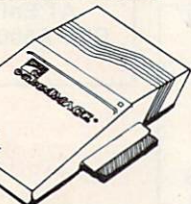
2 MB already installed!

The Best Memory for your A500.

- pass-through to further expand
- can be daisy-chained
- populates with 1x9 simms.

**only
\$165**

**NEW LOW
PRICE!**



Amiga Replacement Mouse

#1 Seller!

- Opto Mechanical

\$32

Hand Scanner with Deluxe Paint III

- Migraph Touch-up Software
- 100/200/300/400 dpi selectable modes
- 64 halftone levels

\$195

THE MIRACLE PIANO TEACHING SYSTEM

State-of-the-art electronic keyboard, Amiga software and artificial intelligence music technology work together to create the perfect teaching program - for anyone who has ever wanted to learn to play the piano.

FEATURES:

- over 128 sampled instruments, sounds and effects
- full size velocity sensitive keys for true musical expression
- learn real music notation, proper fingering techniques, how to read and play rhythm properly, and pedaling
- customized lessons to meet your individual musical needs
- over 50 songs, with a wide variety of music styles
- lessons are fun, including arcade quality video games, historical facts and computer accompaniment.
- built-in stereo speakers, foot pedal, stereo earphones and connection to your home stereo system.
- fully MIDI compatible, with MIDI in and out jacks
- keyboard can be used without Amiga for performance.



**Price
Too Low to
Advertise!**



MICRO PROSE™

**\$36.95
each**



World Championship formula one racing at its most intense with Microprose's new **World Circuit: Grand Prix Racing**. Authentic performance, multiple camera angles, and stunning crashes. Amiga now. IBM coming soon.

Thrilling game of undercover crime fighting from Sid Meier. In **Covert Action** break codes, unravel plots before they unfold. James Bond who? Available for Amiga and IBM.

Amiga SupraFAXModem V.32 .bis

**Package Includes
SupraFAX Software,
A-Talk III Telecom
Software, and Amiga
Modem Cable**



\$335

- 14,000/9600/7200/4800/2400/1200/300 bps data
- Up to 57,600 bps throughput with another V.42 bis
- Send/Receive to class 1, 2, and 3 fax machines
- LED Display gives 25 status reports
- Activity log & customizable fax cover pages

**Stand Alone
Modem
• no software
or cable •**

\$309

Gold Disk VideoDirector

• Complete Video Editing System for everyone with a camcorder, VCR and an Amiga

• Quickly and easily catalog and edit the best moments from your video tapes!



• Includes hardware to control most camcorders and VCR's

**only
\$169!**

Gold Disk Professional Calc

• The First Truly Professional Spreadsheet for the Amiga!

- Powerful Math, Trig, Financial, Statistical and Database functions
- Advanced icon based interface



- Full font and color support
- 2D & 3D graphs
- PostScript output
- Full ARexx support

**only
\$199!**

Amiga SupraFAXModem 2400 Plus

**SAME PACKAGE AS ABOVE
but with these features:**

\$165

- 2400/1200/300 bps data
- 9600 bps class 1 & 2 send/receive fax
- MNP 2-5 & CCITT V.42bis error correction/data compression for up to 9600 bps throughput with another V.42bis modem
- compatible with Group 3 fax machines
- activity log & customizable fax cover pages
- Bell 103/212A & CCITT V.21/V.22/V.22bis/V.23/V.42/V.42bis
- 100% compatible with industry-standard "AT" commands & result codes
- extended error correction/data compression "AT" commands & result codes

Supra Corporation

Since 1982
Computability
Consumer Electronics

**See Following Pages for More
Exciting Products & Prices!**

AMW 5-92

800-558-0003

Since 1982
ComputAbility
Consumer Electronics

AMW 5-92

800-558-0003

AMIGA 500 UPGRADE KIT

880K Disk Drive
+ 512K RAM
Expansion **\$109**
NEW LOW PRICE!

SOFTWARE SPECIALS

AMOS	57.95	Pagestream 2.2	159.95
Art Department Pro 2.1	147.95	Proper Grammar	54.95
Can Do	79.95	Prowrite 3.2	87.95
Final Copy	57.95	Super JAM!	84.95

NEW PACKAGE! VIDEO PACKAGE

- INCLUDES:
- Panasonic 1410 Camera •
 - Copystand with Lights •
 - DigiView MediaStation •

price includes
16mm lens with
Variable Iris:
\$385

AMIGA EXTRAS

AD Speed (all Amiga Computers)	\$164	Sharp JX100 Scanner	\$489
Air Drive Int 3.5"-A3000	\$89	Taco Single Frame Animator Cntrlr	\$1,739
AMAXX II	\$137	Video Blender	\$939
Amiga RF Modulator	\$29	Vidi Complete Color Solution	\$235
Amiga 1680 Modem	\$39	GOLDEN IMAGE:	
BCD Internal SFC - A2000	\$749	Jin Mouse	\$23
Big Foot Power Supply	\$95	Replacement Mouse	\$32
Bodega Bay	\$279	Optical Mouse	\$45
Chroma Key/ Switcher	\$315	Cordless Mouse w/Deluxe Paint II	\$69
Colorburst	\$659	Cordless TrackBall w/Deluxe Paint II	\$79
Color Splitter	\$105	1/2 MB RAM Expansion for A500	\$36
Data Flyer RAM Card OK	\$89		
Digiview Media Station	\$152		
Digital Sound Studio	\$85		
DMI Floptical Disk Drive	Call		
ECE Midi Interface	\$48		
Flicker Fixer	\$235		
Flicker Free Video 500/1000/2000	\$235		
Firecracker	\$825		
Internal Drive 2000	\$69		
K-Start Selector	\$35		
Light-24	Call		
Mega Chip 2000 w/Super Agnus	\$299		
MIDI Gold A500 / Insider A2000	\$55/\$59		
Mini Gen	\$185		
Miracle Keyboard	CALL		
Multistart II	\$54		
Personal SFC (Nucleus)	\$339		
Perfect Sound	\$65		
Professional Video Chassis	\$242		
Rotect Internal 500 Drive	\$79		

ATonce-Plus

16MHz PC/AT-Emulator
for Amiga 500, A2000 **\$285**

PROGRESSIVE PERIPHERALS:

Free Delivery in Contiguous 48 States!

68040 Board for A2000, OK	\$1,579
4MB / 8MB	\$1,719 / \$1,849
16MB / 32MB	\$2,299 / \$2,999

Microbotics VXL-30-68030

Accelerator Board

for the A500/2000

25MHz No Math Coprocessor	\$289
25MHz w/68882 Math Coprocessor	\$449
40MHz No Math Coprocessor	\$449
40MHz w/68882 Math Coprocessor	\$629

Hi-Speed IDE Hard Drive Packages for the A500

	52 IDE Quantum A500	105 IDE Quantum A500	130 IDE Maxtor A500
Internal ICD-AD IDE 40 Kit	\$349	\$459	\$489
Int. ICD-AD IDE 40 w/AD Speed	\$529	\$639	\$679
Trumpcard 500 AT External OK expandable to 8 MB	\$439	\$569	\$579

Includes: cables, Software, Drive, Mounting Hardware

GVP

NEW
LOW PRICES!

Series II for A500 HD+ OK Expandable to 8MB

52 MB	120 MB
\$489	\$639

Impact Series II for A2000 SCSI Hard Disk + RAM Expansion

120LPS	240LPS
\$509	\$819

SEE HARD DRIVE GRID BELOW
FOR ADDITION OPTIONS

Digital Sound Studio **\$85**

PC Snap-In Module AT Emulator for GVP A500 HD+ Series

\$319 NEW LOW PRICE!

G-Force Combo 0-30 Accelerators for A2000 Series

Expandable to 16MB
•• FREE DELIVERY ••

(in the 48 Contiguous States)

25MHz w/Math Coprocessor + 1MB	\$679
40MHz w/Math Coprocessor + 4MB	\$1,189
40MHz, 120MB w/Math Co + 4MB	\$1,519
40MHz, 240MB w/Math Co + 4MB	\$1,749
50MHz w/Math Coprocessor + 4MB	\$1,559
50MHz, 240MB HD w/MathCo+4MB	\$2,049

CALL!

VIDEO TOASTER

PERSONAL TBC II

DC TV

KITCHEN SYNC

DPS 230 EXTERNAL TBC Rackmountable

PERSONAL VSCOPE

Panasonic

star

CITIZEN

PRINTERS

KX-P 1180i	\$155	KX-P 1124i	\$279
KX-P 1123	\$195	KX-P 1624	\$337
KX-P 2180	\$175	KX-P 2624	\$359
KX-P 2180 w/Color Kit	\$219	KX-P 1654	\$535
KX-P 2123	\$245	KX-P 4410	\$645
KX-P 2123 w/Color Kit	\$289	KX-P 2124/Color Kit	Call

NX 1001 Multifont NEW	\$135
NX 1020 Rainbow NEW	\$179
NX 2420 Rainbow	\$285
NX 2430 Black	\$235
Star Jet 48	\$285
Laser Printer 4	\$799
Laser Printer 4 Star Script	\$1,159

200GX / with Color Kit	\$159 / \$199
200GX-15 / with Color Kit	\$295 / \$359
GSX-130 / with Color Kit	\$239 / \$279
GSX-140 PLUS	\$295
GSX-140 PLUS with Color Kit	\$339
GSX-145 Wide 24 pin	\$365
GSX-145 Wide 24 Pin with Color Kit	\$425

AMIGA 500/2000 HARD DRIVE PACKAGES

DRIVES	DRIVE ALONE as advertised	TRUMPCARD		TRUMPCARD		GRAND SLAM		GRAND SLAM		SUPRA WORD- SYNC 2000	GVP HC8 series II OK - 8MB	DATA FLYER	
		2000	PRO2000	500	PR 500	500 OK Exp to 8MB	2000 OK Exp to 8MB	500 OK Exp to 8MB	2000 OK Exp to 8MB			2000	500
Quantum 52 LPS	\$205	\$285	\$345	\$379	\$439	\$509	\$445	\$305	\$369			\$289	\$349
Quantum 105 LPS	\$335	\$419	\$479	\$515	\$579	\$649	\$585	\$435	\$489			\$425	\$485
Quantum 240 LPS	\$655	\$749	\$809	\$845	\$909	\$979	\$915	\$755	\$799			\$755	\$815
Maxtor 7060 SCSI	\$239	\$319	\$379	\$415	\$479	\$549	\$485	\$339	\$385			\$325	\$385
Maxtor 7080 SCSI	\$289	\$369	\$429	\$465	\$529	\$599	\$535	\$389	\$439			\$375	\$435
Maxtor 7120 SCSI	\$349	\$439	\$499	\$535	\$599	\$669	\$605	\$449	\$515			\$445	\$505

Seagate

Quantum

Maxtor®

800-558-0003

Since 1982
ComputAbility
Consumer Electronics

800-558-0003

AMW 5-92

GOLDENIMAGE®**Master 3A-1****BACK IN STOCK!**

3.5" Floppy
Ext. Disk Drive
for the
500 / 1000 / 2000

\$79

**Complete
Video Toaster
Work Stations**

CALL!

for specific configurations!

**Supra
Corporation**

SupraDrive 500XP	
52MB with 1MB / 2MB RAM	\$465/\$545
120MB with 1/2MB / 2MB RAM	\$579/\$665
240MB drive w/2MB RAM	\$909
SupraRAM 500RX	
1MB / 2MB / 8MB	\$125 / \$185 / \$395
SupraRAM 2000	
2 / 4 / 6 / 8 MB	\$165 / \$225 / \$285 / \$349
SupraRAM 500	
1/2 MB with Clock	\$39
SupraModem 2400	
External	\$79
SupraModem 2400 Plus	
MNP5 & V.42bis External	\$129
SupraModem 2400 zi Plus	
MNP5 & V.42bis Internal	\$149
Power PC Board Run MS DOS	
Software on your A500	\$269

**Commodore®
AMIGA® 500
STARTER KIT**

INCLUDES:

- Amiga 500 Personal Computer
- Amiga Mouse • Joystick
- Amiga Power Adaptor
- 9 Disks: •Workbench 1.3, •Workbench 1.3 Extras, •KindWords (3 Disks), •Fusion- Paint, •Indiana Jones & the Last Crusade, •F40 Pursuit, •F/A-18 Interceptor
- Manuals: the Comprehensive Software Instructions & Amiga Owner's Guide



**Call for
Low, Low
Price!**

**SYQUEST
Drive
Package**

NEW LOW PRICE!

44MB for 2000
Int. / Ext. \$415/515

88MB for 2000
Int. / Ext. \$579/679

Package includes:
SyQuest drive, 1 media cartridge, Amiback utilities, & cable. External models include case.

4-D Boxing w/Tru-Motion	31.95	Civil War	37.95
A-10 Tank Killer V.1.5 Upgd	36.95	Cohort	30.95
Aces of the Pacific	41.95	Conan the Cimmerian	30.95
Action Stations	30.95	Conflict: Korea	37.95
Adventures of Willie Beamish	36.95	Conflict: Middle East	36.95
Agony	30.95	Covert Action	36.95
American Gladiators	30.95	Cruise for a Corpse	34.95
Armour Geddon	30.95	Crusaders Dark Savant	41.95
ATAC	30.95	Curse/Azure Bonds	31.95
Awsome	36.95	Cybercon III	36.95
Atomino	31.95	Daemongate	41.95
B-17 Flying Fortress	41.95	Das Boot Submarine	31.95
Back to the Future II or III	24.95	Death Knights of Krynn	31.95
Ball Game	24.95	DeluxePaint IV	107.95
Barbarian II	30.95	Disney Animation Studio	74.95
Bard's Tale III	31.95	Dragon Wars	30.95
Battle Chess II	30.95	Dune	30.95
Battle Isle	31.95	Dungeon Master	24.95
Bill Elliot Nascar Challenge	30.95	ECO Phantoms	24.95
Birds of Prey	31.95	Ecoquest	30.95
Black Crypt	31.95	Elf	31.95
Blitzkrieg	30.95	Elvira I or II	36.95/41.95
Blue Max	31.95	Eye of the Beholder I or II	37.95
Bo Jackson Baseball	30.95	F-15 Strike Eagle II	36.95
Bridge 6.0	24.95	F-19 Stealth Fighter	36.95
Cadaver	24.95	Falcon	30.95
Carmen San Diego/Each	30.95	Fantastic Voyage	27.95
Carmen San Diego - America	36.95	Fighter Dual	30.95
Castles	36.95	Final Conflict	36.95
Castles of Dr. Brain	30.95	Flames of Freedom	30.95
Celtic Legends	31.95	Flight of the Intruder	35.95
Centurion	31.95	Flight Simulator II	30.95
Champions of Krynn	31.95	Gateway Savage Frontier	31.95
Chaos: Dungeon Master 2	24.95	Godfather	30.95
Chessmaster 2100	31.95	Greens	36.95
Chuck Yeager AFT 2.0	25.95	Guy Spy	30.95

A Talk III	59.95	Deluxe Photo Lab	94.95
Advantage, The	124.95	Deluxe Print II	51.95
Ami Back Moonlighter	44.95	Deluxe Productions	128.95
AMOS	57.95	Deluxe Video III w/Del Photolab	107.95
AMOS Compiler	34.95	Digimate 3	24.95
AMOS 3D	44.95	DigiView Media Station	147.95
Arrex	27.95	Director 2.0	75.95
Art Department Pro 2.1	147.95	Directory Opus	36.95
Artistic Clips Vol. 1	28.95	Disk Master 2	39.95
Audio Master 4	57.95	Disk Mechanic	54.95
Audition 4	57.95	Disney Animation Studio	74.95
Aztec C Developer V.5.0	157.95	Distant Suns Version 4.0	54.95
Aztec C Pro V.5.0	104.95	Dos 2 Dos	30.95
BAD 4.0	28.95	Draw 4D Professional	184.95
Bars & Pipes	109.95	Dynacadd	669.95
Bars & Pipes Pro	194.95	Excellence V2.0	104.95
Baud Bandit	28.95	Final Copy	56.95
Bis Clips Vol. 1 & 2	30.95	Font Pack 1 Broadcast Titrer	107.95
Broadcast 3D Fonts for Imagine	84.95	Font Enhancer Broadcast Titrer	107.95
Broadcast Titrer 2.0	194.95	Fractal Pro 2.0	94.95
Caligari 2	279.95	GFA Basic 3.5	87.95
Can Do	79.95	Gold Disk Office	124.95
Pro Pack 1	24.95	Hyper Book	59.95
Comic Art Disks each	22.95	Image Finder	41.95
Comic Setter	44.95	Image Master	112.95
Copyright	28.95	Imagine V2.0 NEW	244.95
Cross DOS 2.0	24.95	Invision+	174.95
Decorative Video Fonts	59.95	Kara Headline Fonts 1	41.95
Deluxe Music Construction	61.95	Kara Headline Fonts 2	36.95
Deluxe Paint IV	107.95	Kara Toaster Fonts 1 or 2	51.95



**NO CREDIT CARD
SURCHARGE**

INFORMATION
414-357-8181 FAX 414-357-7814
P.O. BOX 17882
Milwaukee, WI 53217

HOURS-CST
MON-FRI 9am-9pm
SAT 11am-5pm

RECREATION

Hardball II	30.95	Light Quest	31.95
Harpoon	37.95	Links	36.95
Battleset 2 or 3	20.95	Lost Patrol	31.95
Agony 4	25.95	M-1 Tank Platoon	36.95
Scenario Editor	25.95	Madden Football	31.95
Harpoon Challenger Pak	57.95	Manager's Challenge	30.95
Heart of China	36.95	Mantis: Experimental Fighter	36.95
Holybook of Games 1 or 2	21.95	Matrix Cubed	31.95
Home Alone	24.95	Mavis Beacon Typing	31.95
Hoverforce	30.95	Mega Fortress	37.95
Immortal	31.95	Mega-Traveller 1	36.95
Indy Jones 4: Fate of Atlantis	37.95	Mercenaries	37.95
Indianapolis 500	31.95	Merchant Colony	36.95
Jack Nicklaus Unlimited	36.95	Medieval Warrior	30.95
Course Disk #1-#5	15.95	Mig-29	30.95
Greatest 18 Holes	19.95	Might & Magic III	37.95
Designer's Clip Art Vol. 1	17.95	Millennium	24.95
James Bond: Stealth Affair	34.95	Mixed-Up Mother Goose	30.95
J. Conners's Pro Tennis Tour	31.95	Navy Seals	25.95
Jones in the Fast Lane	24.95	Never Ending Story 2: Arcade	24.95
Keys To Maramon	31.95	Novus's Ambition	36.95
KGB	30.95	Nov 9	22.95
Killing Cloud	30.95	On No Lemmings	30.95
King's Quest 2 or 3	30.95	Operation Combat	30.95
King's Quest 4 or 5	36.95	Ork	30.95
Knights of the Crystalline	36.95	Out of this World	36.95
Knights in the Sky	36.95	Overlord	30.95
Koshan Conspiracy	31.95	PGA Tour Golf	31.95
Leander	30.95	Golf Tour Course Disk	17.95
Leisure Suit Larry I	36.95	Paper Boy 2	25.95
Leisure Suit Larry 2 or 3	36.95	Perfect General	36.95
Leisure Suit Larry 5	36.95	PWWII Edition	22.95
Lemmings	30.95	Pit-Fighter	30.95
On No! More Lem add-on	21.95	Police Quest 2 or 3	36.95

PRODUCTIVITY

Lattice C DEV 5.01	187.95	Phantom SMPTE Interface	209.95
Map Master for Lightwave 3D	57.95	Phasar	49.95
Material Textures Library Vol. 2	30.95	Pix Mate	37.95
Math Blaster Plus	30.95	Pix Sound 2.5	52.95
Maverick	24.95	Pixel 3D	74.95
Mavis Beacon Typing	31.95	Power Windows 2.5	54.95
MediaShow	82.95	Presentation Master	177.95
Mega Print	174.95	Pro Page Templates	35.95
Movie Setter	44.95	Pro Textures	35.95
Data Disk	22.95	Pro Video CGI	112.95
MR Backup Professional	34.95	Pro Video Gold	97.95
Musix X	169.95	Pro Video Post	154.95
Musix X Jr.	87.95	Alternate Font Sets	34.95
Object Disk #1	77.95	Video Fonts II	57.95
On Line Platinum	39.95	Bread & Butter Fonts	57.95
Outline Font Pack	124.95	Cinnamon Toast Fonts	57.95
Page Renderer 3.0	94.95	Pro Write 3.2	87.95
Page Setter 2	82.95	Professional Calc	184.95
Page Stream V.2.2	159.95	Professional Draw	124.95
Buddy System	29.95	Professional Page 3.0	184.95
Classic Font Set	114.95	Structured Clip Art	36.95
Font Finder	114.95	Templates	63.95
Newsletter Fonts	59.95	Project D V2.0	35.95
Starfont Fonts	59.95	Proper Grammar	57.95
Pelican Press	62.95	ProVector	187.95
Pen Pal	85.95	Quarter Back	39.95
Personal Write	30.95	Quarter Back Toaster	57.95
Personal Fonts Maker	62.95	QuickPay 2.0	37.95

Pools of Darkness	37.95	Stellar 7	21.95
Populous	31.95	Strikefleet	25.95
World Editor	15.95	Strip Poker 3	30.95
Populous II	37.95	Super Space Invaders	24.95
Powermonger	31.95	Swap	30.95
Data Disk WWI Edition	15.95	Tales Magic: Proph. Shadow	37.95
Prehistoric	30.95	Team Suzuki	24.95
Prince of Persia	24.95	Team Yankee	36.95
Prophecy of the Shadow	36.95	Teenage Ninja Turtles: Arc	30.95
Quest for Glory 1 or 2	36.95	Terrain Envoy	28.95
Railroad Tycoon	36.95	Their Finest Hour	20.95
Realms	30.95	Thunderhawk	30.95
Red Baron	36.95	Thunderstrike	30.95
Red Storm Rising	34.95	Tilt	24.95
Rise of the Dragon	36.95	Tom Landry Football	30.95
Robin Hood/Conq Long Bow	36.95	Tracon II	41.95
Robocop II	28.95	Traders	30.95
Robosport	36.95	Twilight 2000	36.95
Romance 3 Kingdoms II	42.95	Ultima 5	36.95
Rules of Engagement	37.95	Ultima 6	41.95
Secret of Monkey Isl. I or II	37.95	UMS: Nations at War	36.95
Secret of the Silver Blades	31.95	UMS II: Planet Editor	30.95
Shadow of the Beast II or III	36.95	Vengeance of Excalibur	30.95
Shadow Sorcerer	31.95	Volified	24.95
Shuttle	36.95	Warhead	31.95
Silent Service II	36.95	Warlord	30.95
Sim Ant	36.95	Wheel of Fortune w/Vanna	30.95
Sim City	30.95	Where in the ..Carmen each	30.95
Sim Earth	41.95	White Death	30.95
Sleeping Gods Lie	30.95	Wide World of Boxing	30.95
Space 1889	36.95	Wild Wheels	31.95
Space Ace II: Bof's Revenge	36.95	Willie Beamish	36.95
Space Quest 2	30.95	Wolf Pak	34.95
Space Quest 3 or 4	36.95	World Circuit	36.95
Spacewrecker	30.95	Worlds at War	30.95
Speedball 2	24.95	Yeager's Adv. Train 2.0	25.95

Raw Copy	34.95	Title Page	104.95
Real 3D Beginner	112.95	Toaster Fonts V.1-5 each	41.95
Real 3D Professional	269.95	Toaster Software V.2.0	305.95
Roll'em	86.95	Transwrite	44.95
RX Tools	35.95	Turbo Silver w/Terrain	56.95
San Serif Video Fonts	59.95	Turbo Text	57.95
Saxon Publisher	209.95	T.V. Show V2.0	64.95
Saxon Script Pro	74.95	TV Text	64.95
Scala	Call	TV Text Professional	99.95
Scatemaker V.2.0	28.95	Types: Decorative, Designer	
Scene Generator	29.95	Publisher, Videographer, each	35.95
Scenery Animator	57.95	Video Effects 3-0	106.95
Screen Maker - 36 Disk Pkg	219.95	Video Titrer V1.5	92.95
Screen Maker Syquest Crtg	269.95	Video Tools	172.95
Screen Maker Starter Kit	27.95	VideoDirector	137.95
Serif 1 Video Fonts	59.95	VideoScope 3D V2.0	119.95
Showmaker	239.95	VIP Video Interface	104.95
Soft Clips Vol. 1, 2, 3 or 4	44.95	Visionary	57.95
Sound Master	134.95	Vista	64.95
Spectracolor	57.95	Vista Professional V.2.0	57.95
Sterling Service BBS	84.95	Viva	122.95
Structured Clip Art	35.95	Works, Platinum	99.95
Super JAM!	84.95	World Atlas 2.0	36.95
Superbase 4	244.95	W.Shell 2.0	54.95
T-Rex Pro	72.95	X Copy Professional	47.95
Texture City Pro 15, Set 1 or 2	86.95	X Copy v2.9	34.95
Texture City Pro 40, 24 bit	157.95	Your Family Tree	39.95
Texture City Pro 40, Syquest	267.95	Zoetrope	44.95
Texture City Pro 40, DCTV	107.95		
Tiger Cub	74.95		

Call for More Titles!

ORDERING INFO: Specify system. For fast delivery send cashier's check or money order. Personal & company checks allow 14 business days to clear. P.O.'s welcome. C.O.D. charges are \$5.00. In Continental U.S.A. include \$5.00 for software. Orders 5% shipping for hardware, minimum \$5.00. MasterCard & Visa orders please include card #, expiration date and signature. WI residents please include 5% sales tax. HI, AK, FPO, APO, Puerto Rico and Canadian orders, please add 6% shipping, minimum \$6.00. All other foreign orders add 15% shipping, min \$15.00. All orders shipped outside the Continental U.S.A. are shipped first class insured U.S. mail, where available. If foreign shipping charges exceed the minimum amount, you will be charged the additional amount. All goods are new and include factory warranty. We do not guarantee compatibility & version #s. Due to our low prices all sales are final. All defective returns must have a return authorization number. Call (414) 357-8181 to obtain an R.A. # or your return will not be accepted. Prices and availability subject to change without notice. Shipping & handling are non-refundable. We ship the latest versions available to us, updates must be handled by end user directly with the manufacturer. Not responsible for typographical errors. In an effort to be complete, some new products may not be available from the manufacturer at press time.



HELP KEY

On Lou's agenda this month are accelerator, coprocessor, and digitizer choices, plus a 2.0/AmigaBasic problem.

By Louis R. Wallace

THRIFTY DIGITIZING

Q: *I want to digitize video. I'm not rich, and I was thinking about NewTek's Digi-View Gold or Digital Creations' DCTV, but I really have nothing to refer to as far as the ins and outs of digitizing hardware and software are concerned. I want to do general stuff such as making digital pictures of my family and scenery, with the ability to save and print out the pictures. It would also be nice if I could overlay pictures, that is, digitize a background and overlay someone's face in the picture. Could you give me some advice? Can I do both with a low-budget system?*

R. Fleming
USMCA

A: Actually, both digitizers (DCTV and Digi-View) will work. Digi-View, when combined with Digi-Paint, allows you to digitize images and then edit and composite them in the Digi-Paint HAM paint program. DCTV also lets you digitize images, and it comes with an even better paint program, called DCTV Paint, as well as other utilities. In addition, DCTV has several significant advantages over Digi-View. The most important is that it can output a high-quality composite video signal that gives you more colors and higher resolution than the normal Amiga display. And you can use it to play animations in real time that take advantage of the additional colors and resolution. Both are good, but if I were forced to choose between the two, I would pick DCTV.

AMIGABASIC/2.0 INCOMPATIBILITY

Q: *I have installed AmigaDOS 2.04 on my A2000. It is equipped with the GVP 68030 accelerator card, a hard disk and several megs of RAM. I have tried to use AmigaBasic, but with even simple commands like INPUT, the screen blinks black when the*

program is run, and then nothing else happens. Is there a problem with the GVP 68030 card and AmigaBasic? Or is there something wrong with my computer?

J. Watson
LaVerne, Calif.

A: The answer is elementary, my dear Watson. It is neither your GVP accelerator nor your computer. The culprit is AmigaBasic itself. AmigaBasic does not, repeat, does not, work properly under AmigaDOS 2.0. There are a number of other problems and bugs besides the one you report, and CATS (Commodore Applications and Technical Support) confirms that AmigaBasic is not AmigaDOS 2.0-compatible. Furthermore, at this time there are no plans for Microsoft to upgrade the language to be 2.0-compliant.

There are, however, other Basic-like languages available that can fill the void left by AmigaBasic. Examples are AMOS, HiSoft Basic, AmigaVision and The Director. HiSoft is quite AmigaBasic-compatible, and both AMOS and The Director could be used to recreate even better versions of just about any AmigaBasic program. And if you already know Basic, you will find that learning to write programs with AmigaVision is quite easy.

SPEEDING IT UP

Q: *I am considering the purchase of a 68020 accelerator for my stock Amiga 2000. What would be the best coprocessor to go with it: a 68881 or 68882? The use will be to speed up 3-D rendering somewhat. Are there any resulting hardware or software conflicts with this upgrade?*

T. Mitchell
Cupertino, Calif.

A: There are always some compatibility problems when using accelerators. Games are the biggest culprit, as they often use "illegal" tricks and techniques to wring every bit of performance out

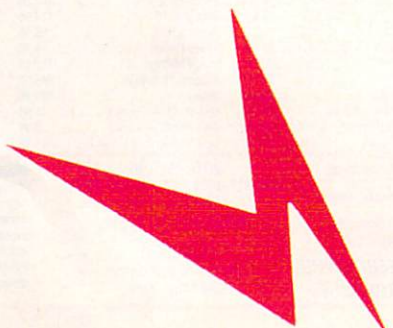
of the machine, and they frequently have copy-protection schemes that break down on processors other than the 68000. However, Commodore has long had programming guidelines available that, if followed, usually allow software to work properly on any processor. Luckily, most companies have followed those rules, so the vast majority of software works just fine on accelerated machines.

However, I must advise you to skip the 68020 card unless you are getting an exceptionally good deal on the hardware. When compared to the performance of today's 68030 and 68040 technology, the 68020 is not very cost effective. There are very good buys available on 25-MHz 68030 cards for the A2000, as well as on 40- and 50-MHz 68030 cards. And there are now several high-performance 68040 boards for the A2000 that are even faster. As an added incentive, these 68030 and 68040 cards allow you to exceed the A2000's original nine-megabyte memory limitation, a very important factor for 3-D designers and animators.

As for which math coprocessor to get, I'd definitely go for the 68882. It is significantly faster than the 68881, resulting in faster 3-D renderings.

UPDATE

For those 3-D animators interested in checking out the Studio BBS mentioned in the Feb. '92 Help Key, be advised that the telephone number was changed in early March. The new number is 817/557-2111. ■



THE ONLY 16Mhz '286 IBM PC/AT[®] EMULATOR THAT WORKS WITH BOTH THE A500 AND THE A2000



If you want your Amiga 500, 500+ or 2000 to be able to run software programs that were originally written for the IBM PC, GVP and Vortex have the perfect solution—the ATonce-Plus PC/AT emulator board.

But before you buy any emulator here are a few key facts you should know . . .

- ▶ **FACT:** ATonce-PLUS is the only PC emulator board with a powerful 16-bit 80286 CPU running at the blazing clockspeed of 16Mhz.
- ▶ **FACT:** ATonce-PLUS has a Norton Speed Index of 16, so you know it's amazingly fast at loading, manipulating and storing data.
- ▶ **FACT:** ATonce-PLUS comes with its own 512KB of RAM and allows the Amiga's memory to be (transparently) allocated to MS-DOS applications requiring more than 512KB of memory. Amiga FAST RAM can even be used as extended memory!
- ▶ **FACT:** ATonce-PLUS can take full advantage of the 80286 CPU's protected mode and allows MS Windows to run in "standard" mode.

This is not possible with other emulators using 8-bit wide bus CPU's.

- ▶ **FACT:** ATonce-PLUS operates under AmigaDOS, so you can run AmigaDOS and MS-DOS

applications concurrently!

- ▶ **FACT:** ATonce-PLUS supports Hercules, CGA, EGA/VGA (monochrome), AT&T 6300 (640x400) and T3100 video emulations.
- ▶ **FACT:** ATonce-PLUS makes 1000's of new software programs available to Amiga 500, 500+ and 2000 users.
- ▶ **FACT:** ATonce-PLUS allows MS-DOS applications to use the Amiga's hard-disk, floppy disks, serial port, parallel port, mouse, sound and Real-time Clock. It even emulates a PC's CMOS RAM for system Setup parameters!
- ▶ **FACT:** ATonce-PLUS allows the Amiga's built-in floppy drives to be used to read and write MS-DOS compatible floppy disks.
- ▶ **FACT:** ATonce-PLUS has a socket for installing an optional 80C287 math processor (FPU) for even faster number crunching.
- ▶ **FACT:** ATonce-PLUS is compatible with MS-DOS V3.2 or later. Also compatible with latest versions of DR-DOS. NOTE: ATonce-PLUS requires the MS-DOS or DR-DOS operating system, which is not included.

**WITH THE
VORTEX ATonce-PLUS,[®]
YOUR AMIGA[®] CAN RUN
MS WINDOWS[™] AND
VIRTUALLY ANYTHING
AN IBM PC CAN . . .
AND DO IT AT 16Mhz!**

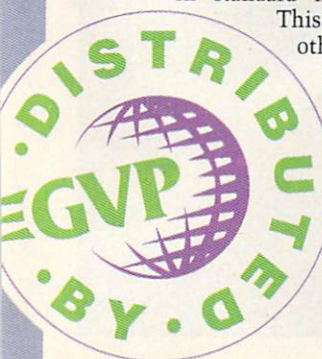
Now that you know the FACTS about PC emulator boards, you know that ATonce-PLUS is your most logical choice. For more information on ATonce-PLUS — now distributed exclusively by GVP — contact your local GVP dealer.

GVP

GREAT VALLEY PRODUCTS INC.
600 Clark Avenue, King of Prussia, PA 19406

For more information or your nearest GVP dealer, call today. Dealer inquiries welcome.
Tel. (215) 337-8770 • FAX (215) 337-9922

ATonce-PLUS is the registered German trademark of Vortex Computersysteme GmbH. Amiga is a registered trademark of Commodore-Amiga, Inc. All other trademarks are the property of their respective owners. © 1992 Great Valley Products Inc.



GO AMIGO!

800-BE-AMIGA (800-232-6442)

DKB MegAChip 2000/500

\$219⁰⁰

without Agnus

\$309⁰⁰

with Agnus

2 Megs of Chip RAM for the A2000 and A500 Doubles your Graphics memory for Desktop Video, 3D Rendering & Animation, Multimedia or Desktop Publishing

MultiStart II

The Power of Workbench 1.3

1.3 & 2.0!

MultiStart II

Provides for Amiga 500's & 2000's to operate under Workbench 1.3 & 2.0!

\$64⁹⁵

DKB 2632

Now expand your Amiga up to 112 megs of 32-Bit memory if you own the CBM A2632 Accelerator board. With 4 megs \$599⁰⁰



The Art Department Professional Ver. 2.0

Art Department Pro gives you the most powerful image processing system ever offered for the Amiga. Now with JPEG compression and 24-Bit printing \$179⁰⁰

Epson Scanner

\$1199⁰⁰



ES-300C

600 DPI, 24-Bit full page color scanner. With ASDC Driver Bundle \$1299⁰⁰

PIXEL 3D 2.0



The most powerful 3D object utility for the Amiga computer!

\$69⁰⁰

Convert bitmaps to 3D objects, get rid of redundant points and convert from one format to another!

FireCracker 24



2 Meg Version

- High-resolution
- 16.8 Million Colors
- 24-Bit graphics display card
- Works on the Amiga 2000 and 2500

\$799⁰⁰

Printers



HP PaintJet \$899.00

HP DeskJet C (Color) 759.00

HP DeskJet 500 429.00

LaserJet IIP 799.00

QMS-PS 410 1989.00

The Kitchen Sync

\$1595 (April only)

- Two Complete TBC's on one card
- Works with any video source
- S-VHS and Hi-8 compatible
- Optional Y/C output
- Great for use with the Video Toaster™

DIGITAL

CREATIONS

Newtek Video Toaster



CALL

DPS Personal TBC II

\$799⁰⁰



Supra Corporation

SupraRam 2000 2/8mb Board \$179⁰⁰

SupraRam 2000 4mb RAM 245.00

SupraRam 2000 6mb RAM 309.00

SupraRam 2000 8mb RAM 379.00

SupraRam 500 512k 47.00

SupraRam RX 1MB 139.00

SupraRam RX 2MB 199.00

Due to industry fluctuation, RAM prices are subject to change without notice

DCTV From Digital Creations

Full NTSC Color Display \$399⁰⁰ and Digitizer.

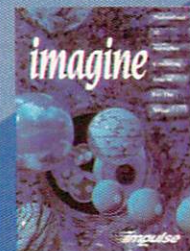


DCTV: A guided tour

This easy-to-follow, comprehensive VHS tutorial will tell you all you need to know about DCTV. \$26⁹⁵



Imagine Bundle!



Imagine, plus Imagine: A Guided Tour video

\$119⁰⁰



The World's Second Largest Distributor of Amiga™ Products

Centaur Software Inc.



Fantastic Voyage The Computer Game

"*****" 5 Stars - Highest Rating,
Info Magazine
\$34.95



B.A.D. Ver. 4.0

Best-selling disk optimizer
for all Amigas. Speeds
Noppy and hard drives by
up to 5 times! \$29.95



World Atlas

3 Disks of info on
over 170 countries
+ 255 maps
\$32.49 **NEW!**
Ver. 2.5!



Boing! Mouse

Best-selling optical mouse
for the Amiga with Free
D.U.D.E. software
(a \$39.95 value).
\$79.95

Hard Cards

Series II A2000 SCSI Hard Disk and RAM Card:
State-of-the-Art integration packs
GVP's high-performance SCSI
controller, 8MB Fast RAM expansion
and a 3.5" hard drive into a single
A2000 Expansion Slot!

A2000-HC8+0/52Q-LPS
(Quantum 52Mb) \$399.00
A2000-HC8+0/120Q-LPS
(Quantum 105Mb) \$525.00



Grand Slam Expansion Card Milestone!



Up to 8 megs
RAM expansion,
a parallel port,
and a high
speed SCSI
controller!

\$239.00



INTERACTIVE VIDEO SYSTEMS

The ICD Advantage



AdSpeed™ \$189.00
Best overall performance of any accelerator in its price
range.

Flicker Free Video™ \$269.00
Eliminates interface flicker for any Amiga computer.

Novia 20i™ \$239.00
The smallest hard drive and interface in the world for
your Amiga 500. Fits internally.

Novia 60i™ \$599.00
Now you can have the Novia with a 60 meg 2.5 inch
hard drive.

Prima 52i™ \$379.00
Now mount 52 megs and a 3.5 inch IDE drive internally
in your Amiga 500, 1000 or 2000.

Prima 105i™ \$549.00
105 megs internally in your 500, 1000 or 2000.

AdIDE™ 40 Kit \$149.00
Smallest Amiga hard drive interface made. For IDE
(AT) drives.
IDE 44 for your 2.5 inch hard drive... \$119.00

AdRAM 540 w/0k \$89.95

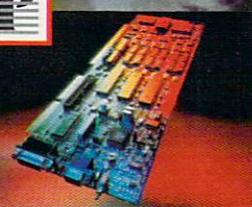
AdRAM 560 w/2mb \$239.00

AdSCSI 2000 \$99.95

High Speed SCSI Hard Card

Shuffle Board™ \$29.95

Reroutes DFO: to the external floppy connector. Boot
from an external floppy. For an Amiga 500 or 1000.



A500 HD+

The Series A500 HD+ uses the
same technologies of its powerful
A2000 cousins and additional
features like: Exclusive Game
Switch, Fast RAM Expansion up to
8MB, External SCSI Port, Free
dedicated universal power supply!
Ask about our Amiga 500 DS
Computer/GVP Hard drive bundles.

A500-HD+/52Q
(Quantum 52Mb) \$499.00
A500-HD+/120Q
(Quantum 120Mb) \$649.00
A500-HD+/240Q
(Quantum 240Mb) \$899.00

Impact Vision 24

16 Million colors, 24-Bit
Frame Buffer + Genlock
+ Framegrabber +
Flicker-Eliminator + PIP
+ Video Titrer +
3D Modelling System.

A3000-IV24 \$1899.00
A2000-IV24
Adapter \$49.00



Accelerators

Combo 22/1 \$659.00

G-Force 030-Combo

40/4 \$1189.00

-68030 running at 40mhz
-68882 running at 40mhz
-4mb of 32-Bit RAM (16mb max.)
-Onboard Series II SCSI Controller
-Hard drive mountable
-All on one board

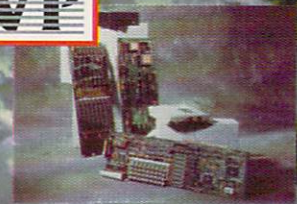
G-Force 030-Combo

50/4 \$1569.00

-68030 running at 50mhz
-68882 running at 50mhz
-4mb of 32-Bit RAM (16mb max.)
-Onboard Series II SCSI Controller
-Hard drive mountable
-All on one board

SIMM32-1mb/60 Call

SIMM32-4mb/60 Call



(The best selling GVP accelerator with a
large Quantum Hard Drive factory
installed. Save a bundle! Also includes
a GVP Series II SCSI controller on board.)

G-Force 030-Combo 40/4/
52Q \$1399.00
G-Force 030-Combo 40/4/
120Q \$1529.00
G-Force 030-Combo 40/4/
240Q \$1759.00
G-Force 030-Combo 50/4/
52Q \$1769.00
G-Force 030-Combo 50/4/
120Q \$1889.00
G-Force 030-Combo 50/4/
240Q \$2129.00

International orders call: (310) 370-9550

OFFER CODE: G24409MG Call for all other shipping information. Educational, corporate and aerospace purchase orders accepted. No surcharge for Visa/MasterCard; 4% surcharge for American Express; 1% surcharge for Discover. **RETURN POLICY:** Call Customer Service at (310) 214-0000 for return authorization. All returns without authorization number (RMA#) will be refused. Returned products must be in original condition and packaging and must be sent back within 30 days of our invoice date. No refunds, please. Defective product exchanges only. We make no guarantees for product performance. Exchanges with unlike products are at our option and subject to a 20% re-stocking fee. **COMMENTS:** Prices and availability of product are subject to change without notice. **MAIN-IN ORDERS:** Send money orders or cashiers check for fastest service. Personal checks - up to 10 days to clear. Include: Name, Address and telephone number (no P.O. Boxes, please). If ordering by credit card include expiration date and billing address. Call for exact shipping rates.

Manufacturers'/Distributors' Addresses

ACDA

220 Belle Meade Ave.
Setauket, NY 11733
516/689-7722

Activa International

Keienbergweg 95
1101 GE Amsterdam, Holland
011-31-20-97-00-35
Distributed by Programs
Plus & Video

Agfa

90 Industrial Way
Wilmington, MA 01887
508/657-5328

AltoFirma Software

36M Ridge Rd.
Greenbelt, MD 20770
301/345-2357

AmiEXPO

465 Columbus Ave., Suite 285
Valhalla, NY 10565
800/32-AMIGA
914/741-6500

ASDC

925 Stewart St.
Madison, WI 53713
608/273-6585

ATOP

11914 Girdled Rd.
Painesville, OH 44077
216/352-8471

Black Belt Systems

398 Johnson Rd.
Glasgow, MT 59230
406/367-5513
800/TK-AMIGA

Bread Box Magazine

21611 Stevens Creek Blvd.
Cupertino, CA 95014
408/252-0508

Carina Software

830 Williams St.
San Leandro, CA 94577
510/352-7332

Central Coast Software

A Division of New Horizons
206 Wild Basin Rd., Suite 109
Austin, TX 78746
512/328-6650

Commodore Business Machines

1200 Wilson Drive
West Chester, PA 19380
215/431-9100
215/436-4200

Consultron

11280 Parkview
Plymouth, MI 48170
313/459-7271

Creative Focus

PO Box 580
Chenango Bridge, NY 13745
607/648-4082

Digital FX

3145 Geary Blvd., Suite 528
San Francisco, CA 94118
415/664-5566

DKB Software

832 First St.
Milford, MI 48042
313/685-2383

Dynamix

99 W. 10th St., Suite 224
Eugene, OR 97401
503/343-0772

Earth Care Paper

PO Box 7070
Madison, WI 53707
608/277-2900

Electronic Arts

1450 Fashion Island Blvd.
San Mateo, CA 94404
415/571-7171
800/245-4525

Empire

Distributed by ReadySoft

Fred Fish

Catalog Disk Update
1835 E. Belmont Drive
Tempe, AZ 85284

Glass Canvas Productions

PO Box 6171
Boston, MA 02114
617/367-3229

Gold Disk

5155 Spectrum Way, Unit 5
Mississauga, Ont.
Canada L4W 5A1
416/602-4000
800/GOLD DSK

Great Valley Products

600 Clark Ave.
King of Prussia, PA 19406
215/337-8770

Hewlett-Packard

19310 Pruneridge Ave.
Cupertino, CA 95014
800/752-0900

Impulse

8416 Xerxes Ave. N.
Brooklyn Park, MN 55444
612/425-0557

Inkman

8976 Foothill Blvd., B-7
Suite 311
Rancho Cucamonga, CA
91730
714/948-2243

InnoVision Technology

1933 Davis St.
San Leandro, CA 94577
415/638-8432

J. Miller & Associates

PO Box 17
Imbler, OR 97841

Kara Computer Graphics

2554 Lincoln Blvd.
Suite 1010
Marina Del Rey, CA 90291
213/578-9177

Mach Universe

2421 E. Ball Rd., B100
Anaheim, CA 92806
714/563-9542

NEC Technologies

1255 Michael Drive
Wood Dale, IL 60191
800/562-5200

New Horizons Software

206 Wild Basin Rd., Suite 109
Austin, TX 78746
512/328-6650

Oxidata

532 Fellowship Rd.
Mount Laurel, NJ 08054
800/654-3282
609/235-2600

Oxxi

PO Box 90309
Long Beach, CA 90809
213/427-1227

Pacific Data Products

9125 Rehco Rd.
San Diego, CA 92121
619/552-0880

Polaroid

784 Mermaid Drive
Cambridge, MA 02139
800/225-1618

Programs Plus & Video

544 Queen St.
Chatham, Ont.
Canada N7M 2J6
519/436-0988

Progressive Peripherals & Software

464 Kalamath St.
Denver, CO 80204
303/825-4144

Quma Software

20 Warren Manor Court
Cockeysville, MD 21030
410/666-5922

RAW Entertainment

3027 Marina Bay Drive
Suite 110
League City, TX 77573
713/538-3399

ReadySoft

30 Wertheim Court, Unit 2
Richmond Hill, Ont.
Canada L4B 1B9
416/731-4175

Rimik Enterprises

836 Osborne St.
Vista, CA 92084
619/630-1217

Saxon Industries

14 Rockcross Gardens
Nepean, Ontario,
Canada K2G 5A8
613/228-8043

Sim Systems

Distributed by RAW
Entertainment

Soft-Logik Publishing

11131 South Towne Sq.
Suite F
St. Louis, MO 63123
314/894-8608

SoftWood

PO Box 50178
Phoenix, AZ 85076
602/431-9151

Technical Tools

2 S 461 Cherice Drive
Warrenville, IL 60555
708/393-6350

UBI Soft

Distributed by Electronic Arts

Virgin Games

18061 Fitch Ave., Suite C
Irvine, CA 92714
714/833-8710 ■

SIDELINE SOFTWARE

840 Northwest 57th Court, Ft. Lauderdale, FL 33309 **1-800-888-9273** Orders
Bringing The World's Best Amiga Software To Your Door

ORDERS ONLY:
1-800-888-9273
INFORMATION:
1-305-491-0398

1943	14.95	Keef The Thief	18.95
3 Stooges	14.95	Khalaa	14.95
Alpha Waves	16.95	Kid Gloves	14.95
Altered Beast	14.95	Killing Cloud	19.95
Amazing Spiderman	16.95	King Of Chicago	14.95
Arkonoid 1	6.50	King's Bounty	16.95
Arkonoid 2	14.95	King's Quest IV (Sierra)	21.95
Atomic Robo Kid	9.95	Klaxx	16.95
Austerlitz	14.95	The Krystal	19.95
Baal	13.95	Kult	14.95
Badlands	16.95	Legend Of Faragahl	19.95
Ballgame	16.95	Line Of Fire	16.95
Ballistix	14.95	Lords Of The Rising Sun	18.95
Barbarian 2	14.95	Lost Dutchman Mine	6.50
Bat	16.95	Magic Fly	18.95
Batman The Movie	14.95	Match Pairs	17.95
Battlesquadron	6.50	Menace	16.95
Beast Busters	24.95	Midnight Resistance	16.95
Bionic Commando	14.95	Might & Magic 2	21.95
Blade Warrior	18.95	Monty Python	17.95
Blasteroids	14.95	M.U.D.S.	16.95
Blockout	14.95	NAM 1965-1975	16.95
Bloodmoney	14.95	Neuromancer	16.95
Bloodwych	14.95	New Zealand Story	16.95
Bloodwych Data Disk	12.95	Night Hunter	16.95
Brat	16.95	Night Shift	16.95
Brigade Commander	16.95	Ninja Spirits	14.95
Bubble Bobble	16.95	Nitro	16.95
Budakon	18.95	North & South	14.95
Cabal	16.95	Oil Imperium	9.95
Cadaver	24.95	Operation Harrier	16.95
California Games	16.95	Operation Snowstrike	16.95
Captive	18.95	Pacmania	16.95
Carrier Command	14.95	Paperboy	16.95
Championship Run	16.95	Persian Gulf Inferno	6.50
Collosus Chess X	16.95	Pictionary	14.95
Commando	14.95	Pirates!	14.95
Conflict In Europe	14.95	Populous	18.95
Conquest Of Camelot (Sierra)	21.95	Populous Data Disk	9.95
Corporation	18.95	Pro Tennis Tour	16.95
Crackdown	16.95	Projectile	18.95
Crimewave	17.95	Puffy's Saga	12.95
Crystal Of Aborea	17.95	QIX	12.95
Cyberbowl	16.95	R-Type 2	24.95
Days Of Thunder	16.95	Rainbow Island	16.95
Demons Tomb	9.95	Red Lightning (SSI)	18.95
Disc / Tron	16.95	Red Storm Rising	19.95
Double Dragon 2	16.95	Resolution 101/Hoverforce	14.95
Dragon Breed	14.95	ROTOX	16.95
Dragon Force (Interstell)	16.95	Satan	14.95
Dragon's Flame (SSI)	18.95	Savage	6.50
Dragon Wars	18.95	Shadow Of The Beast	18.95
E-SWAT	16.95	Sherman M4	14.95
F-16 Combat Pilot	16.95	Shogun	16.95
Fast Break	14.95	Shoot Em' Up Constr. Kit	19.95
Ferrari Formula 1	14.95	Sir Fred	14.95
Fire & Brimstone	14.95	Ski Or Die	16.95
First Samurai	24.95	Sky Chase	14.95
Flight Of The Intruder	24.95	Shufflepuck Cafe	14.95
Flood	18.95	Silkworm	14.95
Forgotten Worlds	14.95	Space Quest 3 (Sierra)	21.95
Future Basketball	16.95	Speedball 2	24.95
Future Wars	18.95	Star Command (SSI)	18.95
Gauntlet 2	14.95	Starflight	18.95
Games Summer Edition	14.95	Starglider 2	16.95
Germ Crazy	16.95	Street Fighter	16.95
Ghouls and Ghosts	16.95	Street Rod	12.95
Globulus	6.50	Strider	16.95
Gunship	16.95	Stryx	16.95
Hard Driving 2	17.95	Stunt Car Racer	16.95
Harley Davidson	16.95	Summer Olympiad	14.95
Hero's Of The Lance	14.95	Super Hangan	14.95
Hoyle's Book Of Games 2	21.95	Switchblade	16.95
Hunt For Red October (Arcade)	17.95	Sword Of Sodan	9.95
Impossible Mission 2	14.95	Swords Of Twilight	14.95
Infestation	16.95	T.V. Sports Basketball	18.95
International Ice Hockey	17.95	T.V. Sports Football	18.95
Iron Lord	16.95	The Immortal	18.95
It Came From The Desert	18.95	The Third Courier	16.95
It Came From The Desert 2	16.95	Thunder Jaws	14.95
Ivanhoe	16.95	Thunderstrike	14.95
Jack Nicholas Greatest 18	14.95	Toobin'	14.95
James Bond: Stealth Affair	18.95	Tournament Golf	16.95
James Pond	16.95	Turbo	9.95
Journey	16.95	Turrican 1	6.50
Jupiter Master Drive	14.95	Turrican 2	21.95

Tunnels Of Armageddon	14.95
Typhoon Of Steel	16.95
Typhoon Thompson	14.95
Unreal	16.95
Vaxxine	16.95
Vegas Gambler	14.95
Viking Child	16.95
Voodoo Nightmare	17.95
Wargame Construction Set	16.95
Waterloo	14.95
Weird Dreams	14.95
Welltris	9.95
White Death	21.95
Wings	18.95
Wings Of Death	17.95
Wings Of Fury	18.95
Wolfpack	18.95
World Class Leaderboard	14.95
Xenophobe	12.95
Xybots	16.95
Zoetrope	19.95



4-D Sports Driving	\$42
Space Gun	\$37
Utopia	\$40
Magic Pockets	\$37
Abandoned Places	\$40
Silent Service 2	\$35
Robocod	\$37
Hunter	\$40
The Simpsons	\$37
Heindall	\$45
Chaos Engine	\$37
Indy Heat	\$37
Knighmare	\$40
Lotus Turbo 2	\$37
Final Fight	\$40
Deuteros	\$40
Pitfighter	\$37
Smash Tv	\$37
Double Dragon 3	\$37
W.W.F. Wrestling	\$37
Harlequin	\$37
A320 Airbus	\$45
Epic	\$40
Microprose Racing	\$42
Simearth	\$42
Video Kid	\$37

FAX 305-491-6134

**Price, Availability
Subject To Change**

SHIPPING CHARGES:
MasterCard / Visa / UPS ground:
\$5 for up to 3 pieces.
C.O.D. (cash only) / U.P.S. ground:
\$10 for up to 3 pieces.
Add \$1.00 For Each Piece Above 3

NEXT DAY AND SECOND DAY DELIVERY AVAILABLE!
NOT RESPONSIBLE FOR ROM INCOMPATIBILITY.

Shipping Note: Compilations Count As 1 Piece

**New
Price**

Amiga Ten Star
You get all TEN for \$19.95:

Clever and Smart • Eskimo Games
Power Sticks • Spin World • Sky Blaster
Vampire's Empire • Crystal Hammer

NEW COMPILATIONS!!

Winning Team: \$29.95
Includes: Klax, Vindicators, A.P.B., Cyberbowl,
Escape from the Planet of Robot Monsters.

Air-Sea Supremacy: \$49.95
Includes: Gunship, Silent Service,
Wings, P-47 Thunderbolt, Carrier Command.

High Energy: \$24.95
Includes: North and South, Teenage Queen,
Hostages, Fire & Forget, Tin Tin on the Moon.

Amiga Classics: \$34.95
Includes: Carrier Command,
Starglider 2, Midwinter.

Power Pack: \$24.95
Includes: T.V. Sports Football, Xenon 2,
Bloodwych, Lombard Road Rally.

MAX PACK: \$44.95
Includes: S.W.I.V., Night Shift, Turrican 2,
St. Dragon.

TOP LEAGUE: \$49.95
Includes: Speedball 2, F-16 Falcon, Rick
Dangerous 2, Midwinter, T.V. Sports Football.

EUROMAGS

Amiga Format	W/Disk	\$10.00
Amiga Action	W/Disk	\$10.00
Amiga Power	W/Disk	\$10.00
C.U. Amiga	W/Disk	\$10.00
Amiga User	W/Disk	\$10.00
Amiga Comp.	W/Disk	\$10.00
Amiga Games	W/Disk	\$10.00
Zero	W/Disk	\$10.00

MANTA WILL NOT BE UNDERSOLD! CALL OUR PRICE DIRECT HOTLINE TO PUT YOU IN DIRECT CONTACT WITH A SALES MANAGER AUTHORIZED TO BEAT ANY PRICE. * 908-542-1491

MANTA

COMPUTERS & SOFTWARE

Order Toll Free • **1-800-477-7706**

For Customer Service Please Call (908) 542-8767

Call for current price quotes & latest releases!

Many more items in stock at the lowest prices!



NEW

Grand Slam

Multifunction Card SCSI Controller

Add up to 8 mg RAM • Printer face parallel port

GrandslamA500 • \$299

.....A2000 • \$239

TrumpcardA500 • \$179

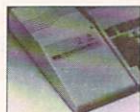
.....A2000 • \$ 89

Trumpcard ProA500 • \$245

.....A2000 • \$159

Trumpcard 500AT \$229

- FAST IDE Interface
- 8 Meg Expansion
- An affordable upgrade solution



Deluxe Paint IV \$104



Paint and animate in
HAM using 4096 colors
NEW Animation Features
NEW Paint Tools
PLUS All the power of
Deluxe Paint III

GRAPHICS AND VIDEO DEPARTMENT

VIDEO TOASTER

Let MANTA upgrade your Amiga system to take full advantage of New Tek's Video Toaster... • GVP Accelerator Boards 22-50 MHz • Memory Upgrades • Hard Drive Packages • Removable Media • T.B.C. • Training Tapes...

MANTA's video consultants will tailor a package for your needs

CALL FOR BEST PACKAGE PRICES

2.0 TOASTER UPGRADE • In Stock

Features:

Dozens of new transitions • Improved luminance keying
New chroma effects • 3000 x 1900 resolution in lightwave

VIDEOS & BOOKS

Abacus Desktop Video Book...\$17	C for Beginners.....\$14
Amiga for Beginners.....15	Desktop Video 2nd Edition...19
Amiga World Toaster Tape...20	Desktop Video Workbook...29
Amiga DOS 2.0 Companion...20	Dos In and Out 1.3/2.0...17
Amigavision Handbook.....20	Lightwave 3D Video.....35
Animation Video #2.....20	Toaster Microwave.....32
C for Advanced.....29	Ultimate Guide to Video Toaster.34

EXTERNAL CD ROM PACKAGE • \$599

Chinon Drive • CD ROM FS Software • SCSI Cable
CD Caddy • Fred Fish CD ROM Disk • Power Supply

KITCHEN SYNC • \$CALL

Dual channel SVHS/VHS in & out backlit LCD external display unit, internal card.

TOASTER FONTS

Bread & Butter Fonts.....\$55
Cinnamon Toast Fonts.....55
Masterpiece Fonts.....129
Kara Font 1&2.....59
Video Fonts 2.....64

FONTS

Font Enhancer.....\$99
Font Pack.....99
Interfont.....75
Kara Fonts.....49
Pro Video 1-5.....39
Video Clipse.....49

BCD - 2000A Call for best price

Amiga Video Animation Controller

GRAPHICS & VIDEO

Amigavision.....\$89	Mapmaster for Lightwave.....59
Art Department 2.0.....149.95	Pixel 3D 2.0.....\$67
Calligary 2.....239.95	Pro Conversion Pak.....50
Color Splitter.....99.95	Pro-Video Gold.....129.95
Disney Animator.....89.95	Pro-Video Post.....169
Digimate 3.....23	Real 3D.....39
Digipaint 3.....112	Scene Generator.....28
Digiview Gold 4.0.....69	Scenery Animator.....55
Director 2.0.....73	Showmaker.....219
Draw 4D Pro.....179	Spectra Color.....64
Flicker Free Video.....239.95	Titler II.....219
Foundation.....135	Turbo Silver.....59
Image Finder.....40	T.V. Show 2.0.....58
Image Master.....CALL	T.V. Text Pro.....98
Imagine.....149	Video Clipse.....49
Imagine Guided Tour.....35	Video Director.....139.95
Imagine 2.0.....229	Vista Pro.....85

DPS PERSONAL TBC II • \$789

Internal Time Base Corrector

Software controllable procamp

Finally a Low End TBC Solution... • Fits inside an Amiga • Proc-Amp Control • Full NTSC and SVHS • Full Frame Storage • Fully compatible with all VCRs & NewTek's Video Toaster • Genlocks to any stable video source. **CALL!**
Coming Soon Personal V-Scope!

HARD DRIVES

Squest 44 Mb Drive...\$319	IDE AT 120.....CALL
Squest 88 Mb Drive...435	Quantum 52 LFS SCSI...CALL
Low Prices On Cartridges	Quantum 105 LFS SCSI...CALL
IDE AT 52.....CALL	Quantum 210 SCSI...CALL
IDE AT 105.....CALL	Maxtor 213 Mb.....CALL

HARDWARE

Monitors

Commodore 10845...CALL
Nec Multisync 3FGX...CALL
Seiko CM 1440.....\$499
Seiko CM 1450.....\$649

DMI Resolver.....CALL

DCTV.....\$379.95

Firecracker 24/2 Mg...\$759

Int. Floppy A500/2000...CALL

Ham-E Plus.....CALL

Kitchen Sync.....CALL

Personal SFC.....\$349

JX-100 Scanner.....\$549

Sketchmaster 12x12...CALL

Sketchmaster 12x18...\$589

Video Blender.....CALL

VXL-30.....\$299.95

VXL-40.....\$469.95

VXL Math Co.....CALL

Citizen Printers

CSX 200 9 pin
New CSX 130 & 140+ 24 pin
Color Option Available • CALL

Genlocks

MiniGen.....\$185
SuperGen.....\$599
SuperGen 2000s.....\$1299
Videomaster.....\$999

ICD

The ICD Advantage

AdSCSI 2000

Hard drive interface with unmatched speed and flexibility.

AdSCSI 2080

Hard drive interface with up to 8 megs of FAST RAM.

AdSpeed

Best overall performance of any accelerator in its price range.

Flicker Free Video

Eliminates interface flicker for any Amiga computer.

AdRAM 540

Add up to 4 meg of RAM internally in your Amiga 500

AdRAM 2080

8 meg internally in your 2000/2500.

New From ICD

AdIDE

Smallest Amiga hard drive interface made. For IDE (AT) drives.
IDE 44 for your 2.5 inch hard drives.
IDE 40 for your 3.5 inch hard drive.

Novia 20i

The small hard drive and interface in the world for your Amiga 500. Fits internally.

Novia 60i

Now you can have the Novia with a 60 meg 2.5 inch hard drive.

Prima 52i

Now mount a 3.5 inch IDE drive internally in your Amiga 500, 1000 or 2000.

Prima 105i

105 megs internally in your 500, 1000 or 2000.

Shuffle Board

Reroutes DFO: to the external floppy connector. Boot from an external floppy. For an Amiga 500 or 1000.

MEMORY

1x4 SIMMS.....Call
256 k x 4 80ns DRAM...Call
1MG x 1 80ns DRAM...Call
3000 Memory Upgrade...Call
GVP SIMM32 Memory for Accelerators.....Call

Special

AdSpeed \$169⁹⁵
Flicker Free Video \$239⁹⁵

Call For Other Prices

Supra Corporation

SupraDrive
500XP

PC Power Board.....CALL
52 MB 1 mg.....CALL
120 MB 2 mg.....CALL
240 MB 2 mg.....919



\$129

Supra 2400 Zi Plus \$149 • 2400 Bd External \$79

Supra Wordsync....\$99 Supra FAX Modem V32....\$239

Supra RAM 500 RX

1 MB.....\$119
2 MB.....179
8 MB.....399

Supra RAM 2000

2 MB.....\$169*
4 MB.....235
6 MB.....299
8 MB.....369

* Limited Quantities • Power PC Board Call

AUTHORIZED AMIGA SALES & SERVICE CENTER

EXPANSION SYSTEMS

THE BEST QUALITY AT THE BEST PRICE.

DataFlyer

High performance low cost

A500 w/ chassis SCSI	\$139.00
A500 w/ chassis IDE	\$129.00
A500 IDE & SCSI	\$179.00
A2000 SCSI	\$85.00
A2000 IDE	\$75.00
A1000 SCSI	\$159.00

DataFlyer RAM

8 MB A2000 RAM card also fits in DF500 chassis.
oK memory.....\$95.00

BaseBoard

4MB internal memory for A500 with clock.
oK memory.....\$95.00



GREAT VALLEY PRODUCTS, INC.

Enhance your Amiga Systems with GVP's Outstanding Quality & Performance

Manta carries the full line of GVP products!

Optical Drives • Removable Media • Digital Sound Studio
New G-Force 030 in stock 25 mhz • 40 mhz • 50 mhz
Series II Controllers • A500 HD • 52mg • 120 mg
Impact Vision 24 Graphics Board • A500 AT Bridge Board
G-Force 040 Accelerator for A3000 • IBM Emulator

CALL Super Pricing

Is Your Amiga Sick? MANTA is a Full Amiga Service Center

We have the parts to put you back on track:

- Power Supplies
- Fatter Agnus
- Rom Chips
- Keyboards
- Drives



2.0 operating system call for price & availability



- Amiga 500 CPU
- 3.5" 880K internal floppy
- Mouse, Joystick, and power supply
- 9 Disks of software including F/A-18 Interceptor, Fusion Point, KindWords and lots more!

Call for the lowest prices on all Amiga 500's!

M.S.S.

Works — \$79.95
Excellence — \$99.95
BBS PC — \$29.95
Scribble — \$39.95
On Line — \$29.95

Micro R&D \$89⁰⁰

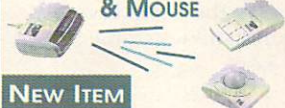
Big Foot Power
200 Watt • A500 replacement

QUARTERBACK 5.0

Supports Tape Backup
DOS 2.0 Compatible
Data Compression
CALL

GOLDEN IMAGE™

CORDLESS TRACKBALL & MOUSE



NEW ITEM

Cordless Mouse.....\$69
Cordless Trackball.....\$79

RC1000

4 Mb Ram Board for A500 with 2Mb \$169.00



HAND SCANNER with touchup, high resolution.....\$209
OPTICAL MOUSE.....\$49
OPTO MECHANICAL MOUSE.....\$36
AMIGA RC-500 512K RAM with clock for A500.....\$36
1 Year warranty on all Golden Image products.

SPECIALS

Art Dept 2.0\$149.95
DCTV\$379.95
External Floppy 3.5
1 year warranty\$74.95
Pagestream 2.2\$164.95
Imagine 2.0\$224.95
Superbase IV\$169.95

Digital Graphics Library

SCREEN-MAKER	OUR WEDDING
100 Background Images	25 Still Images
in 24-bit IFF Top 40 HAM Images	in 24-bit IFF in HAM format
\$59⁹⁵	\$54⁹⁵
\$49⁹⁵	\$44⁹⁵

MISCELLANEOUS

Amaz II\$129.95
Amaz ROMSCALL
Amiga Action Replay.....99
Amtrack.....63
Apro Draw.....459
Aresx.....28.95
At Once Plus.....289.95
AudioMaster 4.....64
Audition.....62
Bars & Pipes Pro.....214
Cross DOS.....25.95
Distant Suns 4.0.....55
ECT Mid 500/2000.....49
JSTK Power Play.....9
Keyboard Skin.....17.49
Mouse Mat.....359
Perfect Sound.....64.95
Quarterback.....59.95
Quarterback Tools.....52
SAS/Lattice C 5.1.....189
Soundmaster.....CALL
Stereo Speakers.....CALL
Super Jam.....77.95
W. Shell 2.0.....49.95

Progressive Peripherals

• Expandable to 32 Megs
• Running at 28 MHz
• Perfect for Graphics and Video Toaster Workstations
2000/3000 Versions Available
Mercury 040/3000 CALL

VIDEO BLENDER

CALL FOR NEW LOW PRICE

DKB

MegAChip 2000/500 • \$209

Two megabytes of Chip Ram. Doubles your graphic memory for desktop video, publishing, 3D rendering and multimedia. Compatible with Video Toaster!

Call for 2mg Agnus Price

MultiStart II • \$59

Install 2.0 and 1.3 ROMS in your Amiga 500 or 2000. Switch between 2.0 and 1.3 ROMS with the keyboard.

Call for 2.0 operating system

Insider II A1000 • oK \$179

Battery backed clock and calendar with up to 1.5 mg RAM.

Call for RAM prices

KwikStart II • \$79

Puts Kickstart 2.0 and 1.3 in your Amiga 1000 Boots faster and auto boots most harddrives.

SecureKey • \$95

System Security for the Amiga 2000 or 3000. Keep your system safe from unauthorized use with this hardware security device.

Games. Reference. Music. Education. And a whole lot more. Introducing the next generation in home electronics.



Call for Pricing on CDTV and Accessories

Titles Available

Advanced Military
Classic Board Games
Fred Fish Collection
Electronic Encyclopedia
Electronic Cookbook
Lemmings
Snoopy: The Case of the Missing Blanket
World Vista Atlas
Wrath of the Demon
Many More Available Call For Complete Listing

WordPerfect for the Amiga

\$89⁹⁵ Limited Quantities
Full featured Word Processor
115,000 Word Spell Checker
Footnotes, Mailmerge and MORE!

PRODUCTIVITY

All in One.....\$51.95	Pelikan Press.....\$64
Buddy System DOS.....35	Pro Calc.....174.95
Buddy System Pagestream.....35	Pro Page 2.2.....169
Can Do.....84	Pro Write 3.2.....90
Compugraphic Fonts.....119	Project D 2.0.....39
Cross DOS 5.0 Plus.....CALL	Proper Grammar.....57
Cygnus Ed Pro.....61	Screenmaker.....CALL
Deluxe Paint IV.....104.95	Showmaker.....209
Design Works.....50.95	Softclips People, Classics.....49
Desktop Budget.....49	Structured Clip Art.....39
Diskmaster 2.....37	Superbase IV.....169.95
Final Copy.....CALL	Wordperfect.....89.95
NAG Plus 4.1.....62	X-Cad 3D.....229.95
Pagestream.....169	Virtual Reality.....CALL
	Vista Pro 2.0.....CALL

Entertainment Software Available

European Imports & Magazines

International Orders Welcome

CALL FOR COMPLETE SOFTWARE & HARDWARE LISTING

FAX
(908) 542-3654
In NJ Call
(908) 542-1251

ORDER TOLL FREE
1-800-477-7706
TECH SUPPORT CALL
1-908-542-8767

Walk in Traffic Welcome

• Terms VISA/MasterCard. Discover, certified checks and money orders welcome. School & Corporate Purchase accepted. Most items shipped 1-2 Business days. • Returns: all items returned must have RMA # before returning. Defective products exchanged for same item only. Hardware items will be replaced or repaired. All returned items subject to a restocking fee. Shipping non-refundable. Call for complete details. • Ad prices subject to change without notice. Prices may differ in retail location - Software Concepts, Eatontown. Not responsible for typographical errors. Customer Service and product information call (908) 542-8767.
• "Beat any price" guaranty may not apply to certain items.

115 Route 35
Eatontown, NJ
07724
OPEN 7 DAYS

From p. 76.

the universe, looking at the celestial sphere floating in a sea of blackness. It's a humbling experience to see the universe looking so finite and fragile.

For perspectives closer to home, try the Solar Neighborhood display and Planet Gallery. The first shows the sun with its 60 nearest stars. Clicking on the big arrow buttons rotates the stars left, right, up, and down around the sun. If you activate the Trail buttons before you click on the arrows, the stars leave a visible path behind them as they move. The Planet Gallery views individual planets up close, although the only detailed planet is the Earth (after all, we've explored it the most). Click the Time buttons to animate a planet forward or backward in time. Viewing Saturn in this manner, for example, reveals the wobble in its rings.

The Day-Night map displays the Earth laid out flat with the light and dark areas appearing as a horizontally stretched yin-yang symbol. Activating the day cycle animates the shadow across the map through the course of 24 hours. (Check this before you make



YOUR TURN:

While not as visually striking as Distant Suns (Virtual Realities Laboratories), Voyager makes up the difference with outstanding accuracy and professional features. Especially useful is the ability to measure angular separation. Here at the Abrams Planetarium, I use Voyager to plot accurate maps and Distant Suns to create beautiful star fields for video.

Doug Murphy

East Lansing, Michigan

an international call, so you don't wake someone up and get sworn at in a foreign language.) When you activate the year cycle, the moving shadow drifts downward and then back up, so you can graphically see why they say the nights are six months long at the poles.

For more information on our nighttime neighbor, consult the moon map,

which shows all the moon's craters. Just click on a crater to see its name or number, longitude, latitude, and diameter. If simply viewing the moon at 80-times magnification isn't close enough, then you can look back the Earth from the point of view of the moon. You can even see the moon's shadow pass over the Earth.

For a more wonder-filled and less scientific view of the sky, you can superimpose mythological sky figures, such as Orion and the Big Bear (Big Dipper) on their appropriate constellations. The 12 zodiac figures are included, as well. For those with an astrological bent, Conjunction Search finds dates when planets line up, as well as the times of eclipses and full moons, which could be useful in making personalized star charts. (An enterprising astrologer could make a lot of money using Voyager.)

Usually I prefer to create my own explorations rather than watch demos, but Voyager has several great ones—Halley's Comet, several nice eclipses, a few satellites, and sunset in Hawaii—that you can customize. The Hawaii demo shows the sky growing dark as the sun goes down in the west, then lets you turn around and watch the sun rise again in the east.

COSMIC RIFTS

Although I recommend Voyager as a fine educational tool for school or home study, it could be better. Taking a lesson from Broderbund's *Where in the World is Carmen SanDiego?*, which includes a world atlas, the Voyager manual should include at least a glossary of astronomical terms for those of us who thought a Messier Object was simply worse than a messy object.

The Image Sampler disk is full of incredibly beautiful digitized astronomical photographs, approaching the picture quality of the *National Geographic*. The manual recommends that you view them in DeluxePaint, but this is an ordeal, because every time you load a picture, you must change the screen size. All the pictures should be the same size, or at least grouped by sizes in separate drawers. (One remedy is to use another viewing program.)

I have saved the biggest annoyance for last: When you try to save a screen as an IFF file, it saves the requester on top of the screen—so much for loading a sequence into DeluxePaint III and creating an ANIM. The people at Carina Software's friendly help line told me they had received several ▶

Only \$19.95



1-800-824-5499

THE MIND'S EYE
A COMPUTER ANIMATION ODYSSEY
MIRAMAR®

A compelling look at the creation of the universe by the world's top computer animation artists, with music composed by James Reynolds. Forty minutes of visually powerful imagery from over 300 of the

leading talents in the field. **Only \$19.95**
ORDER NOW! 1-800-824-5499 or mail to:

TECHMEDIA
VIDEO

PO Box 2151, Salisbury, MD 21802
©MCMXC Miramar Images, Inc.






6E2ME

TO ORDER
CALL 800-544-6599
 MON.-FRI. 9-6, SAT. 9-3 CST



Software

A-Sound Elite	75.99
Air Bus	45.99
Ambassador	47.99
Amy's Fun 2 3	31.99
ARexx	31.10
Artistic Clips	32.99
Battle Isle	33.99
Birds of Prey	33.99
Black Crypt	33.99
Buddy System/DPaint IV	31.99
Caligari 2	253.99
Can Do 1.6	85.00
Castles	35.99
Charts and Graphs	59.00
Cross DOS 5.0+	37.00
Fighter Duel	31.99
Fun School Titles	32.99
Gateway/Savage Frontier	31.99
Harpoon BattleSet 4	23.99
High Speed Pascal	114.99
Imagine 2.0	256.99
Keys to Maramon	33.99
Lattice 5.0	189.00
Lost Treasures	45.99
Macro68 (Puzzle Factory)	135.00
Matrix Cubed	33.99
MediaShow	75.99
MediaStation	149.99
MicroLeague Baseball	31.99
Mig 29	31.99
Might & Magic III	39.99
Miracle Song Collection	36.99
Notebook	27.99
Our WeddingIFF/HAM	54.00/43.00

Out of this World	36.99
Paper Boy 2	26.99
Phasar 4.0	55.99
Power Packer Pro 4.0	21.99
Professional Calc	168.99
Professional Page	169.00
ProFills 2.0	32.99
Red Baron	35.99

Commodore® **AMIGA®** **500C PACKAGE**

INCLUDES

- 3.5" Internal Floppy Drive
- 512K RAM
- 94-Key Keyboard and Mouse
- RF Modulator
- TextCraft Plus Word Processor
- Where/World is Carmen San Diego?
- Tetris
- Free issue of AmigaWorld Magazine

Call for Pricing!!!!

ReSource (Puzzle Factory)	135.00
Romance/Three Kingdoms II	42.99
Screen-Maker IFF/HAM	59.00/49.00
Secret Monkey Island II	39.99
Sim Ant	37.99
Space Quest IV	37.99
Superbase Prof 4	227.99
Texture City Pro 60	175.99
Third Reich	25.99
Toaster 2.0 Software	305.00
Ultima VI	41.99
Vista Pro 2.0	59.99
Wild Wheels	33.99

Hardware

68030 Accelerators from GVP!	
25MHz/1MB	669.00
40MHz/40/4MB	1169.00
40MHz/40/4MB/120Q	1499.00
40MHz/40/4MB/240Q	1719.00
50MHz/50/4MB	1529.00
50MHz/50/4MB/240Q	2059.00
SIMM 32/4MB Expansion	289.00



We carry ALL available CDTV titles!

CDTV Prof Bundle	195.00
CD Caddy 2-Pack	14.99
CDTV Genlock	155.00
CDTV Trackball	95.00
CD Rom File System	36.99
Space Wars CDTV	25.99
Fred Fish 1.4	45.00
Town With No Name CDTV	33.99
NASA's 25th Year CDTV	19.99

Ad IDE/40	98.00
AdFlicker Free Video	249.00
AdRAM 540	91.00
AdSpeed	179.00
AirLink	45.99
Brush Mouse	112.00
DSS Sound Digitizer (GVP)	95.00
Floppy Drive, Internal 2000	89.00
Floppy Drive, Internal 500	89.00



- SupraFAXModem 9600 BAUD V.32/V.42/V.42bi Send/Receive FAX capability
 - SupraFAXModem 14.4 BAUD V.32bis/V.42bis Send/Receive FAX capability
- \$305 / With Software #359**

Supra Corporation

Floppy Drive, Supra Ext.	95.00
Genlock, RocGen Plus	345.00
Harddrive, 120Q Bare	399.00
Harddrive, Impact 500/52Q	509.00
Harddrive, Impact 500/120Q	665.00
Harddrive, 500XP 52Q/1	489.00
Harddrive, 500XP 52Q/2	565.00
Harddrive, 500XP 120Q/2	675.00
Impact Vision 3000	1849.00
KB Talker	53.00



Blue Ribbon's done it again! Write music in any style without ever picking up an instrument!

\$87.99

Also from Blue Ribbon Soundworks:
 Bars & Pipes Prof 208.00
 w/ Internal Sound Kit 239.00
 w/ Pro Studio & Creativity 270.00
 MultiMedia Kit 32.00
 Music Box A or B 32.00
 Patchmeister 59.00

Coming SOON!

Tutorial Kit
 Triple Play Plus MIDI

For a complete product listing, information or support, call
(414) 548-8125.



TOP

1 DCTV	379.00
2 Art Department Pro	154.00
3 Directory Opus	36.99
4 Amiga DOS 2.04	85.00
5 Cross DOS 4.0	24.99
6 Final Copy	59.99
7 Ami-Back	47.99
8 Deluxe Paint IV	109.00
9 ProWrite 3.2	99.00
10 Pixel 3D 2.0	64.00

K-Start Selector	33.99
MegaChip 500/2000	225.00
MIDI Interface	40.00
Modem, Supra 2400	85.00
Modem, Supra 2400+	130.00
MultiStart II Board (DKB)	59.00
Perfect Sound 3.0	69.00
Personal V-Scope	789.00
Power Supply, Big Foot	99.00
SCSI Controller Supra 500XP	199.00
SCSI Controller Supra 2000	110.00
Scanner, Alfa Scan Plus	299.98
SupraRAM 2000/2	169.00
SupraRAM 2000/4	225.00
SupraRAM 2000/6	285.00
SupraRAM 2000/8	349.00
SupraRAM 500 RX/1	125.00
SupraRAM 500 RX/2	189.00
SupraRAM 500/512K	39.00
Video Director	139.00
Video Toaster 2.0	2025.00
WIZ Tablet	229.00

Syquest Drive Packages

	Int	Ext
44MB (2000)	\$415	\$515
88MB (2000)	\$579	\$685

Package includes drive, cartridge, manual, and a dual SCSI 50-pin cable; external models include case

BOOKS

Best of Amiga Tips	25.00
Amiga Companion 2.0	20.99
Amiga Graphics Inside/Out	27.95
AmigaDOS Manual 3rd Ed.	22.00
Desktop Video Power	28.95
DOS Inside & Out 2.0	22.95
Hardware Ref Manual	24.00
Includes & Autodocs	35.95
Interface Style Guide	20.99
ROM Kernel: Devices	25.99
Using ARexx on the Amiga	27.99

*Call us for Euro magazines, too!

REVIEWS

complaints about the save-screen function, and they sent me an updated version with the bug fixed in exchange for my original disk.

Despite these shortcomings, Voyager should prove satisfying to children, nonastronomers, novices, and serious astronomy buffs for years to come. Install it on your hard drive and go exploring.

NOTEBOOK

BLACK BELT SYSTEMS

High school meets high tech.

By Dave Johnson

"ECOLOGICALLY FRIENDLY" paperwork for the Amiga," proclaims the packaging. While vague, it is as apt a description as any of *Black Belt Systems' Notebook* (\$39.95).

In somewhat more concrete terms, I describe Notebook as a free-form idea organizer that allows you to combine

text, IFF graphics, and structured drawing doodles in a package that mimics the concept of a lined, three-hole notebook.

Notebook opens on a high-resolution, interlaced screen. The right side contains a variety of control icons, while the rest of the screen displays the actual workspace—an authentic-looking version of the notebook you probably used in high school.

DIGITAL DOODLING

To begin a new notebook, simply click on the icon that adds pages to the



YOUR TURN:

At a street price of \$25, Notebook is great. I like the fact that you can draw and write on a page. Most of my thinking is done by drawing flow charts.

Tom Miller
Casper, Wyoming



Organize your thoughts, IFF files, and structured graphics in Notebook.

initially empty document. You can control the appearance of each page and add or delete sheets at any time. Do you need lined, graph-ruled, or blank pages? With or without binder holes or a vertical rule? Grid snap may be enabled even when the paper is not in "graph" mode.

Notebook accepts text in two ways. You can begin typing anywhere on the page or import ASCII text onto the ►



100% AMIGA
AMIGA WORLD
Animation Video
Volume I

SAVE OVER 22%!

From the editors of *AmigaWorld!* Selected from hundreds of entries!



AMIGA WORLD
ANIMATION VIDEO
VOLUME TWO
100% AMIGA!

Call now: **1-800-824-5499** for the best in animation!

VOL. I: \$19.95
VOL. II: \$24.95





VOL. I & II SET ONLY \$34.95!

Also available from your local Amiga dealer.

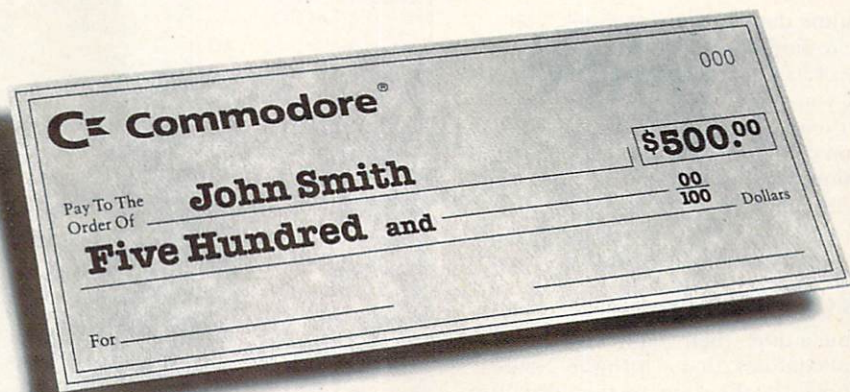
Act now on this limited offer from TechMedia Video and see the most innovative creations using Sculpt-Animate 4-D, Lightwave 3-D, Turbo Silver, Imagine, Deluxe Paint III AND MORE! A dazzling collection of exciting and inspiring animations you won't want to miss! **CALL TODAY!**

Available in VHS. Allow 4-6 weeks for delivery. TechMedia is the licensed North American distributor of AmigaWorld Videos. Amiga is a registered trademark of Commodore Amiga, Inc.

TECHMEDIA VIDEO
PO Box 2151, Salisbury, MD 21802
410-543-1989

6E2AV

500 Reasons To Buy An Amiga® 3000 Before April 30th



A check for five hundred bucks.

That's what you can get direct from Commodore when you buy an Amiga® 3000-25/50, or 3000-25/100 before April 30th. Or, you can even use your \$500 immediately right in the store toward the purchase of your Amiga.

Amiga 3000 series computers set the standard for multimedia platforms, with true 32-bit architecture for demanding video and graphics applications. The A3000-25/100 features a 100M hard drive and 5M RAM.



The A3000-25/50 has a 50M hard drive and 2M RAM.

All Amiga 3000's feature four-voice, two-channel sound, thousands of displayable colors, AmigaVision™ (which lets you control graphics and video simultaneously), on-site service* and convenient leasing terms.

For more information, call 1-800-66-AMIGA. Or see your participating authorized Commodore-Amiga dealer before April 30th. (Terms may vary in Canada. Call 1-800-661-AMIGA.)

Commodore®
AMIGA®

REVIEWS

page. If text flows beyond the current page, Notebook adds pages as necessary until all of the text has been rendered. Notebook lets you type with any nonproportional system font, so you aren't restricted to basic topaz or a single typeface. If, perchance, you write something that is particularly important, consider highlighting it. Notebook offers four marker colors for highlighting text and other objects.

To spice up your pages, you can import graphics of any standard Amiga IFF format into your notebook. The program converts the image to a dithered, four-shade grayscale and renders it on the page in a box you draw with the mouse. The conversion and scaling is fairly snappy, and the final result usually looks surprisingly good.

What use would a notebook be if you couldn't draw in it? A full complement of drawing tools allows you to add rectangles, circles, lines, freehand shapes, and the like. You can leave them unfilled, or you can fill them with any of 36 dithered colors.

One of the nicest aspects of Notebook is that all of these components are treated as structured objects. Thus, you may later move, resize, or change the color of anything you draw, as well as combine it into a group with other objects. In addition, you can move objects in front of or behind others.

TABBING AROUND

Now that you've stored some data in your notebook, you probably want to be able to find it quickly and easily. Notebook carries the analogy of its paper cousin to the logical extreme: For easy access, you can mark pages by placing paperclips anywhere on them. You can then add or delete these at any time, and you can skip directly to clipped pages at a single click. In addition, you can add labeled and color-coded tabs to page margins. Clicking on a tab takes you instantly to that page. Overall, Black Belt has put as much thought into navigation as into actual page creation.

PUTTING A NOTEBOOK ON PAPER

Of course, there may come a time when you want to break a notebook out of its digital confines: that is, print it. Notebook lets you print notebooks by the page, section, or entire document. Output is scaled up so that each notebook page becomes 8 1/2 x 11 inches, rather than the size of the smaller, on-screen replica.

Unfortunately, output is Notebook's Achilles heel. Despite the fact that drawing elements are structured objects, they do not render at your printer's highest resolution. Rather, they look like bigger and jaggier versions of what you see on the screen. Text, too, gets the short end of the resolution stick.

On the other hand, Notebook prints aren't quite what you'd pass out at a board meeting; Notebook is a personal idea processor, and the printouts are meant to be personal as well. Regrettably, the output quality probably ensures that they'll stay that way.

What is the bottom line for Notebook? It is an innovative product that just about everyone who owns a computer can find at least six good uses for. It is the sort of program that causes you to say, "Why hasn't anyone done this before?" Thanks to its speed, fluid interface, and a plethora of other little conveniences, you'll find yourself using it often. Remember that Notebook always runs on an interlaced screen, so a display enhancer is just about essential. That and the print quality notwithstanding, my advice is to buy this one; you can't go wrong. ■

Orders Only
USA & Canada
1-800-258-0533
 9 - 9 M - F (West Coast customers call up to 6PM PST), 10 - 5 Sat
Open SUNDAYS 12-5PM
 24 Hour Fax line (412) 962-0279 Customer Service (412) 962-0533


I ♥ My AMIGA

(100's of titles available)		Games	(Call for more titles)
Agony	Call	Leisure Suit Larry 5	\$37
Battle Isle	\$37	Lemmings	\$31
Birds of Prey	\$37	Lemmings, Oh No! More...	\$22
Black Crypt	Call	Lord of the Rings	\$34
Bo Jackson Baseball	\$31	Mig 29 Super Fulcrum	\$31
Castles	\$37	Murder	\$28
Celtic Legends	Call	Ork	\$31
Drag Lair 2 (Time Warp)	\$37	Out of This World	\$37
Dungeon Master 2	\$25	Perfect General	\$37
Elvira: Mistress of the Dark	\$37	Perfect General Data Disk	\$22
Elvira 2: Jaws of Cerberus	\$47	PGA Golf	\$34
Eye of the Beholder	\$39	Pools of Darkness	\$39
Eye of the Beholder 2	Call	Populous II	\$41
Falcon	\$31	PowerMonger	\$34
Falcon Mission 1 or 2	\$19	Power Monger WWII data disk	\$22
Fantastic Voyage	\$31	Railroad Tycoon	\$37
Fighter Duel (Corsair Vs Zero)	\$31	Secret of Monkey Island	\$39
Gateway Savage Frontier	\$34	Secret of Monkey Island II	\$39
God Father	\$31	Silent Service II	\$37
Greens - (Microprose Golf)	\$37	Sim City	\$31
Guy Spy	Call	Sim City Graphics 1 or 2	\$23
Heart of China	\$37	Sim City Terrain	\$12
Kings Quest V	\$37	Space Quest IV	\$37
Knights of the Sky	\$37	Speedball 2	\$25
Leander	\$31	Strip Poker III	\$31
		Wayne Gretzky 2	\$34
		Wide World of Boxing	\$31
		Willie Beamish	\$37
		World Circuit Grand Prix	\$37
EUROPE'S HOTTEST GAMES			
		Crime City	\$41
		Cruise for a Corpse	\$41
		Deuteros	\$40
		Double Dragon 3	\$39
		Final Fight	\$40
		Gauntlet 3	\$40
		Gods	\$38
		Heimdall	\$44
		Life and Death	\$37
		Plt Fighter	Call
		Realms	\$43
		Robocod: James Pond 2	\$39
		Robocop 3	\$41
		Smash TV	\$39
		Terminator 2	\$43
		The Simpsons	\$39
		Utopia	\$40
		Wolf Child	\$39

FREE Bumper Sticker with every order

I ♥ My AMIGA

Caligari 2 \$249	PROF. PAGE 3.0 \$179	VIDEO TOASTER 2.0 UPGRADE \$329
----------------------------	--------------------------------	--

CDTV		Productivity Software	
American Vista	\$64	Art & Animation	
Barney Bear School	\$27	Art Department Pro 2.1	\$164
Barney Bear Goes Camping	\$27	Deluxe Paint IV	\$119
Battle Storm	\$33	Disney Anim. Studio	\$79
Case of Cautious Condor	\$33	Draw 4D Pro	\$199
CD Remix	\$37	Imagine 2.0	\$47
Classic Board Games	\$33	Pixel 3-D 2.0	\$75
Defender of the Crown	\$33	Prof. Draw 2.0	\$125
Falcon	\$52	Spectracolor	\$62
Fred Fish Collection	\$47	Turbo Silver 3.0	\$59
Gretzky Hockey	\$37	Vista Pro 2.0	\$59
Guinness Disc of Records	\$39	Databases	
Illustrated Dictionary	\$47	Microfiche Filer	\$62
Illustrated Holy Bible KJV	\$37	Microfiche Filer PLUS	\$112
Illustrated Shakespeare	\$37	SuperBase Personal 2	\$94
Lemmings	\$33	SuperBase Pro. 4	\$249
Mind Run	\$34	Music	
Murder Makes Strange.....	\$33	Bars and Pipes	\$99
My Paint	\$33	Bars and Pipes Pro	\$219
Power Pinball	\$29	Delx Music Const. Set	\$69
Sim City	\$39	Super Jam	\$89
Snoopy	\$33	Multimedia Kit	\$5
Spirit of Excalibur	\$37	Music Box A	\$38
Team Yankee	\$33	Music Box B	\$38
Time Table Business	\$39	Spreadsheets	
Time Table Science	\$39	Advantage	\$125
Ultimate Basketball	\$33	Maxi Plan Plus 2.0	\$62
Wrath of the Demon	\$33	Professional Calc	\$189
Xenon II	\$39	Tele-Communications	
Lots of New Titles CALL		A-Talk III	\$37
		Baud Bandit	\$30
CDTV Keyboard, Infra-red Mouse & Disk Drive		PROWRITE 3.2	\$89
\$199		FINAL COPY	\$59
Trackball Contrlr \$99			
Books		Video Tapes	
Amiga for Beginners	\$13	Amiga Primer	\$25
Amiga Dos Quk Ref. Guide	\$8	Animation 101	\$29
Amiga Dos Inside & Out	\$19	CDTV: A Guided Tour	\$29
Amiga Basic Inside & Out	\$19	Deluxe IV Video Tape	\$24
Machine Language	\$15	Desktop Video Volume #1	\$25
Graphics Inside & Out	\$26	Desktop Video Volume #2	\$25
Amiga C for Beginners	\$15	Imagine: A Guided Tour	\$25
Amiga C for Advanced	\$26	Pro. Techniques w/DPaint	\$25
Desktop Video Power	\$23	Toaster Microwave	\$34
Best of Amiga Tricks & Tips	\$23	The Newtek Video Toaster	\$22
Using Arexx	\$26		
Imagine Companion	\$24	EUROPEAN MAGAZINES	
ROM Kernel: Autodocs 3rd Ed.	\$34	AMIGA Format w/Disks	\$10
ROM Kernel: Devices 3rd Ed.	\$26	AMIGA Action w/Disks	\$10
ROM Kernel: Hardware 3rd Ed.	\$26	C.U. AMIGA w/Disks	\$10
Visionary Handbook	\$22	AMIGA Power w/Disks	\$10
		1 for AMIGA w/Disks	\$10
SHIPPING - WITHIN 2 BUSINESS DAYS		Education	
UPS GROUND (continental US)		Adventures in Math	\$25
\$-99	7% MIN \$5	Algebra	\$31
\$100 To \$199	5% MIN \$7	Algebra II	\$31
\$200 To \$499	4% MIN \$10	Barney Bear Camping	\$22
\$500 To \$799	3% MIN \$20	Barney Bear at the Farm	\$22
\$800 -	2.5% MIN \$24	Barney Bear in School	\$22
2nd Day add \$6 to UPS Ground		Barney Bear in Space	\$22
Next Day add \$11 to UPS Ground		Calculus	\$31
APO, FPO add \$11 to Ground		Carmen San Diego Time	\$31
CANADA add \$11 to Ground		Carmen San Diego USA	\$31
PR, HI, AK add \$10 to Blue/Red		Carmen San Diego World	\$31
No surcharge for MASTERCARD,		Crossword Const. Kit	\$25
VISA and DISCOVER.		Dinosaur Discovery Kit	\$25
3% surcharge for AMERICAN EXP.		Discovery Math/Spelling	\$25
Prices subject to change without notice.		Distant Suns 3.0	\$35
		Distant Suns 4.0	\$55
		Katie's Farm	\$25
		Math Talk	\$25
		Math Blaster Plus	\$31
		Mavis Beacon Typing	\$34
		McGee Fun Fair	\$25
		My Paint 2.0	\$31
		Puzzle Storybook	\$25
		Phrasing Notebook	\$25
		Speller Bee	\$25
		Talking Animator	\$41
		Talking Coloring Book	\$19
		Teachers Toolkit	\$35
		Trigonometry	\$31
		World Atlas	\$37

CDTV Keyboard, Infra-red Mouse & Disk Drive
\$199
Trackball Contrlr \$99

PROWRITE 3.2
\$89

FINAL COPY
\$59

Books
 Amiga for Beginners \$13
 Amiga Dos Quk Ref. Guide \$8
 Amiga Dos Inside & Out \$19
 Amiga Basic Inside & Out \$19
 Machine Language \$15
 Graphics Inside & Out \$26
 Amiga C for Beginners \$15
 Amiga C for Advanced \$26
 Desktop Video Power \$23
 Best of Amiga Tricks & Tips \$23
 Using Arexx \$26
 Imagine Companion \$24
 ROM Kernel: Autodocs 3rd Ed. \$34
 ROM Kernel: Devices 3rd Ed. \$26
 ROM Kernel: Hardware 3rd Ed. \$26
 Visionary Handbook \$22

Video Tapes
 Amiga Primer \$25
 Animation 101 \$29
 CDTV: A Guided Tour \$29
 Deluxe IV Video Tape \$24
 Desktop Video Volume #1 \$25
 Desktop Video Volume #2 \$25
 Imagine: A Guided Tour \$25
 Pro. Techniques w/DPaint \$25
 Toaster Microwave \$34
 The Newtek Video Toaster \$22

Education
 Adventures in Math \$25
 Algebra \$31
 Algebra II \$31
 Barney Bear Camping \$22
 Barney Bear at the Farm \$22
 Barney Bear in School \$22
 Barney Bear in Space \$22
 Calculus \$31
 Carmen San Diego Time \$31
 Carmen San Diego USA \$31
 Carmen San Diego World \$31
 Crossword Const. Kit \$25
 Dinosaur Discovery Kit \$25
 Discovery Math/Spelling \$25
 Distant Suns 3.0 \$35
 Distant Suns 4.0 \$55
 Katie's Farm \$25
 Math Talk \$25
 Math Blaster Plus \$31
 Mavis Beacon Typing \$34
 McGee Fun Fair \$25
 My Paint 2.0 \$31
 Puzzle Storybook \$25
 Phrasing Notebook \$25
 Speller Bee \$25
 Talking Animator \$41
 Talking Coloring Book \$19
 Teachers Toolkit \$35
 Trigonometry \$31
 World Atlas \$37

SHIPPING - WITHIN 2 BUSINESS DAYS
UPS GROUND (continental US)
 \$-99 7% MIN \$5
 \$100 To \$199 5% MIN \$7
 \$200 To \$499 4% MIN \$10
 \$500 To \$799 3% MIN \$20
 \$800 - 2.5% MIN \$24
 2nd Day add \$6 to UPS Ground
 Next Day add \$11 to UPS Ground
 APO, FPO add \$11 to Ground
 CANADA add \$11 to Ground
 PR, HI, AK add \$10 to Blue/Red
 No surcharge for MASTERCARD, VISA and DISCOVER.
 3% surcharge for AMERICAN EXP.
 Prices subject to change without notice.

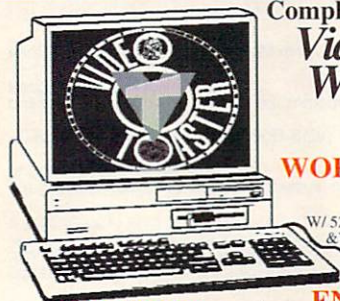
Returns accepted for 10 days after date of purchase. Call for RA# before returning. Defectives replaced with same item. 15% Restocking fee for items returned and not exchanged for same.
International Orders (not APO, FPO.) send copy or FAX of front & back of Charge Card w/signature. Call or FAX for shipping quote.
Mailing Address:
 Computer Basics, Inc.
 1490 N. Hermitage Rd.
 Hermitage, PA 16148

2.04 ROM for
AMIGA 500/2000
 includes books and
 workbench disk
\$85

- Authorized Sales
- Authorized Service
- Fast Service
- Low Prices

AMIGAMAN

Orders Only
USA & Canada
1-800-258-0533
9AM - 9PM M-F, 10AM - 5PM SAT
Open SUNDAY 12 - 5PM



Complete Video Toaster Workstations

BASIC WORKSTATION \$4195

W/ 52MB HD, 7MB RAM, & VIDEO TOASTER

ENHANCED WORKSTATION \$4895

W/ 52MB HD 25MHz, 7MB RAM & VIDEO TOASTER

DELUXE WORKSTATION \$5595

W/ 120MB HD, 40MHz, 9MB RAM & VIDEO TOASTER
WORKSTATIONS FULLY ASSEMBLED AND TESTED

New RACK MOUNT version Available - CALL

Video Toaster Enhancement Options

Video Toaster	\$2099
Personal TBC II	\$849
Personal V-Scope	CALL
Personal SFC	\$379
BCD 2000A VAC	\$849
DQ-TACO	\$1879
AmiLink C/I (cuts only)	\$995
AmiLink C/I (AB Roll)	\$1595
AmiLink/Toaster Software	\$150
Kitchen Sync	\$1599

Toaster Fonts

1st PrizToasted Fonts	\$159
Cinnamon I or II	\$62
Bread & Butter	\$69
Kara Toaster I or II	\$62
Masterpiece	\$89
Video Fonts 2	\$62
Screen Maker	\$62
Our Wedding	\$56



Free Bumper Sticker

I ♥ My AMIGA

With every order

Complete Digi-View Mediastation System \$389

Includes:
Digi-View Gold 4.0
Digi-Paint
Elan Performer
Copy Stand
Panasonic 1410 camera
video switch
and all cables.
Only complete system offered

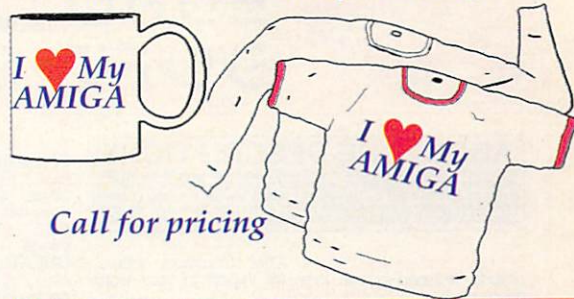
Digi-View Mediastation	\$154
1410 Camera w/lens	\$179
Copy Stand	\$62
Cable / Switch Set	\$35



Express your love for your Amiga

ALL NEW

T-Shirts, Sweatshirts, Caps and Mugs



Call for pricing

ICD

The ICD Advantage

AdSpeed \$189
68000 at 14.3 MHz. Best Overall performance of any accelerator in its price range.

Flicker Free Video \$259
Eliminates interface flicker for any Amiga Computer. Use with VGA or Multisync Monitors

AdRAM 540 \$95
Add up to 4 meg of RAM internal-ly in your Amiga 500

Novia 40i \$379
40MB internal hard drive & interface for your Amiga 500.

AdIDE40 for 3.5" hard drives \$99
Smallest Amiga hard drive interface made for IDE(AT) drives

AdIDE Kits (Prima) \$139
Now mount a 3.5 inch IDE hard-drive internally in your Amiga 500. Includes IDE 40, Shuffle Board and mountings for hard drive.

Shuffle Board \$29
Reroutes **did** to the external floppy connector. Boot from external floppy drive.

DKB

Multi-Start II

Dual ROM Board assembly
Run 1.3 or 2.0 on your Amiga 500/2000 at the push of a key.

\$55 w/2.0 ROM **\$139**

MegAChip

Get 2 megabytes of chip RAM for your A2000 & A500 w/Agnus \$309

2632 Memory Board
for the Amiga 2500 and 2630 accel.
Up to 32MB RAM **CALL**

HARD DRIVE CONTROLLERS FOR A2000'S

A2000 Harddrive Controllers

Grand Slam \$239
add up to 8MB RAM & built-in printer port

TRUMPCARD PRO \$159
The fastest SCSI Controller for the Amiga

TRUMPCARD
A2000 \$89

EXPANSION SYSTEMS

DataFlyer 2000

Budget hard drive solution for your A2000

Controller only **\$85**
W/52 MB Quantum HDS \$319
W/120MB Quantum HDS \$479

DataFlyer RAM
For DataFlyer2000
OK \$99, 2MB \$194, 4MB \$289



GVP SERIES II

With up to 8MB RAM

W/ 52MB HD \$399
W/120MB HD \$549
W/240MB HD \$849

Hard drives Factory Installed
Now with 2YR Factory Warranty

MicroBotics

VXL 30

68030 Acceleration for A500, A2000

25MHz \$329
with 68882 \$459
40MHz \$479

with 68882 \$649
Compatible with 1.3 & 2.04 ROMS

VXL RAM-32 2MB CALL
VXL RAM-32 8MB CALL

GVP

#1 Name in AMIGA

Accelerators

G-Force 30 - NEW
68030 All in one board

with SCSI interface

25MHz/25/1MB \$699
40MHz/40/4MB \$1199

w/52MB Drive \$1399
w/120MB Drive \$1499
50MHz/50/4MB \$1579
w/52MB Drive \$1779
w/120MB Drive \$1879
Expandable to 6MB of 32bit RAM
4MB 32Bit extra RAM \$299

EXTERNAL 880K DRIVE

As low as **\$78**

When purchase with RAM Expansion

A.I.R. Drive - \$89
Alpha Data - \$89
Roctec Ultraslim - \$95

AMIGA501 CLONE \$36



512K RAM Expander

512K RAM w/Clock, Calendar, Bat.

SupraRAM RX

Expand your A500 up to 9MB



Pass-through design
1MB up to 2MB **\$129**
2MB up to 8MB **\$199**

EXPANSION SYSTEMS

BASE BOARD

\$95 OK

w/512K - \$120, w/1MB - \$145
w/2MB - \$195, w/4MB - \$275

EXPANSION SYSTEMS

DataFlyer 500

Hard drive

Budget solution for your Amiga500
Controller only **\$139**

W/52MB Quantum **\$385**
W/120MB Quantum **\$535**

AMIGA 500 EXPANSION SET

512K RAM

w/Clock/Calendar/Bat

& 880K Drive

\$114



HiQ A500 Tower

TURN YOUR AMIGA 500 INTO A POWERFUL AMIGA TOWER.

3 A2000 Slots, 2 PC Slots, Accelerator Slot, Video Slot, Keylock Security, Speed LED, Keyboard Case w/cord, 250W powersupply, 10 drive bays, speaker, metal cabinet.

Toaster Compatible,
All the power of the A2000 and More

\$629

Grand Slam 500

Expand up to 8 MB Ram

\$299

TRUMPCARD PRO 500
The fastest SCSI controller

\$245

TRUMPCARD 500 \$179

GVP SERIES II

A500 HARD DRIVES

EXPAND UP TO 8MB

W/52MB Quantum **\$499**

W/105MB Quantum **\$699**
GVP/PC286 IBM Card \$379



Midi's

ECE Midi	\$49
Midi Gold 500	\$56
Midi Gold Insider	\$65
Midi Connector w/ cables	\$59
Phantom SMPTE MIDI	\$229
Midi cable 6ft	\$8
Miracle Keyboard	\$349

Audio

Audiomaster 4	\$62
Audition 4	\$62
Digital Sound Studio	\$99
Perfect Sound 3.1	\$69
SoundMaster	\$139
Studio 16/AD1012	Call

Video

Chroma Key	\$329
Alter Image/Genlock	\$199
DCTV	\$399
MiniGen	\$199
RocGen Plus	\$359
Supergen Genlock	\$649
Video Blender	Call
Video Master	\$999

Misc.

Big Foot 200W powersup.	\$89
Flicker Fixer	\$249
A2000 Internal Drive	\$89
AMAX 2 PLUS	\$399
Power PC Board	Call

I ♥ My AMIGA

Beetle Mice



\$34

FREE Bumper Sticker

with every order

COLORS

MOUSE - BUTTONS

Red - Black
Yellow - Black
Black - Black
Blue - Black
Black - Yellow
Red - White - Blue
Other colors on special order

Joysticks, Mouses & Trackballs

Stik Stik Joystick	\$7
Boss Joystick	\$15
Ta 50 Joystick	\$17
Bat Handle Joystick	\$25
Jin Mouse	\$25
Opto-Mechanical Mouse	\$35
Optical Mouse	\$55
Boing Optical Mouse	\$94
GI Cordless Mouse	\$75
GI Cordless Trackball	\$69
Amrtaq Trackball	\$59
Kraft Trackball	\$59
Mouse Switch (manual)	\$29
Mouse Switch (automatic)	CALL

Supra Modems

2400 External	\$89
2400Plus External	\$139
2400Plus 2 Internal	\$169
FAX Modem \$14400	\$309
FAX Modem 9600	\$249
FAX Modem 2400	Call
FAX Modem Software	Call

Zoom Modems

2400 Ext.	\$75
2400 w/MNP5 & v.42bs	\$145
9600 v.32bis	\$399
Cable \$10 (\$5 w/modem)	

Circle 12 on Reader Service card.



EUROSOFT

GREAT VALUE SOFTWARE FROM EUROPE!

LOWER prices for the world's best PD and Shareware - from just \$3.50/disk!

***Fastest shipping ***Only latest versions ***Free technical assistance!

***Huge library ***Quality catalog ***Evening hotline ***Experienced AMI people!

ABOUT THE DESCRIPTIONS

When ordering, please refer only to our program number which immediately follows each title. Please note that some programs are composed of multiple disks. The number of disks is shown in parentheses after the description if it exceeds one disk. Remember this when ordering! Any special memory requirements are also shown in parentheses, e.g. (2 Mb) needs 2 Mega RAM. Please do not call our 800 number for fuller descriptions. Please order the catalog.

600 BUSINESS LETTERS A147 Contracts, letters, allsorts included in text form for import to your word processor!

A-GENIE A073 Good genealogy program - trace your family history, keep track of where your roots really are 1Mb

ADVENTURE SOLUTIONS A001 2 disks of great adventure solutions! A must-have for adventure hair-pullers (2)

AIR WARRIOR A002 Flight simulation program - fun!

ALGORYTHMS A199 MIDI program for synthetic music creation - give your creativity a boost and enhance your MIDI

ALL NEW STAR TREK A003 Tobias Richter's great new version of this classic - all the rage in the UK now (2)

AMIBASE A075 One of the best Amiga databases

AMIBASE PROFESSIONAL A153 A superb database system

AMICASH A072 Brand new bank management program - easy to use and a great way to put your Amiga to useful work!

AMOK A186 Your robot is trapped in a strange world (1Mb)

AMOS ASTEROIDS A185 Four versions on this disk of the arcade game, guaranteed to give endless zapping fun

AMOS BINGO/CRACK THE CODE A183 2 popular games on this disk - bingo lovers will want to stay home - plus extras

AMOS MULTIPAIN A184 Another good AMOS paint program

AMOS PAINT A165 Nice paint package with 2-64 colors

AMOSAGRAM A190 An anagram solving game - great fun!

ANALYTICALC A076 Definitive spreadsheet type utility (2)

ANIMATED POINTER PACK A074 Disk full of cute animated pointers - this one will keep you busy for hours trying them out

ANTEP & SLOT CARS A004 Graphic role-playing and car game - great fun with appeal for all your family members

ANTI LEMMINGS A156 Power animation - fantastic (2) (2Mb)

APIDYA A005 Good demo of great new game - recommended for stunning enjoyment and graphic finery!

ARCADIA A163 A nice version of the 'breakout' game

ART OF MED A022 Disk full of more MED music scores

AS LABEL A077 All the best label programs on one disk

ASSASSINS AUDIO A203 Collection of soundtracks and rippers - great hacking

AT THE MOVIES A157 Anim from Schwartz featuring Amy squirrel (1.5Mb)

ATC ATAC A006 British Spectrum game conversion

AUTOMATED LIGHT A158 Great battlestar galactica type animation - must get (4) (3Mb)

BALLOONACY A170 Good version of the classic 'bomber' game

BEATRIX POTTER A152 Beautiful clip art converted from the PC - extremely popular in the UK

BIORHYTHMS & STARCHART A078 Check biorhythms and chart the stars! A better program of its type - check it out

BLACKBELT A181 Chop the blocks in this martial arts game

BLACKJACK A007 A good version of the classic card game

BLACKJACK TRAINER A192 A good tutor for this ever popular game - improve your odds for the real table play!

BOING A193 Get Herbert back home to his village!

BUSINESS CARD MAKER A079 Make your own with this useful utility, and save time and money at the printers

BUSY BEE A154 Cute anim of a freaky bee - looks almost wooden! High in the UK animation charts just now (1Mb)

BUZZED A159 Great animation of wasp crashing into things - you'll need the extra memory though, but GREAT! (3) (3Mb)

C-LIGHT RAY TRACER A080 Commercial ray tracing package is now PD - a fascinating graphics utility - great results

CASSETTE LABELER A188 Great utility for tape collections

CASTLE OF DOOM A009 Easy graphic adventure - good for beginners and cunningly addictive for the veteran hacker

CHEMESTHETICS A081 Chemistry program for molecule display - the marvels of mother nature unfolded before you!

CHET SOLACE UTILS A082 26 utilities on this disk

CHINESE CHECKERS A010 Computer version of the boardgame classic - always great for family fun

CLIPART A083 8 disks of some of the best clip art around - you will NOT be disappointed with this set (8)

COLOSSUS & WORLD A011 Two great adventures from Software Distillery - highly recommended to you adventurers

COUNTACH A084 3 disks of various and useful clip art (3)

CROSSFIRE A169 Good kids' game - keep them occupied for ages. What a great remedy for Nintendo boredom!

CROSSWORD COMPILER A012 A quality puzzle creator and editor - if you like crosswords this will give you pleasure!

CURSER BASIC COMPILER A085 Speed up those BASIC programs, and free yourself from interpreter constraints

DARKSTAFF A013 Spectrum-emulated text adventure game

DARKSTAR UTILITIES A086 Another disk full of utilities for all - you won't want to be without this disk in your collection

DART ANIMATION A155 Dart passing through an egg animation - you have to see it to believe it. Very over-easy!

DATABASE MASTER A178 Good database for extra memory, and has sophisticated features you'd expect to find (1Mb)

DATING GAME A160 Schwartz classic animation (2) (3.5Mb)

DBW A087 A good ray tracing program complete with some nice pictures - shows the graphics power of Ami!

DEMOLISHER UTILITIES A088 168 useful utilities - something for all!

DEMOLITION MISSION A176 Another good version of the classic 'bomber' game - very playable

DESKBENCH A089 Nice alternative workbench, icons etc. This is a really neat program! (3)

DESKTOP PUBLISHER A090 From Germany now in English translation - a MUST HAVE!

DIRECT ACTION A091 A useful utility for editing animation sequences, loads of features

DOPE INTROMAKER A092 Make your own intros with this utility

DRAGON'S CAVE A014 Nice dungeon type game with good graphics - you may spend hours!

DUNGEON DELVER A179 Roam around mazes, collect keys etc. (2)

DYNAMITE DICK A168 Intriguing little game done in AMOS - good

DYNAMITE FONTS I A093 Excellent fonts for use in DPaint etc. Add these to your collection now!

DYNAMITE FONTS II A094 Very popular fonts disk - stacks of IFF fonts - a veritable treasure trove for you artists

EDUCATION SET A095 5 disks packed with good educational programs, with something to interest everyone in the family (5)

ENSIGNIA MAZE A017 This game allows 4 simultaneous views of maze, and gives a good insight into 3D creations

ETERNAL ROME & DOMINOES A016 Two good and stimulating games, get this if you're interested in history!

PRE-FORMATTED 3.5" DISKS

Despite the current chronic disk shortage, we have over 30,000 blanks in our warehouse. Some vendors are charging a premium on blank disks and gouging their customers by charging inflated prices. Not us. We will sell you blanks, pre-formatted for the Amiga, at the same rates as our competitors would like to charge for unformatted blanks. Prices INCLUDE shipping, but you MUST order a minimum of 2 PD disks. 10 - 89c 25 - 76c 50 - 70c 100 - 68c

EXILE FONTS A096 More excellent IFF fonts for DPaint etc.

FAMILY HISTORY DATABASE A172 Very good genealogy program, keep track of your ancestors and origins (1Mb)

FLASHBIER A018 Boulderdash type game with 200+ levels

FLEXIBASE DATABASE A097 An excellent, easy to use database system with flexible layout options and features

FONTS & RAM MANAGER A098 Lots of fonts plus a software RAM switch - a very useful utility for A500 users

FONTS & SURFACES A099 Lots of useful fonts, brushes etc. for DPaint, plus rich textures and backdrops for you to use

FORMS REALLY UNLIMITED A162 Great forms designer program - must have - GREAT for both home and office

FRANTIC FREDDIE A019 Classic platform game with good music - we just couldn't stop playing this frustrator

FRUIT MACHINE A196 Good simulation of this gambler's favorite, you can have the fun without losing the dough!

GALACTIC FOOD FIGHT A020 Fight your way through ice cream & fruit! A popular game in Europe at the moment

GENESIS DEMO A100 Superb fractal generator - very good

GRAPHICS CONVERTERS A149 Convert graphics, format PC disks etc. An absolute essential for transferring art formats

GRAPHICS UTILITIES A102 Useful, graphics oriented programs which will assist you in the manipulation of your art

GROWTH A021 Really good game in which you aim for the brain! Stimulate your own brain cells with this nifty escape!

HACK A022 Good text adventure in the Infocom tradition

HAMLAB A103 Convert VGA PC pictures to Amiga HAM with this utility - opens up a true wealth of pre-created artwork

HANGMAN A194 Good, fun version with word editor

HARD DRIVE UTILS A104 A must have for hard drive owners

HOLLYWOOD TRIVIA A023 Loads of questions in this good trivia game - so you think you know your entertainers huh?

HOLY GRAIL A024 One of the best text adventures around

HYPERBALL A195 Latest version of woodenball, an excellent game that will keep you burning the midnight oil and some...

ICONMANIA A105 Loads of programs for icon creation with many icons! Great for hackers, or enhancing your system

ICONS A106 This disk is just crammed full of varied & useful icons - redesign the way your workbench looks and feels

IFF SAMPLES A204 Great samples from the Kawai K1 digital synthesizer, ready for play on your Amiga - breathtaking!

IMPLODER A107 A very good crunching program - very efficient in terms of time and file size. Great for telecommers

INTERFERON PRO A108 Create protection bootblocks against viruses - we may see Michelangelo on the Ami soon - prepare!

JAMCRACKER A205 4 channel chip music sequencer - handles samples also. Get this one with A204 above

JAZZBENCH A109 An alternative workbench preferred by many, another disk that will change the way your Ami looks

JETMAN A025 A British classic conversion of Jetpac

JR-COMM 1.2 A110 The definitive modem software - must have! This is the one that we use and is VERY powerful

KARATE WORM A198 Very nice platform game, jumping over worms etc! Keep the kids (or yourself) amused for hours!

KAWAI K1 A210 Editor/librarian for MIDI users with K1

KAWAI K4 A211 Editor/librarian for MIDI users with K4

KILLER CARS A026 A good car game with filled vector graphics, fun and intriguing to see this clever graphics style

KING JAMES BIBLE A111 Old and New Testament and text reader. In ASCII format so you may import to your files (4)

LAMER GAME A027 Similar to Operation Wolf, shoot-em-up

LANGUAGES DISK A112 Forth, Modula 2, X-Lisp and Logo

LARN A028 Another well-respected text adventure

EUROSOFT

THE PROFESSIONALS' CHOICE
FOR SUPPLY OF THE WORLD'S
FINEST P.D. AND SHAREWARE.

CHECK OUT OUR PRICES:-

1-9 disks - \$5.50 ea.

10-19 disks - \$4.50 ea.*

19+ disks - \$3.50 ea.*

*Special Offer!

We will ship 5 top quality 3.5" blanks, pre-formatted for the Amiga, with every 10 titles!

Excellent fonts for use in DPaint etc. Add these to your collection now!

DYNAMITE FONTS II A094 Very popular fonts disk - stacks of IFF fonts - a veritable treasure trove for you artists

EDUCATION SET A095 5 disks packed with good educational programs, with something to interest everyone in the family (5)

ENSIGNIA MAZE A017 This game allows 4 simultaneous views of maze, and gives a good insight into 3D creations

ETERNAL ROME & DOMINOES A016 Two good and stimulating games, get this if you're interested in history!

game
LASERZONE A030 Good old C64 classic arcade game
LAST HOPE A148 Priceless when you've just erased a valuable file! We define this one as an essential addition!
LEAPING LARRY A031 Platform game done in AMOS
LEARN & PLAY A029 Great fun for the kids on two disks (2)
LETRIX A032 Good puzzle game with a fun Tetris flavour
LORE OF CONQUEST A033 Space trading game, dungeons & dragons style, with an addictive theme - enjoy!
M-CAD A113 Computer aided design - good quality (1Mb)
MACVIEW, DRAW, ROTATE A114 Three good graphics programs - unusual, but useful for designers, etc.
MARBLE SLIDE A034 Puzzle game in which you build up slides, and frustrate yourself in the process. Fun though
MASTER OF THE TOWN A035 Shoot the signposts in this one, and sharpen up your wits and grease your keyboard....
MED 3.2 A200 Latest version of this superb music sequencer - great! A real must-have for budding Am musicians
MED MUSIC DISK A201 Some nice MED music on this disk
MESSY-SID A115 Easy to use PC-AMIGA file transfer program, very high in the UK popularity charts, this one
MIDI DISK A206 Lots of useful utilities for MIDI
MIDNIGHT THIEF A067 A great text adventure for hackers
MISSILE COMMAND A177 Good version of the ever popular classic arcade, a hit on the UK BBC micro when it appeared
MISSION X A070 Shoot-em-up type arcade game with excellent graphics - well, we think you'll like it anyway.....
MOBED A116 A good bob and sprite editor for programmers
MYSTIX HARDWARE MODS A117 Documents disk for hardware modifications - interesting and curious contents
NAPOLEONIC WAR SIMULATOR A036 A good strategy game with a requirement for a good, strategic battle plan
NCOMM A118 Latest version of this excellent comms program
NESTOR CARD GAME A037 A novel treat for card freaks
NETHACK A038 A very popular D&D style game (2)
NO MAN'S LAND A039 High-tech war games in shoot-em-up style - requires nimble fingers and less of the strategy!
NOISETRACKER A207 Music sequencer with loads of functions - if you're into music on the Am then try this out
NORTH 'C' A119 The complete 'C' compiler by Steve Hawtin - another major seller across the pond - excellent value (2)
NU GAME A040 Shoot-em-up game with good graphics - quite difficult and certain to trigger your loudest profanities
PAIR IT A167 Match the cards to make a pair - easy card game for the easily amused, or just to pass time! (1Mb)
PC EMULATOR A120 Needs MSDOS to run, gives CGA graphics output. An interesting disk for experimentation....
PENDELE EUROPA MEGAUTILITIES A121 A superb collection of 200+ utils, hoofed from the darkest depths of Europe
PETER'S QUEST A041 Rescue the maiden in this fun platform game, but don't give up too easily. Persevere for a good end!
PIXIE KINGDOM A180 Another dungeon style game of quality and frustrating design - can you beat the enemies? (2)
POM POM GUNNER A042 Latest version of this Beachead clone, popular now both here and in Europe - get it and enjoy!
PRINTER DRIVER GENERATOR A122 Design your own drivers
PROPERTY MARKET A043 Become a millionaire before you retire at 65! Donald Trump uses it for his decision-making
QBASE A123 Good database system, easy to use, with full searching facilities - great for both beginners and old hands
QUICKBENCH A124 Another alternative workbench system, very clever! We love evaluating these - as much fun as games
R-DRAW A182 Another well laid out drawing package
RAINBOW WARRIOR A164 Paint with coppers and save them out! We don't mean British policemen, programmers will know!

RAPHAEL'S REVENGE A044 Mutant Turtle game done in SEUCK - give the kids a Turtle treat with this shoot-em-up!
RAZOR A125 Graphics rippers, virus killers, disksalv, powerpacker - for the more experienced Amiga user, this one
RETURN TO EARTH A045 Space trading game in classic UK 'Elite' vein - another popular game in the UK on the BBC
REVERSI + SNAKES & LADDERS A166 Two well-known and popular games for kids of all ages - snakes-chutes in the US
RIM DATABASE A126 Comprehensive relational database - powerful, with the ability to cross-reference data files
RINGS OF ZON A046 Absorbing adventure and strategy game - what more can we say about good adventures?
ROBOCOP A015 A shoot-em-up (language may offend)
ROT A127 A simple but very popular 3D drawing package
SCOPE 114 A128 Structured clip art for PPage, PStream etc.
SCOPE 115 A129 More structured and useful clip art
SCUM HATERS A048 Shoot-em-up done in SEUCK by Brazzle Atkins - the title does fair justice to the 'plot'
SEALANCE A049 A submarine strategy game - quite sophisticated - good
SERENE II A051 Follow up to SERENE SHOOT UP below
SERENE SHOOT UP A050 Another quality game for fire button freaks!
SEVEN TILES A047 Superb futuristic speedball type game
SHAPES A187 Very intriguing, mind-boggling puzzle game
SIMON & SPACE MATHS A173 Two good educational programs here - recommended
SIMPSON'S GAME A052 A vertical scroll game done in SEUCK
SNAKE IN THE GRASS A197 Collect mushrooms and toadstools!
SOMETHING FOR NOTHING A130 Full of video utils, fonts etc., although you'll have to pay us the cost of the disk! (2)
SOZOBAN 'C' A131 Another popular 'C' programming environment, great for learning this powerful language
SPANISH TUTOR A175 Good language learning program
ST EMULATOR A132 Run Atari ST software on your Amiga - needs 2 drives - very useful if you have access to ST progs!
ST-80 BEAST SAMPLES A208 Pan flute sounds from Beast, Beast II. Some of the best Psynosis sounds created to date
STAR TREK NEXT GENERATION A053 Strategy game in Hires, needs 1Mb, but well worth the extra memory!
STAR TREK THE SHOOT-EM-UP A054 The classic done in SEUCK, and a pleasant change from Trekkie 'simulations'
STORYLAND A071 Two very good kids' games, great fun
SUPER SKODA CHALLENGE A066 Nice new car racing game
SUPER WORKBENCH A134 Yet another alternative workbench! Fascinating how programmers spend their time!
SUPERKILLERS A133 Kills 190 viruses stone dead
TAROT II A150 Read the cards - great version (2)
TENNIS A055 An excellent tennis game, needs 1Mb
TEXT ENGINE A151 Another good quality word processor
TEXTPLUS A135 One of the best word processors, includes spell check and numerous extra facilities for the experienced
THE EVIL DEAD A056 Blast the ghouls in this crazy game
THE INSIDERS' CLUB A058 Good stock market game - see how far you get! Gives you an insight into the markets...
THE JAR A057 Very nice little jump and run game
THE WOODEN BALL A171 Great shareware game, get this one! Another favourite with our English cousins just now (1Mb)
TILE TRIAL A174 Solve the sliding puzzle within the time limit!
TOMCAT A065 Good quality vertical scroll arcade game
TREASURE SEARCH A161 Find the buried treasure in this fun game - another good program on our recommended list
TV GRAPHICS A136 Superb DPaint backdrops and some great fonts - get this if you're into Toasters and video etc! (2)
UEDIT A137 Another great shareware wordprocessor
ULTIMATE CARD GAMES A068 Cribbage, Hearts, Bluemoon, Patience and Solitaire should be enough to keep you busy
ULTIMATE ICON DISK A138 Iconmeister, Iconlab, Iconmaster, icons etc. Everything you need for icon creation
ULTRAPAINT A139 A nice paint package for IFF pictures
VECTOR DESIGNER A140 A comprehensive but difficult to use program! Persevere and discover structured drawings
VIDEO APPLICATIONS A141 Assorted programs for genlock & video applications - must have this (2)
VISCALC SPREADSHEET A142 Easy to use spreadsheet based on VC
WAR OF THE FOUR A191 A good shareware graphical adventure game - hours of amusement here
WASTELANDS A069 Superb new 3D vector game - you MUST get this one! Absolutely superb!
WATERMINES A059 Good Boulderdash style game
WET BEAVER GAMES A060 Version of the old Pong game
WINDOWS/BENCH A143 A Windows3/Workbench2 lookalike, very nice! Spruce up your Am! (2)
WIZARD'S DOMAIN A189 Nicely done graphical adventure game
WIZZY'S QUEST A062 Great arcade game from Germany
WONDERSOFT GAMES A061 Golf, Congi, Missile, Trillon, Windmill etc. Gotta get it!
WORDWRITE A145 Comprehensive, with spelling checker, and all the full-blown features of some commercials
WORKBENCH HACKS A144 Loads of amusing fun with these hacks! This is another definitive must-have disk - funny stuff
YAMAHA DX7 VOICE FILER A209 Librarian program
YELP! A063 Nice little painter type game with surprises!
ZEUS A064 A very intriguing block puzzle game
ZX SPECTRUM EMULATOR A146 For the Sinclair (Timex) with sound! The Spectrum was the UK's most popular at one time
RED SECTOR DEMO MAKER B001 Ever wanted to have the means to create your own power demos? Try this one! (1Mb)
MEGA CLIP ART I B002 This 10 disk set contains pictures for DPaint, ready to load Pagesetter art, over 30 screens of IFF alphabets, Animals, Anatomy, Buildings, Cartoon people and animals, Holidays, flags, flowers etc., Music, School, Signs, Titles, Logos, Headings, Teddy Bears, Vintage cars, bikes (10)
MEGA CLIP ART II B003 This set of 9 disks includes Occasions, Transport, Signs, Electrical, Architecture, Fruit, Vegetables, Kitchen, Men, Women, Boys, Girls, Babies, Anatomy, People, 52 different Alphabets, Arrows, Borders, Stars, Humor, Cars, Sports Trade, Art Deco, Headings (9)
FONTS GALORE I B004 Cosmopolitan: Rangers, Peignot, Avant Guard, Aldous, Celtic etc. Beautiful stuff in this set
FONTS GALORE II B005 Fancy: Hollywood, Park Avenue, Broadway, Camelot, Courier, HAM.....
FONTS GALORE III B006 Publishers: Helvetica, Akashi, Andover, Bookman, Boxie, Times.....
FONTS GALORE IV B007 Various: Unusual, Videofonts, Large & small fonts, utilities and more.....
FONTS GALORE V B008 Ripped: Fonts, logos from demos! Incorporate them into your own works!

FISH 'n' CHIPS!



We know that some chips are currently a little difficult to find; try us for availability:-

Super Denise Fatter Agnus Super Agnus 2.04 Upgrade Static Zips FPU Math Co's A500 + 512Kb Others - Call!



We have the entire Fred Fish collection in inventory - disks 1-590.

Our price for the Fish collection is just \$2.50 per disk - or we can supply your choice of 20 disks on one of the new 'flopticals' for just \$79.95.

We have rare European collections available; please request our catalog which contains full details of all the Am! disks worth collecting!

We have the entire Fred Fish collection in inventory - disks 1-590.

Our price for the Fish collection is just \$2.50 per disk - or we can supply your choice of 20 disks on one of the new 'flopticals' for just \$79.95.

We have rare European collections available; please request our catalog which contains full details of all the Am! disks worth collecting!

PROGRAMMERS WANTED!

We are URGENTLY looking for highest quality software for our new Am commercial publishing company. We pay very substantial up-front and continuing royalty payments, and seek to publish both in the US and Europe. Please send us (or ask us for a non-disclosure agreement so that we may evaluate your work confidentially. IMMEDIATE DECISIONS.

\$3 DEFINITIVE CATALOG!

YES, WE CHARGE FOR IT - WHEN YOU GET IT YOU'LL SEE WHY. QUALITY PRINTED CATALOG INCLUDES OUR OWN LISTING, TBAG, AMOS, FAUG, SMAUG, SCOPE, AGATHON, APCP, PANORAMA, AMICUS, SLIP, TCUG, LARSON ANIMS, SCHEME 17, DEJA VU etc....

ORDERS ONLY: 800-GET-EURO FAX: 503-644-9779 SUPPORT: 503-690-1980

ORDERING DETAILS: Post your order, or call our toll-free number 24 hours a day, 7 days a week. We accept payment by credit card, check drawn on US bank payable to EUROSOF, money order, cash or wire to our account (call). COD is OK. Prices as indicated. **SHIPPING:** We ship by UPS ground no later than day after order received, FREE within USA. No PO box numbers please. Canada please add \$5. Special same-day/overnight rush orders OK, but please add \$25 next day, \$15 second day air/handling surcharge. Rest of the world by fastest air courier add \$40. We specialise in serving our "alien" friends in other countries! All orders to: EUROSOF (AW5), 3003 SW 153rd Drive, Suite 211, Beaverton, OR 97006, USA. Dealer pricing available!



LIST OF ADVERTISERS

Reader Service Number	41	A New Light Video, 107	23, 24	Great Valley Products, Inc., 5
	190	A&M Computer Repair, 109	25, 26	Great Valley Products, Inc., 7
	51	AGEA, 22	27, 28	Great Valley Products, Inc., 11
	12	Amigaman, 92-93	29, 30	Great Valley Products, Inc., 13
	*	AmigaWorld	155, 156	Great Valley Products, Inc., 15
		DPaint IV, 54	194	Hammond Photographic Services, 108
		How to Animate, 65	31	Holz Computer Supply, 107
		Mind's Eye, 88	195	I.DEN Videotronics Corp., 16
		Animation I & II, 90	75	INOVAtronic, Inc., CIII
		Animation III Contest, 97	47	J&C Computer Service, 109
		3-D Objects, 106	*	Kasara Microsystems, 108
	96	Ampex Systems, Inc., 108	34	Manta, 86-87
	4	ASDG, 55	167	MegageM, 108
	85	Bare Bones Software, 109	93	Memory World, 99
	54	BIX, 76	99	Micro R&D, 109
	72	Blue Ribbon SoundWorks, Ltd., 53	183	MicroMiga, 109
	182	Brain Technologies, 107	35	Montgomery Grant, 100-101
	184	Brain Technologies, 108	179	Natural Graphics, 65
	7	Briwall, 110-111	65	New Horizons Software, 9
	196	Clearlight Software, 109	38	New Horizons Software, 17
	178	Coast to Coast Technologies, 57	37	NewTek, Inc., CIV
	9	Commodore Business Machines, 91	82	Octree Software, 25
	193	Commodore International Ltd., 98	159	One Way Media, 64
	10	Computability, 77-79	150	Progressive Peripherals, 41
	13	Creative Computers, 66-73	62	Pysgnosis, 27
	8	Creative Equipment, 26	188	Ramco Computer Supplies, 108
	83	Desirable Productions, 108	172	Redmond Cable, 64
	14	DevWare, Inc., 104-105	43	Rombo, 63
	16	Digital Creations, 51	44	Safe Harbor, 89
	171	Digital Process Systems, Inc., 47	40	SAS Institute, 40
	73	Digitek Software, 59	164	Seven Seas Software, 108
	61	DigiVision, 108	45	Sideline Software, 85
	185	Electronic Services, Int'l, 108	90	SMC Software Publishers, 107
	60	Eurosoft, 94-95	46	SoftLogik Corp., 23
	166	Foxy Tec, 108	88	Software Hut, 107
	18	GEnie Information Services, 61	48	Softwood, Inc., 21
	13	Go Amigo, 82-83	*	Supra Corporation, CII
	154	Gold Disk, Inc., 1	58	Virtual Reality Laboratory, 24
	20	Grapevine Group, Inc., The, 102-103	86	Visionsoft, 107
	67	Graphic Impressions, 108	52	Vortex Computersysteme GmbH, 81
	169, 170	Great Valley Products, Inc., 2	176	Zipperware, 107
	21, 22	Great Valley Products, Inc., 4		

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

* This advertiser prefers to be contacted directly.

NOTICE TO ADVERTISERS

All advertising is subject to the approval of the Publisher and *AmigaWorld* reserves the right to refuse advertising without notice.

The advertising herein that has been typeset and/or designed by *AmigaWorld* is the property of *AmigaWorld*, and not that of the advertiser. The advertiser has purchased the right of reproduction in *AmigaWorld* only, and does not have the right to reproduce the ad in any other publication without the expressed written consent of *AmigaWorld*.

Advertisers and/or their agencies assume the responsibility for the condition of the contents of the advertising printed herein and agree to indemnify the Publisher of *AmigaWorld* for any claims and/or expenses incurred therefrom.

AmigaWorld is not responsible for changes to artwork after the given advertising deadlines, nor assumes responsibility for mistakes, misprints, or typographical errors, and will not issue credits of any kind for such errors.

AmigaWorld advises advertisers that statements regarding shipping and handling charges, warranties and/or money-back guarantees should be included within all forms of advertising in *AmigaWorld*.

The opinions expressed in the articles and advertising appearing herein are those of the authors and/or advertisers and are not necessarily those of *AmigaWorld*.

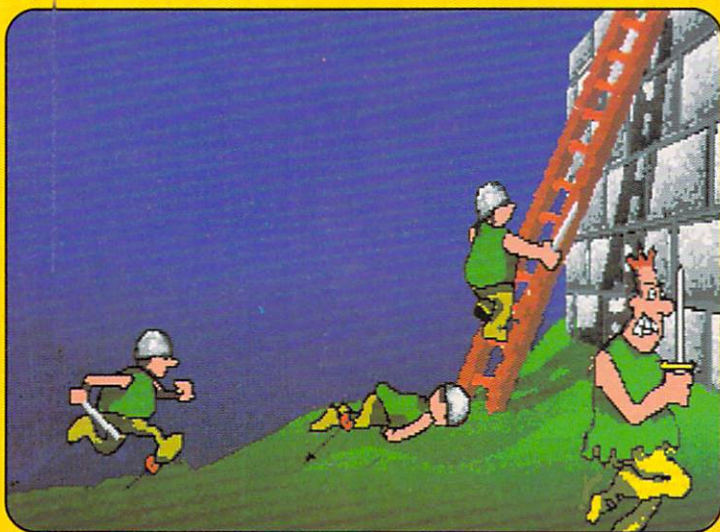
AmigaWorld is a publication of International Data Group, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. International Data Group publishes over 150 computer publications in more than 50 countries. Thirty million people read one or more of International Data Group's publications each month. International Data Group's publications include: ARGENTINA's *Computerworld Argentina*, *Infoworld Argentina*; ASIA's *Computerworld Hong Kong*, *Computerworld Malaysia*, *Computerworld Southeast Asia*; AUSTRALIA's *Australian Macworld*, *Australian PC World*, *Computerworld Australia*, *Information Decisions*, *Profit*, *Reseller*; AUSTRIA's *Computerwelt Osterreich*; BRAZIL's *Automacao & Industria*, *DataNews*, *Mundo IBM*, *Mundo Unix*, *PC Mundo*, *Publish*; BULGARIA's *Computerworld Bulgaria*; CANADA's *ComputerData*, *Direct Access*, *Graduate Computerworld*; CHILE's *Informatica*; COLUMBIA's *Computerworld Columbia*; CZECHOSLOVAKIA's *Computerworld Czechoslovakia*, *Network World*, *Nural*, *PC World Czechoslovakia*; DENMARK's *CAD/CAM WORLD*, *Computerworld Danmark*, *Computerworld Focus*, *Lotus World*, *Macintosh Produktkatalog*, *Macworld Danmark*, *PC/LAN World*, *PC World Danmark*, *Unix World*; EGYPT's *PC World Middle East*; FINLAND's *Mikro PC*, *Tietotekniikka*, *Tietoverkko*, *Tietoviikko*; FRANCE's *Compu Search*, *Computer Direct*, *Distributive*, *Golden*, *InfoPC*, *Le Guide du Monde Informatique*, *Le Monde Informatique*, *Telecoms International*; GERMANY's *Computerwoche*, *Computerwoche Extra*, *Computerwoche Focus*, *Computerwoche Karriere*, *Information Management*, *Lotus Welt*, *Macwelt*, *Netzwelt*, *OS/2 Welt*, *PC Woche*, *PC Welt*, *Unit*, *Unix Welt*; GREECE's *PC World*; HUNGARY's *Computerworld SZT*, *Mikrovilag Magazin*, *PC Vilag*; INDIA's *Computers & Communications*; ISRAEL's *People & Computers*; ITALY's *Computerworld Italia*, *Macworld Italia*, *Network World Italia*, *PC World Italia*; JAPAN's *Computerworld Japan*, *Macworld Japan*; KOREA's *Computerworld Korea*, *PC World Korea*; MEXICO's *Computerworld Mexico*, *PC Journal*; THE NETHERLANDS' *Computerworld Netherlands*, *Computer! Totaal*, *LAN Magazine*, *Mac Magazine*; NEW ZEALAND's *Computerworld*, *PC World*; NIGERIA's *PC World Africa*; NORWAY's *Computerworld Norge*, *C World*, *IDG Direct Response*, *Lotus World*, *Macworld Norge*, *Multimedia and Desktop*, *PC World Ekspress*, *PC World Norge*, *PC World's Product Guide*, *Publish! World*, *Student's DP-Guide*; PERU's *PC World*; PEOPLE'S REPUBLIC OF CHINA's *China Computerworld*, *PC World China*, *IDG HIGH TECH*, *Newproductworld*; PHILIPPINE'S *Computerworld*, *PC World*; POLAND's *Computerworld Poland*; ROMANIA's *Infocub*; RUSSIA's *CADWorld*, *Computerworld*, *Networks*, *PC World*; SPAIN's *AmigaWorld*, *CIMWorld*, *Comunicaciones World*, *Computerworld Espana*, *Macworld*, *PC World Autoedicion*, *PC World Espana*, *Publish*; SWEDEN's *Affarskonomi Management*, *Attack*, *CAD/CAM World*, *CAP*, *ComputerSweden*, *Datalngjenjoren*, *Data & Telekomunikation*, *Digital/Vardlen*, *Lokala Natverk/ LAN*, *Lotus*, *Macworld*, *Maxi Data*, *Mikrodatorn*, *Svenska PC World*, *Unix*, *Windows*; SWITZERLAND's *Computerworld Schweiz*, *Macworld Schweiz*; TAIWAN's *Computerworld Taiwan*, *PC World Taiwan*; THAILAND's *Thai Computerworld*, *TURKEY's Computerworld*, *PC World*; UNITED KINGDOM's *Lotus*, *Macworld*; UNITED STATES' *AmigaWorld*, *CIO*, *Computer Buyer's World*, *Computerworld*, *Digital News*, *Electronic News*, *Federal Computer Week*, *GamePro*, *IDG Books*, *iCider/ A+*, *InfoWorld*, *Lotus*, *Macworld*, *MPC World*, *Network World*, *NeXTWORLD*, *PC Games*, *PC Letter*, *PC World*, *Portable Office*, *Publish!*, *RUN*, *SunWorld*; VENEZUELA's *Computerworld Venezuela*, *MicroComputerworld Venezuela*; YUGOSLAVIA's *Moj Mikro*.

Advertising Inquiries should be directed to Advertising Offices, *AmigaWorld*, 80 Elm St., Peterborough, NH 03458; telephone: 800-441-4403. **Subscription problems or address changes:** Write to *AmigaWorld*, Subscription Dept., PO Box 58804, Boulder, CO 80332-8804. **Problems with advertisers:** Send a description of the problem and your current address to: *AmigaWorld*, 80 Elm St., Peterborough, NH 03458, ATTN.: Margot L. Swanson, Customer Service Representative.

ANIMATORS!

Win the Ultimate A3000 System!!

Over \$20,000
In Products
Pledged by Amiga
Market Manufacturers



Now, in its third year, the *AmigaWorld* Animation contest tests the boundaries and imaginations of some of the best animators! We're looking for 2D and 3D animations that will roll your socks down! State-of-the-art style and technique is the theme this year.

All you have to do is submit your most awesome anima-

tion. If you're our grand prize winner you win a fully loaded Amiga 3000. Even if you don't win the grand prize, we may include it on *The AmigaWorld Animation Video Volume III* (along with the best of all the other submissions). If we use your animation on the tape we'll give you \$100!

How can you lose?

FIRST PRIZE

The Ultimate Amiga 3000 System - \$12,500 Value

Amiga 3000 with 100-MB Hard Drive (\$4150) and Amiga 1950 Multisync Monitor (\$695) from Commodore; G-Force 040 Accelerator (\$2799) and ImpactVision-24 Video Graphics Board (\$2199) from Great Valley Products; The Personal Single Frame Animation Controller (\$425) from Nucleus Electronics; Caligari Broadcast 2.1 3-D Rendering Software (\$1995) from Octree Software; VistaPro 2.0 (\$99.95), MakePath (\$25) and Terraform (\$25), from Virtual Reality Labs; Animation Station (\$49.95) from Progressive Peripherals.

2ND PRIZE

The International Package - \$4700 Value

Harlequin 2000 32-Bit Frame Buffer from The Amiga Centre Scotland (\$2100); TVPaint from TecSoft, France (\$1500); V-Lab digitizer from MacroSystem, Germany (\$450) Will Vinton's 3-D Animation from Cineplay (\$499); VistaPro 2.0 (\$99.95), MakePath (\$25) and Terraform (\$25), from Virtual Reality Labs; Animation Station (\$49.95) from Progressive Peripherals.

3RD PRIZE

\$1100 Value

DCTV from Digital Creations (\$495); 3-D Pro 2.0 from Progressive Peripherals (\$399); VistaPro 2.0 (\$99.95), MakePath (\$25) and Terraform (\$25), from Virtual Reality Labs; Animation Station (\$49.95) from Progressive Peripherals.

ALSO: Prizes for the NEXT 10 WINNING ANIMATORS: Best 25 Public Domain Video/Graphics disks from Devware (\$99); Diskmaster graphics utility from Progressive Peripherals (\$49.95); Professional 3-D Object Library from *AmigaWorld* (\$89.95).

Disk-based animations should be easily installable and playable on a hard drive, and should include the appropriate player software. Animations can also be submitted on a professional videotape format such as 3/4", Hi-8 or S-VHS. Tape submissions must include a VHS copy, plus enough material on disk to be proof that the animations are Amiga generated. Submissions should also include full details on what hardware and software products were

used to create them. Your animation must be three minutes or less. Please include your name, address and phone number. The animations submitted must be your original work, and by submitting them, you are granting *AmigaWorld* permission to use and distribute the work with our videotape.

Deadline for submissions is **October 15, 1992.**

Tim Walsh, c/o Animation Video Contest, 80 Elm Street, Peterborough, NH 03458

YOU WON'T RECOGNIZE THE FAMOUS COMPUTER IN THIS AD. OR THE VALUE.



You'd never know the amazing things this black box can do just by looking at it. Not only does CDTV® play your audio CDs but it can bring words, music and pictures to life on your television. CDTV simply connects to your TV and stereo and through its ingenious marriage of computer, audio and video technologies lets you play with a new generation of interactive CDs.

CDTV is based on the Amiga® and if you buy the CDTV/P system before June 30th it comes with AmigaDos®, a keyboard, floppy drive, mouse, Grolier's Electronic Encyclopedia™, Lemmings™, Appetizer pack and a savings of up to \$848.00*.

Just pick up a CDTV Multimedia Player and you'll have a full 1Mb Amiga 500 with the potential to be a home video editing system, a home reference library, a children's learning tool, a music studio and a language learning lab. All within reach of your sofa.

For the name of the closest authorized Amiga dealer or for your free CDTV Welcome Tour video tape call 1-800-66-AMIGA, in Canada, call 1-800-661-AMIGA.

Look into CDTV Multimedia. You'll be amazed at what you see.

CDTV is a registered trademark of Commodore Electronics Ltd. Amiga and AmigaDos are registered trademarks of Commodore Amiga, Inc. Electronic Encyclopedia is a trademark of Grolier Electronic Publishing Inc. Lemmings is a trademark of Psygnosis. © 1992 Commodore Business Machines, Inc. *Based on MSRP, actual dealer prices may vary.

DRAM BLOWOUT

We Beat Any Advertised Price NOBODY CHEAPER

256x1 - 120.....	\$1.19	256x4 - 80 Static Zips.....	\$6.99
1x1 - 80.....	4.49	Citizen Print Buffer.....	25.00
256x4 - 80.....	4.49	Panasonic 32K Printer Buffer Chip.....	19.95
256x4 Zips - 10.....	5.50	GVP Simm32 4 meg.....	239.95
1x8 - 80/70 Simm.....	34.99 / 37.99	Nibble Mode Simms.....	299.95
4x8 - 80/70.....	129.00 / 139.00	1x4 - 80 Page Zips.....	19.95
1x4 - 80 Dips.....	19.95		

1x4 - 80 STATIC COLUMN ZIPS

\$17.95

70ns / 60ns **\$19.95 / \$24.95**

EXTRA SPECIALS!!

68881RC20	\$34.95	
68882RC20	69.00	Call for PLCC PRICING FOR VXL
68882RC25	99.00	
68882RC33	150.00	Oscillators \$10.00 or 3 for \$20.00

68882RC50 \$199.95

LASER PRINTER MEMORY

HP II, IID, IIP, III, IIID, IIP Board with 2 Meg \$119.95 4 meg \$179.00

DESKJET 256K upgrade \$79.95

Similar savings on Panasonic, QMS, STAR, NEC, TI, OKI and others

COMMODORE CHIPS

CIA 8520 \$10.95 or 2 for \$19.95 1 meg AGNUS w/puller & instructions \$49.95

Super Denise \$37.95 2 meg AGNUS w/puller & instructions \$69.95

1.3 ROM IN STOCK \$29.95

*** AMIGA 1000 1.5 meg upgrade with clock \$219.95 ***

U NEED SPEED???

CSA's Mega Midget Racer

Look at these Deals!!!

1) MMR 20 MHZ CPU & FPU (20/20)**\$399.00**

TESTED AND CLOCKED AT 25 MHZ

This is a great entry level accelerator and can be user upgraded to our 38 Special.

2) MMR 33/33 for**\$599.00**

Need more speed? This is it. A sensational board at a sensational price.

3) 38 SPECIAL 38/50**\$799.00**

For the speed demon or true professional. No finger tapping while waiting for screens.

Allows SERIOUS productivity.

2 MEG **\$299.95** 4 MEG **\$499.00** 8 MEG **\$650.00**

32 Bit 512K SRAM-70ns or a 50 Mhz coprocessor for \$135 or both for \$250.00 w/MMR purchase.

All Mega Midget Racers come with MMU only... You get more for less only at **MEMORY WORLD**

MEMORY WORLD

3070 Bristol Pike Plaza I, Suite 213
Bensalem, PA 19020
Attn: Amiga Dept.



215-244-7930 FAX 215-244-7932

Add \$5.00 S&H Add \$7.00 2nd Day Add \$4.50 COD

VISA / MC / CHECK / COD

Other chips/speeds available — CALL

MONTGOMERY GRANT

AMW
592

EST. 1967
CELEBRATING OUR
25th ANNIVERSARY

FOR ORDERS
ONLY IN U.S.A.
& CANADA

800-759-6565

OR CALL: (718) 965-9077
ORDER HOURS: MON-THURS. 9:30-7 / FRI. 9-6:30
CLOSED SAT., / OPEN SUN., 9:30-6 (ET)

AMIGA PARTS & CHIPS

8372 FATTER AGNES.....	\$69
8372B SUPER AGNES.....	\$89
8373 SUPER DENISE.....	\$49
8520A CAL.....	\$13
1.3 ROM CHIP.....	\$35
2.0 ROMCHIP.....	CALL
AMIGA 500 KEYBOARD ASSEMBLY.....	\$79
AMIGA 500 ORIGINAL POWER SUPPLY.....	\$59
AMIGA 2000 KEYBOARD.....	\$99
AMIGA 2000 MOTHER BOARD.....	CALL
AMIGA 2000 POWER SUPPLY.....	\$229
INTERNAL FLOPPY DRIVE (A-500).....	\$75

WE CARRY A FULL LINE OF AMIGA
CHIPS, & PARTS/ CALL FOR PRICING!

AD-SPEED ACCELERATOR for all AMIGA computers

\$169

ADIDE 40.....	\$79
ADIDE 40 KIT.....	\$119
ADIDE 44.....	\$99

AdSCSI 2080

EXPANDABLE TO 8MB **\$169**

FLICKER FREE VIDEO **\$229**

ICD

ICD Ad-RAM 2080

A-2000 RAM EXPANSION
(EXPANDABLE TO
8MB RAM TOTAL)

OK.....	\$99
2MB.....	\$162
4MB.....	\$227
6MB.....	\$292
8MB.....	\$356

ICD AD-RAM \$89 540-OK

A-500 RAM EXPANSION
FITS IN A-501 SLOT

ICD AD-RAM 540-1MB.....	\$135
ICD AD-RAM 540-2MB.....	\$175
ICD AD-RAM 540-3MB.....	\$219
ICD AD-RAM 540-4MB.....	\$259

ADIDE INTERNAL HARD DRIVE PKGS. FOR A-500

QUANTUM
52MB LPS
\$399

QUANTUM
105MB LPS
\$519

Packages include ADIDE, shuffleboard, Software,
Cables and Mounting Hardware

Res

**68040
ACCELERATOR**

\$1529



AMIGA 500 & AMIGA 2000 COMPATIBLE HARD DRIVE PACKAGES

INCLUDES CABLES AND SOFTWARE

SCSI CONTROLLERS

DRIVE	DATA FLYER A-2000 (exp. to 8MB)	Rapid Access Turbo A-2000 (exp. to 8MB)	DATA FLYER A-500 (exp. to 8MB)	Rapid Access Turbo 500 (exp. to 8MB)	XETEC A-1000 CHASSIS
SEAGATE ST-157N-1 (49MB, 28MS)	\$79	\$239	\$139	\$299	\$209
QUANTUM (52MB, Low Profile)	\$289	\$439	\$339	\$489	\$409
QUANTUM (105MB, Low Profile)	\$325	\$479	\$375	\$539	\$439
QUANTUM (120MB Low Profile)	\$439	\$599	\$489	\$659	\$565
QUANTUM (240MB Low Profile)	\$499	\$655	\$545	\$715	\$625
MAXTOR (80MB HD)	\$829	\$979	\$879	\$1049	\$959
MAXTOR (120MB HD)	\$389	\$539	\$439	\$595	\$509
MAXTOR (213MB HD)	\$459	\$615	\$519	\$675	\$585
	\$685	\$839	\$739	\$899	\$809

MORE HARD DRIVES

SEAGATE 20MB SCSI.....	\$129
QUANTUM 425MB SCSI.....	\$1099
WESTERN DIGITAL 20MB IDE.....	\$129



INTERACTIVE VIDEO SYSTEMS

TRUMP CARD 500 AT...\$195

with Q52 AT.....	\$425
with Q105 AT.....	\$545

GRANDSLAM 500.....	\$269
GRANDSLAM 2000.....	\$209

TRUMP CARD 500 PRO.....	\$205
TRUMP CARD 2000 PRO.....	\$125

TRUMPCARD 500.....	\$149
--------------------	-------

SEE OUR HARD DRIVE GRID FOR
ADDITIONAL IVS SAVINGS!



GVP COMBO 25/1MB RAM.....\$729

GVP COMBO 40/4MB RAM.....	\$1229
GVP A-500 HARD DRIVE 52Q.....	\$569

GVP A-500 HARD DRIVE 120Q.....	\$715
GVP A-2000 HC8.0.....	\$189

GVP A-2000 HC8.0-120Q.....	\$619
GVP DDS-8.....	\$95

GVP HC 0/1 CONTROLLER.....	\$109
GVP IMPACTVISION 24.....	\$1929

GVP G-FORCE 040 w/2MB RAM.....	\$2199
--------------------------------	--------

A-500 EXPANSION KIT

- 3.5" 880K External Drive
- 512K RAM
- Expansion with
Clock/Calendar

\$89

ASDG ART DEPARTMENT PRO-VERSION 2

\$169

EPSON ES-300 C DRIVER for ADPRO

\$125

Includes Stand Alone Scan to Disk Driver &
Adpro Module. No special board needed!!

INSIDER II

Memory
Expansion
Board
F/A 1000

512K.....	\$209
1MB.....	\$229
1.5MB.....	\$249

AMIGA COMPATIBLE ACCESSORIES & SOFTWARE

1 X 4 ZIPPS FOR A-3000.....	\$19.95
256K X 4 ZIPPS FOR A-3000.....	\$5.95
256K X 4 ZIPPS FOR SUPRA 500 RX.....	\$5.95
68882 25 MHz. MATH CO-PROCESSOR.....	\$129
68882 33 MHz. MATH CO-PROCESSOR.....	\$149
A-1000 RF MODULATOR.....	\$19
AIR 3.5" EXTERNAL DRIVE.....	\$69
AMIGA COMPATIBLE MOUSE.....	\$25
AMTRAK TRACKBALL.....	\$59
ART DEPT. PRO Vers. 2.....	\$169
ATONCE EMULATOR.....	\$239
ATONCE PLUS 16 MHz.....	\$329
ATONCE PLUS 16MHz.....	\$329
AT EMULATOR w/DOS SOFTWARE.....	\$369
BARS & PIPES PRO.....	\$229
BEETLE MOUSE.....	\$27
BIGFOOT POWER SUPPLY.....	\$85
BOMAC TOWER.....	\$209
200 WATT POWER SUPPLY for BOMAC TOWER.....	\$75

DELUXE PAINT IV.....	\$135
DIGIVIEW GOLD 4.0.....	\$130
DIGIVIEW MEDIA STATION.....	\$155
FIXED LENS for PANASONIC 1410 CAMERA.....	\$16
FLICKER FIXER.....	\$229
G.I. CORDLESS MOUSE.....	\$78
G.I. CORDLESS TRACKBALL.....	\$90
G.I. OPTO MECHANICAL MOUSE.....	\$32
Heavy Duty Power Supply for A-500.....	\$69
IMAGINE.....	\$149
IMAGINE: A GUIDED TOUR.....	\$29
IMAGINE & IMAGINE: a Guided Tour.....	\$169
IMAGINE 2.0.....	\$255
KITCHEN SYNC.....	\$1729
LEMMINGS.....	\$31
MAC COMPATIBLE DRIVE for AMAX II.....	\$99
MEGACHIP 500 2000 w/SUPRA AGNES CHIP.....	\$325
MEGA MIDGET RACER 25 MHz.....	\$449

MEGA MIDGET RACER 33 MHz. w/MATH CO PROCESSOR.....	\$609
MICROBOTICS 25MHz. ACCELERATOR w/MATH CO.....	\$470
MICROBOTICS 46 MHz. ACCELERATOR w/MATH CO.....	\$659
MINIGEN.....	\$189
MIRACLE KEYBOARD.....	\$399
MULTISTART II.....	\$59
NEC 3DS-FGX.....	\$719
NUCLEUS Single Frame Controller.....	\$399
PROGRESSIVE PERIPHERALS 68040-2000 w/4MB RAM.....	\$1879
PROGRESSIVE PERIPHERALS with 4MB RAM.....	\$2235
PROWRITE 3.2.....	\$106
RAPID ACCESS 3.5" EXTERNAL DRIVE.....	\$59
ROCCEN PLUS GEN LOCK.....	\$369
ROCTEC ROCHARD AT H.D.....	\$275

SAFESKIN A-500, A-2000, A-3000.....	\$15
SHOWMAKER.....	\$189
STAR80 COL THERMAL PRINTER.....	\$39
SUPERGEN.....	\$649
SUPERJAM.....	\$90
SUPRA 3.5" EXTERNAL DRIVE.....	\$99
SYQUEST 44MB Internal HD with Cartridge.....	\$415
SYQUEST 88MB Internal HD with Cartridge.....	\$615
Ext. Chassis for Syquest Hard Drive.....	\$80
VIDEO BLENDER.....	\$949
XETEC A-500 HARD DRIVE.....	\$199

JOYSTICKS

GRAVIS CLEAR JOYSTICK.....	\$36
GRAVIS JOYSTICK.....	\$32
GRAVIS MOUSESTICK.....	\$64
MAX YOKE JOYSTICK.....	\$79
SPEEDKING 500jx.....	\$16

WRITE TO:

**MONTGOMERY GRANT
MAIL ORDER DEPT.
33 34th STREET DEPT. A
BROOKLYN, N.Y. 11232**

RETAIL OUTLET

**PENN STATION, MAIN CONCOURSE, N.Y.C., 10001
(Beneath Madison Square Garden)
OPEN: MON-THURS., 9:30-7 / FRI., 9-6 /
CLOSED SAT. / OPEN SUN., 10AM-6 PM(ET)**

CUSTOMER SERVICE

**AND ORDER STATUS CALL:
(718) 965-9285**

**Customer Service Hrs.
Mon-Thurs., 10AM-4PM
Friday, 10AM-3PM**

NO SURCHARGE FOR CREDIT CARD ORDERS Fax: #718-965-0664 Telex 422132MGRANT WE SPECIALIZE IN OVERSEAS ORDERS

AMIGA

**AMIGA
500
CALL**

AMIGA

**AMIGA
2000
CALL**

AMIGA

**AMIGA
3000
CALL**

AMIGA

**AMIGA
2000HD
CALL**

ALL MODELS PRICED SO LOW WE ARE NOT PERMITTED TO PRINT THE PRICES

Supra Corporation

SUPRA RAM 512K Expansion.....\$38
SUPRA RAM 500 RX-1MB.....\$135
SUPRA RAM 500 RX-2MB.....\$195

SUPRA RAM 2000 OK.....\$125
(A-2000 RAM EXPANSION EXPANDABLE TO 8MB TOTAL)
2MB.....\$185 6MB.....\$319
4MB.....\$249 8MB.....\$379

SUPRA 2400B Ext. Modem w/Cable.....\$89
SUPRA 2400B PLUS Ext. Modem
w/Cable.....\$149
SUPRA 2400 ZIPLUS MODEM.....\$135
SUPRA FAX MODEM V-32.....\$265
SUPRA FAX MODEM V-32 BIS.....\$335
SUPRA 9600 BAUD MODEM.....\$439

SUPRA 500XP HARD DRIVE KITS
52MB HD, 1MB RAM.....\$509
52MB HD, 2MB RAM.....\$545
80MB HD, 512K RAM.....\$499
120MB HD, 512K RAM.....\$659
120MB HD, 2MB RAM.....\$715
240MB HD, 2MB RAM.....\$799

SUPRA 3.5" EXTERNAL DRIVE.....\$99
POWER PC BOARD.....\$299



**NewTek
Video
Toaster 2.0
on Sale!!**

DPS TBC II.....\$869

MONITOR SPECIALS

COMMODORE 1084 RGB
COLOR MONITOR
\$299
COMMODORE 1950
MULTISCAN MONITOR
\$529



**SURGE
PROTECTOR
\$4.95**

EXPANSION SYSTEMS

**BASEBOARD
500**

A-500 RAM EXPANSION
FITS IN A-501 SLOT

OK.....\$89 2MB.....\$169
1MB.....\$129 3MB.....\$209
4MB.....\$249

DATAFLYER

Low Cost Interfaces
(expandable to 8MB)

A-2000 IDE.....\$69 A-500 IDE.....\$129
A-2000 SCSI.....\$79 A-500 SCSI.....\$139
A-1000 VERSIONS AVAILABLE

**NEW SCSI/IDE COMBO BOARDS
AVAILABLE...CALL FOR PRICE!**

**DATAFLYER
Memory Card**
Fits on any interface

CALL

ITEMS LIMITED - WHILE SUPPLY LASTS ONLY!

ABYSS.....\$14.95
AEGIS DESTINY.....\$19.95
ALTERED DESTINY.....\$29.95
AMIGA APPETIZER.....\$5.00
AMIKIT.....\$19.95
AMOS 3D.....\$29.95
ANALYZE.....\$49.95
ARKANOID.....\$19.95
ARTURA.....\$9.95
ATF-II.....\$24.95
BARNEY'S TALE I.....\$9.95
BARNEY BEAR-CAMPING.....\$15.95
BARNEY BEAR SCHOOL.....\$15.95
BAT.....\$29.95
BATMAN.....\$14.95
BIG BUSINESS.....\$22.95
BLACK JACK ACADEMY.....\$9.95
BLOCKOUT.....\$19.95
BYTE 'N BACK.....\$19.95
CHAMBER SCI-FI
MUTANT PRIESTESS.....\$19.95
CHRONOQUEST I.....\$9.95
CRIME WAVE.....\$17.95
DAILY DBL. HORSE RACING.....\$21.95

DARKMAN.....\$19.95
DELUXE MUSIC CONS.....\$59.95
DELUXE VIDEO III.....\$82.95
DIGIMATE III.....\$14.95
DIGIPAIN III.....\$74.95
DIGIWORKS III.....\$65.95
DISTANT SUNS.....\$31.95
DR.AMI.....\$22.95
DRAW 4-D PRO.....\$169.95
EASY FM.....\$24.95
ELF.....\$24.95
EXPRESS COPY.....\$21.95
EXPRESS PAINT.....\$39.95
F-15 STRIKE EAGLE II.....\$29.95
FINAL COPY.....\$49.95
GREAT STATES II.....\$14.95
GREENS (Golf simulation).....\$29.95
HARD NOVA.....\$24.95
HARPOON.....\$29.95
HARPOON SCENARIO EDIT.....\$19.95
HARPOON BATTLE SET 2.....\$14.95
HOCKEY LEAGUE Simulation.....\$19.95
HUEY.....\$19.95
IMMORTAL.....\$24.95

JINKS.....\$4.95
KIKSTART II.....\$9.95
KINDERAMA.....\$13.95
KING'S BOUNTY.....\$26.95
KING'S QUEST II.....\$23.95
MAXIPLAN PLUS.....\$49.95
MEMORY CHALLENGE.....\$18.95
NITRO.....\$18.95
OFFSHORE WARRIOR.....\$19.95
PEN PAL.....\$67.95
PERSIAN GULF INFERNO.....\$19.95
PROPER GRAMMAR.....\$49.95
QUESTRON II.....\$27.95
RAILROAD TYCOON.....\$29.95
RX TOOLS.....\$27.95
SCRIBBLE.....\$34.95
SECRET OF SILVER BLADES.....\$26.95
SEVERED HEADS.....\$9.95
SEX OLYMPICS.....\$11.95
SEX VIKENS FROM SPACE.....\$17.95
SHADOW OF SORCERER.....\$19.95
SILENT SERVICE II.....\$29.95
SONIX.....\$39.95

CALL FOR OUR COMPLETE SOFTWARE CATALOG

STREET ROD II.....\$19.95
STRIKE FLEET.....\$19.95
SYNTHIA II.....\$49.95
SYNTHIA PRO.....\$179.95
TEENAGE MUTANT
NINJA TURTLE.....\$19.95
TENNIS CUP.....\$18.95
TEXT CRAFT.....\$19.95
TIE BREAK TENNIS.....\$17.95
TRANSWRITE.....\$29.95
TURRICAN.....\$16.95
TV SHOW.....\$39.95
TV TEXT.....\$54.95
TV TEXT PRO.....\$69.95
VISTA.....\$26.95
VISTA PRO 2.0.....\$67.95
WELLTRIS.....\$14.95
WINGS OF FURY.....\$19.95
WORLD TOUR GEOGRAPHY.....\$14.95
X-CAD PRO.....\$119.00
X-COPY.....\$34.95
ZONE WARRIOR.....\$19.95
ZUMA FONT PAK I.....\$44.95
ZUMA FONT PAK II.....\$44.95

Domestic check, Bank Check, Money Orders, Approved P.O.s: Visa, Mastercard, Amex, Optima, Diners Club, C.O.D.s & Wire Transfers accepted. Please call before submitting P.O.s. Non-certified checks must wait 2-4 weeks for clearance. Prices and availability subject to change without notice. Not responsible for typographic errors. Return of defective merchandise must have prior return authorization number or returns will not be accepted. Please add 5% shipping & handling (minimum \$5). Orders over \$1500 are discounted to 3% shipping & handling. Orders over \$3000 are discounted to 2% shipping & handling. Canadian orders please call for shipping rates. APO/FPO orders please add 10% shipping & handling (minimum \$15). (Over \$1200-6% Over \$3000-6%). All APO/FPO orders are shipped first class priority air 2nd day and next day air available at extra cost. We check for credit cards thru: DCA #800233. Amiga is a registered trademark of Commodore Amiga, Inc.





The GRAPEVINE GROUP Inc.

• NORTH AMERICA'S LARGEST SUPPLIER OF AMIGA CUSTOM CHIPS •



ONLY AT GRAPEVINE

DIAGNOSTICS

STU (System Test Utility) by Custom Services Inc. Terrific complete diagnostic trouble-shooting software. STU is a fast, powerful package that will verify floppy and hard disk drive operations, test memory boards, etc. **\$29.95**

Amiga Diagnostician. Diagnose up to 28 common problems. Comes with diagnostic software and booklet. Save a lot of money by locating faulty chips yourself. This is the next best thing to an expensive service manual or your local Amiga repair center. **\$14.95**

The Final Test. This diagnostic diskette tests out keyboard, display, graphics, new Workbench, sound, timing, real time clock, RAM test (both chip & fast) by Global Upgrades, Inc. An absolute must. (Included free with 8372 Agnus) **\$13.95**

2.0 OPERATING SYSTEM

New operating system just released (NTSC/PAL). Complete 7 lb. box contains 1200 page manual, 4 diskettes and ROM. This upgrade is an absolute must for everybody. (Buy the 2.0 from us and get the new ECS Super Denise chip for \$38.95.) **\$87.50**

2.0 ROM CHIP ONLY

For those multi-Amiga users who do not require the full operating manual and diskettes this is for you. **\$47.95**

Printhead Problems?

Don't throw out your old worn printhead. For a fraction of the cost of a new one, we will refurbish or remanufacture it to factory specs for you and give you a **year warranty**, which you don't get when you buy a new unit. **SAVE UP TO 70%.** 5 day turnaround (400 types remanufactured).

For example: Okidata 80/90/100 heads are \$64.95; Epson (9 pin) EX/FX/LX are \$69.95

LATEST ENHANCED CHIP SET

SUPER DENISE 8373 UPGRADE—Now utilize productivity and scan mode, etc. Super hi-res mode (1280 x 200 pixels). An absolute must with 2.0. Comes with Super Denise installation diskette with full diagnostics **\$42.95**
2 MEG SUPER FAT AGNUS (8372B)—This is the high technology chip used with DKB's MegaChip. (Gives 2 megs of chip RAM.) Quantity limited **\$74.95**

1 MEG FATTER AGNUS CHIP (8372A)—Comes with FREE Rockwell Agnus chip puller (a necessity). "Final Test" diskette (12 diagnostic programs), and complete step-by-step instructions **\$59.95** (We'll beat any competitor's price on this chip and still give you the diagnostics and puller.)

AMIGA PC (MOTHER) BOARD

Now for the first time, and only at Grapevine, purchase a new A500 or A2000 PC motherboard at prices lower than an Amiga dealer pays! Each "board" is populated (all chips), tested and has a 90 day warranty. PAL format is also available.

A500/A2000 PC BOARD PURCHASE

*A500 PCB contains all chips **\$189.95**
 *A2000 PCB includes the 1.3 ROM, 8372A 1 meg Agnus and Super Denise chip 8373 **\$529.95**

A500/A2000 BOARD EXCHANGE PROGRAM

Stop paying expensive repair costs. Send us your broken motherboard for an exchange price that can't be beat. Also ask about our exchange upgrade packages. All boards received are subject to inspection. NO dealers.

*A500 PCB Exchange (populated & tested) .. **\$124.95**
 *A2000 PCB Exchange (populated & tested, includes "Final Test" diagnostic diskette) **\$274.95**

Serving the Commodore/Amiga community for 12 years

AMIGA EMERGENCY STARTUP KIT

Stop sending out your Amiga for repairs. Save a lot of time and money by repairing your own computer in a simple manner. Our kit includes all you need. All chips provided in the kit are direct socket plug-ins and do not require soldering. Originally "blister" packaged for government PXs worldwide and now available to the general public. **Total cost savings far exceeds purchasing chips on an individual basis.** 28 different symptoms (faulty parts) with their remedies are laid out. **KIT CONTAINS:** Two 8520A CIA Chips, 8362 half Bright Denise, 8370 Agnus Chip, 5719 Gary Chip, PLCC Chip Puller, Fuse, Basic Schematic, Amiga Diagnostician Booklet and Special Test Diskette with the following tests: Keyboard, Hi Res, half Bright, Double Buffered Animation, Mouse & Agnus Tests. (12 diagnostic tests in all). A \$210.20 value for **\$99.50** (Above kit with 8373 Super Denise **\$109.95**)

MONTHLY SPECIALS

- **McCOY (PLCC) Agnus chip puller.** Commodore price \$29.95. Our price **\$14.95**
- **REJUVENATOR II A1000 Upgrade.** Second version allows 2MB of chip RAM. Surpasses A2000 specs. Contains 2MB Agnus, 8373 Super Denise, 2MB RAM, 1.3 ROM and "Final Test" diagnostic software. No soldering **\$599.95**
- **AMIGA A500 KEYBOARD:** Unit is new, exact replacement with 90 day warranty **\$59.95**
- **8520 CIA CHIP** - The most problematic chip in the Amiga computer. Controls 12 major functions **\$11.95** **2 for \$10.95 each**
- **GVP-G-Force 030 Combo 40/4.** Comes with 68030, 68882, SCSI controller and 4 megs installed. Very limited quantity **\$1079.95**
- **GVP-SIMM 32-4 Mb/60** for above **\$219.95**
- **GVP-SIMM 32-1 Mb/60** (for above) **\$84.95**

AMIGA UPGRADE CHIPS

Fatter Agnus (1 and 2 Meg) See above
 8362 Denise 1/2 Bright **\$23.95**
 8364 Paula **\$23.95**
 8373 New Super Denise **\$42.95**
 8375 **\$59.95**
 5719 Gary chip **\$12.95**
 8520A CIA chip. Controls 12 major functions **\$11.95**
 1.3 Kickstart ROM **\$27.95**
 2.0 ROM only NTSC/PAL (does not include kit) **\$47.95**
 2.0 Enhancer ROM Kit #AS213 Includes 4 floppy disks, 1,000 page operation manual & ROM (NTSC/PAL) **\$87.50**
 2.0 ROM Upgrade Kit #AS214 for A3000 only **\$45.50**
 2.0 A2620/A2630 ROM Upgrade Kit **\$34.95**
 A2000 Keyboard **\$89.95**

AMIGA POWER SUPPLIES

200 Watt "Big Foot" A500 Universal Switching Power Supply with fan and external cabling for hard disks, etc. An absolute must for those adding on more memory/peripherals (e.g. Prima). **\$83.95**
 A2000 P/S (3d party manuf.) 200 watt/fan. Simple plug-in. **\$109.95**

MEMORY EXPANSION

1x4/80 SC Zip for A3000 **\$21.95**
 1x1/80 **\$4.69**
 1x1/100 **\$4.69**
 4164/20 pull **\$2.29**
 27128/27256 Eeprom **\$3.85**
 256x1 (guaranteed pull) **\$1.00**
 256x4/100 all ICD, GVP, etc **\$5.25**
 256x4/80 **\$5.20**
 1x8/80 SIMM **\$38.95**
 4x8/80 SIMM **\$147.95**
 HP Laser Memory (II/III, IIP, & HP III) **\$137.95/\$197.95**
 2 Megs/4 Megs **\$137.95/\$197.95**
 A2630 Expansion Board (DKB 2632). Allows you to expand up to 112 megabytes **\$639.95**
 Flicker Fixer by Microway (NTSC or PAL) **\$227.95**
 Phoenix A1000 Upgrade See ad on facing page
 GVP-SIMM 32-4Mb/60 (for Combo 40) **\$219.95**
 GVP-SIMM 32-1Mb/60 (for Combo 40) **\$84.95**

MISCELLANEOUS PRODUCTS

Printer Port Adapter (runs any CBM printer to PC) **\$29.95**
Video Crisper. Makes your Amiga display sharp/vivid colors. No soldering. Really works! **\$44.95**
Dr. Ami (Free Spirit). Memory & hard disk diagnostic program. Scans all system/expansion memory. Locates defective chips & bad memory location **\$29.35**
AMI Alignment System (Free Spirit). Precision disk alignment/performance package **\$28.50**

68000 SERIES

Math Co's	CPU's
68881 12 Mhz \$36.50	68000 8 Mhz DIP pkg ... \$14.95
16 Mhz \$62.50	16 Mhz DIP pkg \$27.95
20 Mhz \$45.95	68010 8/10 Mhz DIP \$15.95
25 Mhz \$99.95	68020 16 Mhz \$69.95
68882 20 Mhz \$79.95	20 Mhz \$94.95
25 Mhz \$208.95	33 Mhz \$194.95
33 Mhz \$249.95	68030 25 Mhz \$249.95
50 Mhz \$347.95	33 Mhz \$269.95
	50 Mhz \$287.50

DKB PRODUCTS

MegaChip 2000™ With 2 Meg Agnus Chip Included

2 MB of Chip RAM for A500/2000 Sizable Rebate on 1 Meg Agnus
Always In Stock! Now Available for the Amiga 500

STOP RUNNING OUT OF CHIP RAM. If you use your Amiga for Desktop Video, 3D Rendering & Animation, Multimedia or Desktop Publishing, then you need the MegaChip 2000. Fully compatible with Workbench 2.0, the ECS Denise chip, GVP's and Commodore's 68030 accelerators. Upgrade to 1 meg of RAM when you can have the same high tech 2 meg chip RAM as the A3000? Includes FREE Rockwell chip puller (a necessity), Final Test diagnostic Agnus diskette program (see Diagnostics section) and 2 meg Agnus **\$299.99**

Buy the MegaChip from us and we'll give you the new 8373 Super Denise (ECS) for \$34.95

The DKB 2632™ Memory Expander for A2630 Accelerator

This unique board was designed for the Amiga A2500/030 or A2630 accelerator card owner that currently has a powerful system but is limited by the amount of 32Bit RAM that can be installed. Any one that uses this Amiga system for video graphics, animation, rendering, publishing, or audio digitizing will benefit from the ability to install additional 32Bit Fast RAM. 4 Megs of 32Bit RAM installed on board and expandable to 112 megabytes **\$592.50**

Insider II™ 1.5 Megs in Your A1000

Allows A1000 owners to add up to 1.5 meg of Fast RAM internally. User expandable in 512K increments using 256K x 4 Drams. Includes battery backed clock calendar. Simple installation. No soldering required. Compatible with the KwikStart II and most processor accelerators **\$176.50**
 With 1.5 meg **\$237.95**

KwikStart II™ Utilize 1.3 and 2.0 ROMS

Allows A1000 owners to install 1.3 and 2.0 Kickstart ROMs and switch between them. Upgrade to the latest operating system and still be compatible with software that requires Kickstart 1.3 **\$59.95**

MultiStart II™ Switch between ROMs

Allows A500/2000 owners to install Kickstart 1.3 and 2.0 and switch between them with the keyboard. Can also install a third ROM. A sizable percentage of present software will be incompatible with the new 2.0. This simple device allows you to be compatible with all your software. No external wires or switches required. **BONUS:** Buy the MultiStart from us and get the 1.3 ROM for \$24.95 **\$62.95**

SEND FOR OUR FREE 36 PAGE CATALOG

3 Chestnut Street, Suffern, New York 10901

9-6 EST Mon.-Fri.

PRICES SUBJECT TO CHANGE
 We Ship Worldwide

Customer Service Line: (914) 368-4242 International Order Line: (914) 357-2424 Fax: (914) 357-6243

We have a terrific catalog with hard-to-find Amiga items.

Order Line Only

1-800-292-7445

All trademarks and logos for ICD and DKB are from their respective companies and are solely used for identification purposes. Amiga is a registered trademark of Commodore Business Machines Corp.

ICD THE ICD ADVANTAGE

AdSCSI 2000. Hard drive interface with unmatched speed and flexibility	\$97.50
AdSCSI 2080. Hard drive interface with up to 8 megs of FAST RAM	\$164.50
Each meg of memory add	\$38.95
AdSpeed. Best overall performance of any accelerator in its price range	\$177.95
Flicker Free Video. Eliminates interface flicker for any Amiga computer	\$244.50
AdRAM 510. Just released for the new A500 PLUS. Take your Amiga 500 PLUS up to 2MB of fast RAM. Includes RAM and battery	\$77.50
AdRAM 510+ for A500 PLUS (no ram)	\$43.95
AdRAM 540. Add up to 4 megs of RAM internally in your Amiga 500 with 1 meg	\$127.95
with 2 meg	\$162.95
Each additional meg of memory add	\$38.95
AdRAM 2080. 8 meg internally in your 2000/2500	\$97.50
Each meg of memory add	\$35.00
AdIDE. Smallest Amiga hard drive interface made. For IDE (AT) drives	
IDE 44 Kit (for 2.5" hard drive)	\$117.50
IDE 40 (for 3.5" hard drive) (includes controller & cable)	\$92.50
IDE 40 Kit (includes Shuffle Board)	\$134.50
Novia 20i. The smallest hard drive and interface in the world for your A500. Fits internally	\$239.95
Novia 40i	\$369.95
Novia 60i	\$587.50
Novia 85i	\$714.00
Prima 52i. 3.5" IDE drive internally in your 500, 1000, 2000	\$358.95
Prima 105i	\$542.00
Shuffle Board. Reroutes DFO to the external floppy connector. Boot from an external floppy for A500/1000	\$27.95

SPRING SPECIALS



Unique 1.3-2.0 ROM Selector

Electronic ROM Selector Switch by Global Upgrades, Inc. allows for compatibility of ALL your software. Automatically switch between 1.3 or 2.0 ROM from your keyboard or mouse. Does not overlap the 68000 chip, which means complete compatibility with AdSpeed or Mega Midget Racer. Simple plug in, no soldering. Lowest priced electronic switch available. Instructions included\$44.50

STOP EXPENSIVE REPAIR COSTS

If your Amiga 500/1500/2000 shows the following symptoms, you may need a replacement of the most problematic (IC) chip in your Amiga, the 8520A. Areas affected by either of the two 8520A chips are: centronics port, RS232 port, joy stick port, mouse port, drive LED, drive motor, blank screen, green screen, boot and external drive problems. (None of the above? See our Amiga Diagnostician.) The 8520A is a simple plug in. No soldering.

8520A \$11.95 (2 for \$10.95 each)

McCOY (PLCC) AGNUS CHIP PULLER

This is an exact copy of the Burndy chip extractor that Commodore sells for \$29.95. It is essential for removing the Agnus chip. Our price\$14.95

SUPER DENISE 8373 UPGRADE

New 8373 ECS Super Denise chip adds new screen modes: productivity mode for flicker free display and enhanced picture, superhi-res mode for ultrasharp video titling (1280x200 pixels), scan mode and new genlock mode allowing greater flexibility. (This is the same chip used in the A3000.) Comes with Super Denise installation diskette with full diagnostics. This chip is an absolute must with the 2.0 and is the latest of the Enhanced Chip Set.....\$42.95

ALL COMMODORE CHIPS & PARTS AVAILABLE

3 Chestnut Street, Suffern, New York 10901
Customer Service: (914) 368-4242 International Order Line: (914) 357-2424 Fax: (914) 357-6243
Order Line Only 1-800-292-7445
Add UPS Charges to Above



Phoenix

MICROTECHNOLOGIES PTY LTD



A1000 UPGRADE

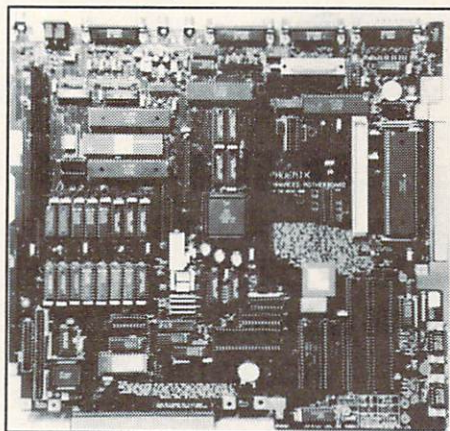
by Phoenix Microtechnologies

Within minutes transform your A1000 into a powerful new Amiga and eliminate compatibility problems forever! Introducing the Phoenix A1000 replacement motherboard.

Features:

- 2Mb RAM on board configured as 2Mb chip RAM. Uses the same 8372B 2 meg Agnus chip as the Amiga 3000
- SCSI controller on board supports Rigid Disk Block system
- Mounting kit for hard drive included
- Can be utilized as a complete stand-alone computer
- Multiple switch-selectable Kickstart ROMs (V1.3 supplied. Fully 2.0 compatible)
- Select external drive as DF0
- A2000 video slot and expansion slot
- 8373 new ECS Super Denise upgrade available for a few dollars more
- 8Mb internal Phoenix RAM expansion (optional)
- Easy solderless installation
- 68881/68882 math co-processor socket
- Use your original A1000 peripherals
- Send for complete literature and specifications
- * For \$12 we will send you the complete installation/instruction booklet, refundable with purchase
- 12 month warranty

ONLY



\$850



DISTRIBUTORS in the U.S., Canada and Australia:

The Grapevine Group

IT Tech

Phoenix Microtechnologies

3 Chestnut St, Suffern, New York 10901 (USA)
800-292-7445 / (914) 357-2424 • Fax: (914) 357-6243
Box 467, Bushell Park SK, Canada SOH ONO
Voice or Fax (306) 691-0520



South Australia

DevWare

\$5.95 ea.
1-9 Disks

\$4.95* ea.
10-24 Disks

\$3.95* ea.
25+ Disks

EXCLUSIVELY SERVING THE AMIGA SINCE 1985

*Anti-Virus free on all
orders of 15 or more disks!

Public Domain Library

GUARANTEE

We believe so strongly in our product that we offer a full lifetime, complete satisfaction guarantee. No questions asked.

We have been the official Public Domain Library of all the best Amiga magazines. Find out why these magazines choose us! Each of our disks are jam packed with only the best programs. The first two letters on each disk indicate the orientation of the disk; WB# general interest - most programs can be run from the workbench, FD# games and entertainment, VO# are video related programs/utilities and DD# advanced requires thorough knowledge of AmigaDOS. Thanks to our extensive arsenal of anti-virus software, ALL of our software is virus free!

FEATURED DISK

QT1: The A64 Package - A very complete Commodore 64 emulator. Supports any CPU and is fully compatible with WB2.0. This version includes a special adaptor that will allow you to connect your 64's 1541 disk drive to your parallel port of your Amiga for total emulation. Two disk set, counts as two. Special price \$49.95 - including hardware.

NEW DISKS

VO7: StarTrek Objects - Contains the USS Reliant, NCC-1701D (the Enterprise from Star Trek:TNG) and a Ferengi Marauder ship. As an added bonus, contains a fully detailed Porsche 911 and Apache Attack Helicopter.

VO6: Modelling Objects - Contains 20 vector objects in Imagine format. These are perfect for use with VO5 or your favorite 3D modelling program. Includes Amiga 3000, space station & many more!

VO5: Modelling - Vertex allows you to create 3-D objects without using the abstract X, Y and Z views. Loads, saves and converts between Sculpt-3D/4D, Turbo Silver, Imagine, LightWave, GEO and Wavefront formats. MagicTween will metamorphose any two pictures by automatically animates the "in-between" frames.

VO4: Video & Anim - Video_DB will catalog all of your videotapes. Slate is a sharp graphic of a slate for your productions. CyroUtils splits, makes and gives info about ANIMs. RTAP lets you play large ANIMs on small memory machines.

VO3: Image Utils - let VideoToolsOnTap let you tap into the video power of your Amiga for fades, color and greyscales as well as a plethora of other indispensable video functions. TitleGen will do professional crawling titles. JPEG converts JPEG->24-bit IFF with amazing compression. ImageLab performs special effects on IFFs.

VO2: Stillstore - Used to create the "over the shoulder" graphic inserts ala the 11:00 news.

VO1: Graphics - Picbase will let you view and track ALL of your IFF pictures over all of those floppies! FreePaint is a Deluxe-Paint workalike. Agraph is a powerful utility to produce snazzy graphs.

FD77: Arcade Series - Galaga92 is a clone of the arcade game of the same name with several gameplay enhancements—with smooth, sharp graphics, it's better than the original! Pharaohs Curse is a clone of the original C64 classic. Diplomacy is a beautifully computerized version of the Avalon Hill board game—conquer or be conquered! Galaga requires 1meg chip memory/Fat Agnus.

FD76: Catacomb - is a full graphic adventure game with beautiful graphics and a very slick icon/mouse driven interface.

FD75: Arcade Series - Descender is a clone of the classic arcade game "Tempest"; complete with vectorized graphics. Tanx is the classic battle of trajectories and inertia between two tanks—increasingly well done! Search is a maze game unlike any other—included is a level editor too. (Tanx requires 1 meg chip memory—Fat Agnus)

FD74: Arcade Series - RingWar is an "Outer Limits" clone with vectorized graphics. MotherLode is a "Lode Runner" clone with 50 levels! In BlitzTanks, they're coming at you from all directions!! Call in air strikes and use your heavy artillery to survive!

FD73: Arcade Series - Intruder Alert! is a MULTI-level "Berserk" clone. Features smooth gameplay, great graphics & digitized sound fx.

FD72: Sword of the Warlock - This is a demo version of a great public domain graphic dungeon adventure game. The adventure spans three diskettes and allows two players to go adventuring. The game has a "Bards Tale" feel to it. Three disk set, counts as 2. Requires 1 meg of RAM and 2 floppy drives or HD.

FD71A&B: Star Trek: TNG Trivia Challenge - So you think you know The Next Generation, huh? Complete with fantastic sampled sounds and digitized images, this game even looks and sounds like a genuine Star Trek terminal! VERY thorough and complete! Counts as 2 disks.

FD70: SpaceGames - Contains AmiGoids, a finally an Asteroids game that takes advantage of the Amiga—totally configurable with great sound and graphics. In Cosmostruction the object of the game is for each Cosmostruction team to acquire the most points while construction energy ducts between the space station and planets.

FD69: MindGames - Had enough of shoot-em up games? Relax and let these 21 games exercise your mind instead of your wrist.

FD68: Potpourri - Eternal Rome is a strategic simulation of the Roman Empire including military, diplomatic, political, economic and social factors. Lord of Hosts is a board strategy game for 2 players. In Moonshine, you've got to get the hooch across the state line—a great rolling, scrolling driving game!

FD67: Arcade - Includes Llamatron a well-done "Robotron" clone. Hate is a "terrific" commercial grade Zaxxon clone with multiple levels/worlds and smooth diagonal scrolling...a 10!

FD64: Games - Wizzy's Quest - a "great" 50 level game with great graphics. Cubus - a 3-dimensional Tetris type game (rotate and move in 3 dimensions). Husker Du - Colors and pattern rather than shape in this Tetris-esque game; 5 screens and 3 levels of difficulty. Requires Fat Agnus (1 Meg of Chip)

FD62: PomPom Gunner - An extremely smooth and well done World War II gunner simulation. Requires 1 megabyte of memory.

WB112: ProductivityBusiness - Stock Analysis allows automated downloading of stock data with full analysis capabilities (requires modem). SubStore will allow you to log magazines and articles with full search/print capabilities.

WB111: Cellular Automata - Straight from the pages of the January 1990 issue of Scientific American, this electronic model will allow you to simulate cellular circuits.

WB110: Electronic Baby Book - immortalize your children on your Amiga! Tracks everything about your newborn—first steps, words, tooth, birthdays, X-mas, friends, etc.—even space for a digitized photo!

WB109: VerseWise - Display, search and output The New Testament to text files or your printer.

WB108: Octamed - This breakthrough program doubles your Amiga's sound capabilities from 4 channels to an ear-popping 8 channels! All the renowned editing capabilities of MED plus 4 more channels! If you thought your Amiga sounded good before, you ain't heard nuthin' yet!

WB107A&B: Educational - Drawmap is a program that generates representations of such hemispherical views, and orbital views of the Earth's surface, complete with national boundaries. Screens can be printed or saved to disk as standard IFF files. Full user-configurable online help facility. 68020+ version included. 2 disk set, counts as 1!

WB106: Home Manager - This is a great all-in-one address book with an autodialer/notes-to-do list/appointment scheduler/home inventory database and phone number dialer.

WB105A&B: Workbench 2.0 Extras #2 - See the top right of page 2 for more info on these priceless utilities to make Workbench 2.0 fly!

WB104: GrabBag - O&A Trivia (requires AmigaVision) is a trivia game for 1/2 players...and your own questions to customize the difficulty level! Syninfo is great for telling you how fast/slow your computer is, what boards are installed, chipsets, etc. AmiGazer will plot stars in the heaven from any position on earth, complete with magnitudes and constellation identification.

WB103: Music - Contains 12 "great" Soundtracker/MED music Modules...complete with programmable/shuffle player...8 bit audio never sounded so hot! Two disk set counts as two.

DB84: Proteus BBS - This disk contains the full-blown version of the Proteus BBS software. Totally configurable & ultimately powerful. Requires a hard-drive, ARexx and at least a meg of memory.

DB83: IBM - Not one, but TWO IBM emulators that will allow the running of MS-DOS software with Amiga programs!! Comes complete with programs to turn your Amiga floppy drives into 720K IBM compatible drives.

DB82: Unix - Contains a working demo of Minix - a Unix workalike. Minix is system call compatible with V7 of Unix.

FUN DISKS

FD5: Tactical Games - BullRun - A Civil War battle game, Metro you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very battle forming.

FD6: GAMES! - This disk is chock full of games including: Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopardy - An enhanced version of RushHour - Surprisingly addictive, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.

FD7: Pacman - This disk contains several pacman type games including: PacMan7, MazMan and Zonix.

FD9: Moria - This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!

FD10: HackLife - A dungeon adventure game. Considered a must-have classic. This is the second release of this game on the Amiga. Great graphic interface. Play time several weeks!

FD11: Las Vegas and Card Games - Las Vegas Craps - The best Las Vegas Craps simulation every written for any computer. Contains extensive HELP features, Also Thirty-One, VideoPoker and more.

FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).

FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoids, and others.

FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arkanoid/breakout type game, Tris - a Qix type clone.

FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.

FD20: Tactical Games - MechForce(3.72) - A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.

FD26: Arcade Games - Marble - slide is a commercial quality game—similar to a Lucas game named PipeDreams, excellent playability and entertainment. Mutants—a small version of the same arcade game. SuperBreakout is a Pong/Arkanoids type game.

FD27: Arcade Games - This disk is loaded with some great games. Includes Raceorama a great racing car game with ten different courses, MiniBlast helicopter gunship type clone, Shark in the same class as frogger, and SBreakout the original breakout with more.

FD29: Shoot'em up's - WWII - you're the pilot of a WWII plane flying through enemy territory, you've just been spotted, good luck on your mission, SpKills try and penetrate enemy lines with this game, and Retaliator - another great game.

FD31: Games! - Air Traffic Control - a good ATC simulation game, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrinth - well done text adventure game (like an infocom game), and MouseTrap - a 3D maze game.

FD32: Flight Simulator - An instrument flight simulator for a DC10.

FD33: Arcade Games - Freddy a Mario brothers type game, Gerbil's target practice game, Pipeline a German interpretation of Pipe Dreams, Tron light cycles version, and wetroids a wonderful version of asteroids with a hilarious twist.

FD35: Omega (v 1.3) - A new outstanding dungeon and outdoors adventure game in a similar vein as hack, rouge, and Zork. This version is considerably faster and better than all previous versions. Play time several weeks or months.

FD37A&B: Tactical Games - Empire (2.2w) This great game comes highly recommended. With a full-graphic front end.

FD38: Games - Cribbage Master - A great cribbage game and tutor, Spade - a well done card game, ChineseCheckers - A computer version of this classic, Puz - a slide piece puzzle game and construction set.

FD39A&B: Star Trek, The New Generation - This is a completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Now with English instructions. Excellent!! Counts as two disks. Requires 512k.

FD44: Game - Mechtight is an out of this world role-playing adventure comparable to hack and moria. The setting, interplanetary colonies and space stations. In your quest to explore the world, take time out to liberate bad guys of their most valuable possessions, engage in a mortal combat or two against robots and alien life forms, pick up a new Amiga 9000. Most of all, don't forget to stay alive...

FD49: Chaos Cheats - This disk contains an everything you wanted to know about cheat set for Chaos Strikes Back, including full maps, spells, object locations, super characters and more.

FD50: Submarine Game - Sealane, one and a half years in the making, this is an outstanding submarine tactical game. Commercial quality, highly recommended.

FD52: Classics Games - PetersQuest a well done Mario brothers type game, Jymbo a two player missile command clone, and Vstank a tank command game.

FD53: Great Arcade - On this disk is a wonderful implementation of the popular classic arcade game Defender. Also contain Air Race a WWII flying ace arcade game, and Psychoblast new creation idea game.

FD56: Arcade - Includes SpaceWar. HueyRaid is a well done helicopter arcade game. PowerPong's a great expanded pong game.

FD57: Arcade Games - Includes 2 truly commercial quality games. MegaBall, an Arkanoid-ish game, features 5 musical scores, multiple level and adding gameplay. Gravity Attack is a psychadelic trip through several different worlds—each distinctly different.

FD58: GAMES! - Includes Steinschlag; a great Tetris clone from Germany with music. SCombat: simulate battle between up to 40 players & monsters. Imperium Romanum: Battle up to 4 players for control of the Mediterranean in this Risk-esque game.

FD59: Game Potpourri - Xenon III is an almost exact clone of the commercial game of the same name...a great shoot'em up. Crossword will take lists of words & automatically generate word search puzzles for any Epson compatible printer.

FD60: Games - In Nebula, race over a 3d world to destroy enemy installations. Interferon: a great Dr. Mario clone. Enigma: is it a game or a puzzle?

FD61: Games - Solitaire: great graphics, plays two versions. Kluge: an interesting piece of eye candy. Extreme Violence: 2 player kill or be killed game. YATC: A Tetris clone with Artificial Intelligence. Genesis: create realistic 3D fractal worlds.

WORKBENCH DISKS

WB4:Telecommunication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily. Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made on the Amiga.

WB5: Fonts #1 - Several fonts (35) for the Amiga, also included are five PageStream fonts and ShowFont - a font display program.

WB6: Fonts #2 - ShowFont(4.0) This program allows you to quickly and painlessly view all 256 characters in a typical font. Large AmigaDos system fonts (many up to 56pts).

WB7: Clip Art - This disk is loaded with black and white clip art. A includes: trees, watches, tools, US and State maps, and more.

WB9: Icons - Truly a multitude of various types and kinds. Also includes IconMister, IconLab, and others great utilities to help generate icons.

WB10: Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus III.

WB11: Business - Clerk(4.0), finally a full featured business accounting PI program for the small to medium company. Includes receivables, payables, end of month and much more.

WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. You must have!

WB13: Printer Drivers and Generator - over 70 different drivers, and these don't do it with PrtDrvGen you can make your own.

WB15: Business - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).

WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise good "Cash Book" accounting for home or office.

WB18: Word-Text Processors - This disk contains the best editor includes TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features, TexED(v2.8) an enhanced Emacs type editor, and a spell checker.

WB20: General Interest - DiskSalv V1.42 - a disk recovery program for all Amiga file systems, FixDisk V1.0 another file recovery program with features DiskSalv doesn't have, 3DLook gives a 3D appearance to your WorkBench, Clean V1.01 a program to de-fragment memory, Tracer - trace any part of an image.

WB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with DPaint and WYSIWYG word processors.

WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map iff map files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP!

WB25: Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.

WB26: Disk Utilities #2 - MRBackup, KwickBackup - two well done utilities to do harddisk and floppy disk backups. FileMast - a binary file editor, labelprinter - Disk label printer with very powerful features.

WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.

WB29: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fracgen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk!

WB33: Circuit Board Design - several terrific routines for the electronic enthusiast, including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.

KAO 3 1/2" Blank Diskettes DSDD

10 for	\$8.20	(.82 cents ea)
25 for	\$17.25	(.69 cents ea)
50 for	\$31.50	(.63 cents ea)
100 for	\$61.00	(.61 cents ea)

WB34: Utilities - Several well done utilities, some will require moderate knowledge of a CLI or Shell for setup, Chatter Box - this one will play any user defined sound after any event (ie. disk insert, mouse click, disk removal...), Artn - The Amiga real time monitor, gives you full control of the Amiga OS, very powerful program, Helper - help program to make learning the CLI easier, and more!

WB35: 3D Graphics - This disk contains several neat programs to use with our 3d modeling/raytracing programs. 3DFonts - Full vector font set for use with 3d programs, FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any image, DumptotIFF - create 3d animations preserves pal, and World3d - a demo program of a front end to use with DKBRender.

WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbench screen, and RayShade - a very good raytracing program, create our own beautiful 3d graphic models with this one!

WB37: Educational - Educational games and puzzles that cover math, geography, spelling, and books. Ages 6 - 15

WB38: Plotting and Graphics - Plotxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tessellator - a program that helps generate fantastic looking, recursive M.C. Escher type pictures.

WB39: Music - Intuitracker is a German offering of an exquisitely well done program that allows you to play music on your Amiga with CD like controls. Lets you strip out music from your favorite games or others and include them in your music library.

WB40: Music - "CD on a disk", 90 minutes of modern music on this well presented collection. Requires 2 drives or HD.

WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your Amiga. Similar to SoundTracker but better. Very powerful easy to use program. Version 3.20, which is compatible with WB2.04.

WB43: Business - This disk contains AnalytCalc - probably the most powerful spreadsheet program on the Amiga. A full featured spreadsheet with many features expected in a commercial package. Requires 1.25 MB of memory!

WB46: Clip Art - HighRes clip art with the following motifs - embellishments borders, dodads (...), people, and transportation.

WB47: Clip Art - HighRes clip art with the following motifs - hair, drating, ummer, animals and macofod.

WB48: Clip Art - HighRes clip art with the following motifs - Holidays, music, medical, and misc.

WB49ABC: Animation Sampler - On this three disk sampler set (counts as two disks) are some of the best animations that have been created over the last three years. Several examples of "Movie" type animations some with spectacular raytraced reality (coolroby, watch, spigot and egg). Also several european style or "Demo" animation with incredible graphics and outstanding electronic music (akrillight, copersine, doc, dps2010, impact, and logodemo). These truly show off the creative edge of an Amiga!

WB50: Animation - Seven of the best european style animations or Demos, including - scientific 451, subway (a U.S. entrant, also our favorite), unriddle, thrstdemo, tright, waves, and wooo.

WB53: Graphics - Raytracing programs generate absolutely stunning realistic looking planes, rockets, buildings..., and surreal images often consisting of highly polished spheres and objects. C-Light is the most powerful EASY-0-USE of it's kind we have seen to date. This is easily better, and more full featured, than similar commercial programs costing in the hundreds of dollars. Also, sMovie - a full featured video text titler similar to ProVideo, broadcast Titler. Great video scrolling, wipes, special effects, and more...

WB54: Printing - This disk contains several routines to help with the chore of printing. Includes Gotic - Finally a Banner printer for the PD! PrintStudio a well implemented all-purpose printer-utility with a very comfortable graphic interface and many advanced features. Lila - with ease, print ASCII files to a PostScript printer, and many more.

WB55: Application - XCopyIII - a full featured disk copier, make backups of copy protected disks. RoadRoute - find the quickest route from one city to another, highway description included. Diary - a diary program like "Dougy toward M.D.". Cal - a calendar program, Magman - a database tailored to maintain records on articles and publications.

WB57: Animation - This disk has several "Demo" style animations, including, Blitter, Lolly, Sun5, vertigo, vortex, and xenomorph.

WB59: Business - contains a great, very full featured stock market technical analysis and tracking program, also an appointment calendar, and more.

WB61: Intermediate Utilities - Includes programs to help to drastically decrease flicker in interface and hi-res modes (antiflick), an Atari-st emulator, an eeprom programmer, turn your amiga into an eight channel digital data analyzer or oscilloscope, and more.

WB62: Midi Utilities - Several useful midi utilities including, programs to transfer to and from several music programs to midi, a midi sysex handler, a midi recorder with timebase, display midi info, file sequence player, and a few scores.

WB63: Disk Utilities #3 - Several highly recommended programs to aid in removing duplicate files from your hard drive, performing file backups, Binary editing, fast formatting, file recovery, disk track recovery, and forced DISK VALIDATION of corrupt disks.

WB66: Icons #2 - Lot's of neat icons. Also, several wonderful programs that to let you create your own icons, modify and manipulate icons and info structures.

WB68: Music Utilities - several good utilities for the Amiga music enthusiast. Includes, Noisetracker - a great music creation program, Sonix2MOD - converts sonix to .mod files which then can be used by noisetracker, soundtraker, and MED. SpeakerSim - a speaker design tool demo. Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls.

WB69: Music - This disk has over 90 minutes of classical and modern electronic music for your Amiga.

WB70: Desk Top Pub - Atcp - transfer Macintosh screen fonts, Mac or IBM format .AFM metric files, to Amiga screen fonts and PPage .metric files. With this program, open the door to the libraries of Adobe and PostScript fonts! Calendar - month templates in PageStream format. Post - a full featured postscript file display and print utility.

WB75: Music - over 100 instruments files (.inst) and sample sound files (.ss) for your music programs.

WB76: Applications - This disk contains Stichery - a often requested knitting design program, Lotto - a rather complete lottery tracking and prediction utility. SSS - this screen capture program can grab almost any screen including games. Today - a personal calendar, Tarot - fortune teller, and Grammar - grammar checker.

WB79: Home & Business Accounting - Includes Cbacct - the most complete checkbook accounting program going. LCDCalc - this well done calculator has a very large display and operates from the keyboard or mouse. Mileage master - monitor your automobile mileage with this mileage log. Grammar - a grammar checker, and Worldtime - find out what time it is in up to 50 global cities.

WB81: Great Applications - DataEasy a very easy to use, database program. Don't let the ease of use fool you, this is a very full featured database program including full printer control for address labels and mail merge applications. Also includes, TypeTut a good typing tutor, RLC a full featured label printer, Banner, a multi-font banner maker, and Budget a home accounting in a program. Highly recommended.

WB82: Animations - Four full length, well done "movie" style animations. Including, Coyote, JugglerII, GhostPool, and Mechanic. 2 disks, counts as 1.

WB83: Computer Art - this disk has some of the best Amiga generated computer art that we have collected in the past 5 years.

WB85: Graphics - Contains several programs for manipulating 24 Bit color images (ham-e) and a rather nice Iff Image processing package.

WB86: AmigaVision - Contains the Centurion Press, An Amiga newspaper by Lou Wallace.

WB88ABC: The Complete Bible - A three disk set, with the entire text of the New Testament and Old Testament-King James version. Great search/print utilities. Three disk set, counts as three.

WB90: Rippers, Strippers and Beats - For the Amiga music enthusiast, this disk contains many programs designed strip music from your favorite games and programs. Music can then be played with your favorite Pd Music program. Also contains Drums, a very nice drum machine. This disk requires some knowledge of the CLI.

WB93: Workbench Extras #2 This disk contains the utilities that Commodore should have shipped with the Amiga; VirusX4.0, Snap, FixDisk (recover corrupt/deleted files), Disk Optimizer (floppy & hard), MachIII (screen blanker, hotkey, mouse accel., macro, clock utility), GOMF (a gurbuster) and PrintStudio.

WB95: Checkbook Accountant 2.1 - This is definitely commercial grade; we've seen many checkbook programs and this is absolutely the best. Full budgeting, transaction recording and report generation.

WB96: Dupers - Contains XcopyIII & Nib which will backup copy-protected programs. FreeCopy removes copy protection from several programs, and SuperDuper will crank-out fast AmigaDOS copies.

WB98: Business - Includes BBasell a nice, powerful database; BizCalc—a personal or mortgage loan calculator with amortization capabilities. Loop—a flowchart maker, Formmaker - design professional forms on your Eposn LQ-2500 compatible printer.

WB99: Lifestyles - Includes AGene—family tree program that tracks up to 600 people/marriages/etc. Landscape is a CAD program to create gardens/landscapes. Loom simulates an 8 harness loom; experiment with pattern design in an instant feedback environment.

WB100: CalligariPRODemo - Can't afford \$3,000+ to see if the granddaddy of 3D rendering software is for you? No built-in save function, requires 68020+.

WB101: Chemesthetics - is a program that displays molecules as a calotte model. This kind of display contains a certain esthetic attitude, even extremely poisonous molecules like nicotine and dioxine look quite nice.

WB102: Telecommunications - Contains the programs NComm 2.0 and VT100-29B. Zmodem protocols, XPR protocol support, full VT100 emulation. NComm's smcrt language is so powerful it comes with a full featured BBS system.

DEV DISKS

DD45: AREXX Programs - This disk contains several useful arexx programs and examples. PopCLI4 - The latest of a must have utility.



It's Here!
Release 2.04 of AmigaDOS for the A500/A2000!!! Includes ROMs, disks and full documentation. Requires installation.
\$95.00

WB105A&B: Workbench 2.0 Extras #2

This set contains the programs that should have been included with WB2.0. These powerful utilities take full advantage of the many new capabilities that are available in Workbench 2.0.

Tool Manager - a wonderful utility to add programs to your TOOL menu. Create a collection of icons on the workbench to easily launch frequently used programs...and much, much more! A true must have utility!!!-All of our Amigas rely heavily on this utility!

Virus Checker - Full virus protection can be yours by simply dropping this icon in your WBStartup drawer.

Icon - Enhances Workbench's "Show All" to display over 40 distinct icons for different types of files (text, IFFs, source codes, libraries, sound samples, etc.)

Font Editor - Create/edit bitmap fonts with full color support!

Screen Blankers - ala fractals and splinters! No more boring black screen! Colorful, interesting and highly hypnotic effects!

Requester Enhancers - no more stale "Please Insert Volume" requesters-these are animated requesters for all of the system's requesters.

CPUBilli - speeds up text displays for owners of 68020+ CPUs!

SafeReboot - adds a safe way to reboot your computer...can greatly reduce disk validation errors!

Two disk set, counts as two.

DD47: Pascal - This disk contains everything needed to program in Pascal. Includes, A68k (1.2) 68000 assembler, Blink linking software and PCQ (1.0) a modest Pascal sub-set compiler.

DD49: C Compiler - contains zcc(1.01) fully K&R, zcc(1.0) front end, A68k(1.2) assembler, Blink linker.

DD50: AREXX #2 - a must have set of tutorials on AREXX and several useful examples and utilities for AREXX development.

DD51: Circuit Analysis - Aspic (2.3) A full featured program for electric circuit analysis.

DD52: Scientific - Includes Elements - an incredibly well done periodic table program with source, Scientific plotting - over 60k of Lattice C source routines that can be included in your own programs.

DD54: Compression - This disk is loaded with all of the best file compression programs and aids for the Amiga. Many of the programs can be used by the new user. Includes Arc, Lharc, Lhwap, Pkax, PowerPacker a must have by all, Zip, Warp, and Zoo. Also IFCrunch an excellent compression for IFF files.

DD55: ARP - On this disk you will find the complete ARP/3.0 release including the full user docs, the full Developers guide. ARP is the official AmigaDOS Resource Project (ARP) release 1.3. ARP makes many improvements to AmigaDOS and makes your system easier to use from the CLI.

DD57: Advanced Utilities - Msh - like Cross-dos, copies files to and from MS-DOS, Pal-NTSC - convert any pal program to NTSC and vice versa. Also several utilities that improve your startup-sequence, plus 25 more programs.

DD62: Basic and Xscheme - Cursor - a full featured Amiga Basic compiler, basic and text - several wonderful routines to help in basic programmers, and Xscheme - an interpreted object oriented language.

DD65: Programming Toolbox - Many programs to help in your development efforts (most for C some for basic) includes programs to generate requesters, an incredible spriemaker toolbox, to greatly aid compiling, convert DPaint brushes to C structures, a great library manager, and many more wonderful time savers!

DD69: Advanced Utilities - SerNet and ParNet - Connect two Amiga's and share resources. MemMonitor - Similar to WFrags but greatly improved. Selector - put menus on your workbench screen, and more.

DD71A&B: C Compiler - This disk contains DICE, Matthew Dillon's full featured, powerful C compiler and environment system. 2 Disks, counts as 2.

DD72: VT Emulators - Contains three powerful full featured VT emulators, with many advanced features including KERMIT, Xmodem and Tektronix protocols. VaxTerm, VLT, and more.

DD77: Fortran - Contains a full featured FORTRAN77 environmental development system. Also contains EzAsm a strongly macro dependent 68000 assembler.

DD78: Menus & System Enhancements - Several neat programs to aid in launching programs from special icons (Next computer style), adding WorkBench menus and more. Also contains many useful programs to determine operation system configuration, memory usage, load and many other important utilities.

DD79ABC: Amiga C Tutorial - This is the most comprehensive C language, Amiga oriented set of tutorials available. Includes full working examples, source code and an incredible set of lessons. Included are full discussions and examples of every topic on Amiga programming. 4 disk set, counts as 3.

DD80: VFont System - A font rendering system that extends the Amiga so that it will be able to use vectorized outline fonts. Fast rendering, rotating, and sizing. For use in your own programs!

DD81: AREXX Tutorial - Includes several sample AREXX scripts and sample programs. Also includes APig; a library that gives you access to intuition from within AREXX scripts.

DEALER INQUIRIES AND SUBMISSIONS WELCOME.

Please send me the following disks:

Enter disk ID (Example: DD17, FD12, WB10)

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

CC# _____ Exp _____

Signature _____

Name _____

Address _____

City _____ ST _____ Zip _____

Phone (____) _____

☐ Payment enclosed

Please charge my:

☐ Visa

☐ Mastercard

☐ Discover

Following day shipping in most cases. No shipping charges within USA. Canada add \$25 each, Foreign add \$50 per disk for air mail delivery. Payment in US funds only. A minimum of \$20.00 required on all credit card orders.

DevWare, 12528 Kirkham Court, Suite 11-AW26, Poyay, CA 92064
Orders Only Please! (800) 879-0759 Support (619) 679-2825 Fax (619) 679-2887



TOOL CHEST

The AmigaWorld ToolChest is a line of quality, low-cost software that brings many uniquely powerful programs to your Amiga. By purchasing our software you receive unmatched versatility, usability, and best of all, you support the independent Amiga-Developer.

\$5.95
1-9 Disks

\$4.95
10+ Disks

TSP9: Utilities #1 IconMeister—an Icon editor with a complete set of editing/painting tools. **TJFormat**—a disk formatting program that will format disks that AmigaDOS wont. **ChartMaster**—a graphing tool that allows you to generate and save different graphs in IFF format. **Graph3D** lets you visualize complex data in 3-D and save the results. **StructGen** lets you create gadgets, text, bitmaps and window structures and the program will automatically write the "C" source code for you. **LabelMaker** is a very easy to use, full featured label printer. **DoublePrint** facilitates printing of text files on both sides of paper.

TSP8: Clipart Black & White and colorful clipart for a variety of needs including desktop publishing/video. People, holiday related, school items, scrolls, food, monsters, fish, lobsters, symbols and lots more.

TSP7: 3D Vector Objects #2 Books, Early American telephone, barrels, gun, spaceships, lamps, trombone, bugle, skateboard, Lego-Rover, remote control, glider and airplane. All objects in Sculpt format.

TSP6: 3D Vector Objects #1 Lamp, mirror, bed, chair, fire hydrant, lamp post, street lamp, street sign, traffic light, cannon, cannon supplies, rose, fork, spoon, knife and plate. All objects in Sculpt format.

TSP5: Games 3 CrossCircuit is a one or two-player action/logic game that requires fast reflexes.

TC33: Measures 1.0 is an incredibly useful utility that will convert any type of measurement to another. **DiskLabeler** is a database designed for storing and printing 3.5" disk labels. **Jewels** is a Tetris-esque game of action and strategy. Switch is a fun board-game. **Glxclipper** will allow you to grab any screen and save it as an IFF picture. **Softball Manager** is a database for storing stats for softball—any number of leagues may be tracked. **WBExec** allows you to execute CLI commands from within the Workbench. Several Clipart images are also included.

TC32: Computer Coloring Book is a delightful program for children of all ages—comes with 15 pages of pictures to color again and again. **Listmaker** lets you make, edit, combine and print lists of words—great for those spelling tests! **Moresmooth** scrolls text files smoothly on the screen and allows easy printing. **Pocket Billiards** lets you choose from several of the most popular pool games with realistic action. **Texture** allows you to create, manipulate and save (in standard IFF format) realistic fractal textured surfaces. **Plague** is a monster maze game. Also includes Screen Fader, Snowbench, and FlipBench.

TC31: Calendar Publisher is a professional-caliber calendar maker that is customizable. **CrossCircuit** is a 1 or 2 player action/logic game that calls for fast reflexes and thinking. **APR** is a much-needed printer utility. **Pizza Delivery Man** is a maze game where you deliver pies in your neighborhood. **Multiplayer** is a single program that will let you see IFF pictures/brushes or playback IFF sound samples. Also includes RAMgauche, 3-D vector objects and Hi-Res IFF brushes of maps and flags of European countries.

TC26: Word Search Maker lets you create word-search puzzles. **TimeCalc** is useful for anyone who has to calculate hours and minutes (great for adding up times of CD's to make tapes!) **DrugBusters** is a fun game where you get rid of cigarettes, booze, pills and needles. **Wordfinder** lets you search binary or text files for a particular word or string (good for getting hints in your adventure games!). **KeyClick** will add a small audible click to your keys and **MouseClick** will do the same for the mouse buttons. **Seawar** is a game between the Allied Navy and the Empire Fleet. Plus Early American 3-D vector objects, digitized sound effects, and a directory program.

TC25: ScreenToIFF captures your screen to an IFF file. **PopColors** lets you change the colors of your Workbench screen. **Warrior** is a fun shoot'em-up/adventure game for one or two players. **Kaleidoscope** is a line drawing program. **Blockbusters** is a game where you get rid of blocks by pushing matching blocks into them. **Amidemo** will show-off your Amigas ability to do solid-polygon animations. **Microscope** lets you examine memory at any location. Also includes Hi-Res IFF brushes of all 50 states and 10 Canadian provinces, nine digitized sounds and two small disk utilities and printer utility.

TC24: TableMaker is a tool for effortlessly building numerical tables. **Kooties** is a fun game where you have to assemble a bug before the computer beats you to it. **HyperText** lets you put links in a text file to other text, graphics, sound, animation, ARexx and other applications. **The Little Black Book** is a wonderfully useful telephone and address book. **Color Logic** is a MasterMind-type game. Also includes several disk and memory utilities—and some animal sound effects to top it off.

TC23: WhereIs lets you quickly and painlessly find a misplaced

file on your drive. **Select** creates a window from which you can run your favorite programs. **MatheMagic** lets you find the day of the week for any date in the century, also lets you enter statistical data to be analyzed, graphs data, and solves linear algebraic equations. **Pointer List Maker** lets you create your own pointers or import pointers from other programs and save them in a disk file. **Dyno-Wars** requires more strategy and thought than your regular checker board game. Also includes **Mr. Monster** and **Trillon** games, 3-D objects, six sound effects and an animation of a pretzel.

TSP4: Games 2 Dyno-Wars—a strategic checker-style game. **Kooties**—assemble a bug before the computer beats you to it. **BlockBuster** is a colorful, well done Tetris-type game. **Warrior** is a fun shoot'em-up adventure game. **MicroMan** is a graphic maze game played with a joystick. Battle the computer's armies to take over the planet in **Circe**.

TSP3: Games 1 Crystal Caverns is a clone of the arcade game—colorful, complex graphic adventure game. **Dot2Dot** is an adaptation of the classic 2-player connect-the-dot game. **PizzaDeliveryMan** has you running through the streets to get those pies to your customers. **TinyBall** is the world's smallest baseball game. **SurroundCycles** is a high-speed arcade game, based on the light cycle races from the Disney movie Tron.

TSP2: Sounds Animal sounds, musical instruments and many, many more—43 sound samples in all!

TSP1: Maps of USA, Canada and Europe Hi-Res IFF brushes of all 50 US States, 10 Canadian Provinces and countries in Europe. Each map has a 3D extrusion effect with cast shadow.

file on your drive. **Select** creates a window from which you can run your favorite programs. **MatheMagic** lets you find the day of the week for any date in the century, also lets you enter statistical data to be analyzed, graphs data, and solves linear algebraic equations. **Pointer List Maker** lets you create your own pointers or import pointers from other programs and save them in a disk file. **Dyno-Wars** requires more strategy and thought than your regular checker board game. Also includes **Mr. Monster** and **Trillon** games, 3-D objects, six sound effects and an animation of a pretzel.

TC22: Amiga Checkbook is a fast checkbook manager with check printing ability, budget analysis, and a report writer. **AmiCrypt** is a file encryption/decryption tool to password-protect any file...a must for security. **WaveSyn** lets you design musical instruments and waveforms for use in other programs. It also lets you play your keyboard like a piano. **Circe** is a game where you try to get five X's in a row before your opponent does. **AlterCLI** lets you change attributes of your CLI window (width, title, depth, height, location, colors) with a single command—very useful for scripts. Also includes an animation by renowned Amiga-artist Lou Markoya, as well as 3-D objects.

TC21: Circe is a "risk-style" game where you battle the computer to take over the planet. **Batchman** allows you to execute CLI programs, batch files and ARexx scripts by simply clicking on a gadget. **Colors** prints color test sheets and assigns RGB values to printer and screen output...absolutely invaluable to achieve the best color printing results. **Easyfile** is a powerful database for home or a small business. **Sprite Editor** lets you easily create animated sprites. Plus 3-D fruit objects and five sampled sounds.

TC16: Cyberscape generates complex 3-D vector objects of terrain and saves your objects in Sculpt or Turbo-Silver format. **Mathplotter** graphs mathematical equations in both 2-D and 3-D. **Double Print** prints your text files on both sides of the paper. **Metamorph**, a graphic adventure game, **Tinyball**—the worlds smallest baseball arcade game and 6 digitized sound effects.

TC15: Labelmaker is a very easy to use label program. **SurroundCycles**, a high-speed arcade game. **Dot2Dot**, an adaptation of the classical connect-the-dot game. A tutorial on anima-

SAVE 39%!!
SUBSCRIBE!

- Receive 6 bi-monthly double-disk issues for just \$54.95!
- Save \$34.45 off single-issue price!*
- Convenient Automatic Home Delivery
- Lowest possible prices!
- Receive your disks weeks before others do!
- Programs you simply just can't get anywhere else
- Full Money-Back Guarantee: If you're not completely satisfied, we'll refund your money; -no questions asked.

*Based on single-disk pricing including handling. Canadian subscriptions add \$5.00 shipping, all other Foreign add \$10.00 shipping.

tion techniques by Amiga-artist extraordinaire Brad Schenck complete with one of his animations. Also includes a collection of clip-art and more animal sounds.

TC14: AmigoFile is a database and address book. **Graph 3-D** lets you visualize complex data in a 3-D manner and save the results. **Spectrogram** analyzes and displays digitized sounds. **Pteronadonaball**—an animation by Lou Markoya. Also includes **3-D Tic Tac Toe**, 3-D objects, food clip-art, and sampled sounds.

TC13: StructGen lets you create gadget, text, bitmap, and window structures and writes the C source code for you. **LifeCycles** plots your biorhythms. Create spectacular images with **Mandelbrot**, **Look**, a CLI utility that helps you find files on your disk quickly and easily. Plus 3-D objects, holiday clip-art, an Amiga Flight animation, **drive head cleaning utility**, and technical discussion on how AmigaDOS stores information on disk.

TC12: TJFormat formats disks that AmigaDOS normally wont. **ChartMaster** is a powerful graphing tool. **MoreCandy** generates an assortment of colorful graphic patterns and allows you to save them to disk. **Shark**, a game where you have to eat all the little perch you can catch to stay alive. Plus B&W clip-art for desktop publishing, spaceship 3-D vector objects, an animation, and **Speakeasy** (C source code for the programmer who wants to add speech to C programs).

TC11: DiskSalvage will fix corrupted disks and recover deleted files. **IconMeister** is an advanced Icon editor. **AlienDuel** is a fast, shoot'em-up game. **Crystal Caverns** is a colorful, graphic adventure game like the arcade game. Also includes an animation, sound samples, 3D dinner table objects, and Hi-Res monster clip-art.

The AmigaWorld Toolchest - 11335 Carmel
Mtn. Rd #1304-T3, San Diego, CA 92128

Please rush me the following:→
(Use disk ID code i.e. TC22)

☐ Payment Enclosed
Please charge my:
☐ Visa
☐ MasterCard

Following day shipping in most cases.
No shipping charges within the USA.
Canada add \$25 per disk, Foreign add
\$50 per disk for air mail delivery.
Payment in US funds only.

CC#: _____ Exp: _____
Signature: _____
Name: _____
Address: _____
City: _____ St: _____ Zip: _____

ORDERLINE (800) 677-0416
TECHNICAL SUPPORT (619) 486-9538

#	#	#	#
#	#	#	#
#	#	#	#
#	#	#	#

NOTE: All "TC" disks count as TWO disks
Total disks @ \$_____ each \$
Toolchest Subscription (\$54.95) \$
CA Residents add 7.75% Tax \$
Canadian orders add 7% GST \$
Handling \$ 3.00
Foreign Shipping \$
Total enclosed \$

• FREE - 6 DISKS - FREE • FULL OF SOLID GOLD HITS

TRY US! Get 6/3.5" disks full of our best selling **NO VIRUS** software for **AMIGA® COMPUTERS**. Games - Animation - Clip Art Education - Utilities - Video Tools Pay only \$5.00 shipping/handling

SATISFACTION GUARANTEED SINCE 1985

**CREDIT CARDS ONLY
ORDER TODAY
SMC SOFTWARE PUBLISHERS
619 931-8111 ext 511**

Circle 90 On Reader Service Card.

HAVE WE GONE MAD?



In this issue, **ZIPPERWARE** again is offering you crazy low prices that won't last too long! This offer for PD/Shareware is good only through this tiny ad! Oh, yeah...good quality & service are included! For an awesome disk-catalog, please send \$2.00 and you'll get coupons and lotsa goodies! Go do it!

■ **NEW & IMPORTED GAMES** --the hottest new games from Europe & USA! Terrific challenge, sound, graphics, and fun for all ages at the most affordable price anywhere!!! Near 40 games: MotherLode (better than Lode Runner), Intruder Alert (like Berser), Operation Lemmings (massacre Lemmings!), Defender (great!), Amigoids (the best Asteroids), Zaxxon (clone), Crossword Puzz, Hollywood Trivia, Downhill "SKI", and much much more!!! For only... **\$29.95**

■ **50 DESKTOP PUBLISHING FONTS!** --You can only get these new ADOBE TYPE 1 fonts from us at such a cheap price! The 50 high-quality fonts will work for PageStream & ProPage. Also as a bonus, you will get two disks full of black & white cliparts free! Pay only... **\$39.95**

■ **THE CLIPART PORTFOLIO** --NEW! "The best value Hi-Res black & white clipart set (15 disks) available for the Amiga!" Imported from England, this pack offers you thousands of great images with 17 general categories and numerous sub-categories. Complete with an index for easy searching! This is better than many commercial packages out there costing hundreds of dollars. Highly recommended! 100% Satisfaction Guaranteed for limited time! Only... **\$59.95**

To order now: ZIPPERWARE
send check / money order / P.O. BOX 95285
or call for free C.O.D. SEATTLE, WA 98145
\$4.00 shipping packaging
Foreign Orders +\$4.00
Mondays to Sundays (206) 747-1964



Circle 176 On Reader Service Card.

The Ultimate 16 MHz PC/AT Emulator for your Amiga 500, 1000, 2000 IS NOW AVAILABLE!

Order your ATonce+ (PLUS)
DIRECTLY from the North American Importer!
◆ Intel 16MHz 286 / 512K FAST RAM on board
◆ Works with ANY Amiga compatible hard/disk drive system; our competitor's emulator doesn't!
◆ Simple "snap-in" installation
◆ Math co-processor socket
◆ Bring the world of IBM MS-DOS to your Amiga
◆ Voted "Hardware Product of the Year" in Europe
◆ Microsoft's DOS 5.0 and Intel Math chip available
ONLY \$295 DELIVERY INCLUDED
Shop and Compare our DELIVERED Price
ORDER TODAY:

Holz Computer Supply
#12, 6120 - 11 St. SE, Calgary, AB T2H 2L7
Tel: (403) 262-6896 Fax: (403) 255-3110
7AM to 9PM MST Mon. - Sat.
MO / Check / MC / Visa (Money Orders ship same day!)
Tell your Amiga Club and local BBS about us!
We verify all credit info given & will prosecute fraud to the fullest extent of the law.

Circle 31 On Reader Service Card.

VISIONSOFT 1130 Fremont Blvd. Seaside, CA 93955

MEMORY	UNIT	2MB	4MB	8MB
1X4 - 80 SC ZIP	\$ 19.00	--	152	304
1X4 - 70 SC ZIP	22.00	--	176	352
1X4 - 80 PAGE DIP	21.00	84	168	328
1X4 - 80 PAGE ZIP	22.00	88	176	344
1X1 - 70, 80	5.25	84	168	320
256 X4 - 70, 80	5.40	86	172	336
1X8 - 70, 80 SIMM	39.00	78	156	308
4X8 - 70, 80 SIMM	150.00	--	150	290
AdRAM 540	95.00	172	259	--
BaseBoard	95.00	172	259	--
IVS Meta 4	--	180	255	--
DataFlyer RAM	92.00	167	242	392
AdSCSI 2080	169.00	244	319	469
DataFlyer 500 SCSI	139	MultiStart II	65	
DataFlyer 1000 SCSI	159	BigFoot A500	89	
DataFlyer 2000 SCSI	85	Super Denise	45	
DataFlyer 500 / Q40	329	Super Agnus (2MB)	85	

C-Net AMIGA 2.0 BBS Software
* Totally configurable * Multi-user (24 nodes)
* 1.3 & 2.0 compatible * Network & AREXX support

Orders Only: 800-735-2633 VISA/MC
Info & Tech: 408-899-2040
FAX: 408-626-0532 BBS: 408-626-0302

Circle 86 On Reader Service Card.

RENDER LIGHTWAVE 3D™ and other ANIMATIONS to VIDEO TAPE SINGLE FRAME RECORD - 35 cents / frame 68040 Rendering / Sequential Frame Grabs

A NEW LIGHT VIDEO (704) 299-4341
PO BOX 18311 Asheville, NC 28814

Circle 41 On Reader Service Card.

VIDEO ARTWORK BONANZA!!! CREATE SCENES IN MINUTES INSTEAD OF HOURS!

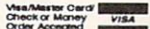
PIX LIB

Beautifully drawn 213 x 145 pixel pictures in 32 colors - 995 scenes/objects! animals, fruits, places, machines, people, buildings, foods, etc. - includes IFF conversion for Deluxe Paint, Digi Paint, Video Toaster, etc. - total price: \$9.95!

NEARLY 1000 COLOR SCENES!
YOU PAY ONLY 1¢ PER PICTURE!

ORDER YOUR COPY TODAY - CALL TOLL FREE: 1-800-272-4601

add \$2 shipping and handling - CA residents add 7.75% sales tax
Brain Technologies Co., P.O. Box 215147, Sacramento, CA 95821



Circle 182 On Reader Service Card.

Special Offer on Amiga Products

AmigaDOS Release 2 Upgrades

Release 2 Upgrade Kit	\$87.50
Release 2 Kit for A3000	42.00
2620/2630 cpm Kit for Com. Accel	35.00
Super Denise 8373 Chip	42.95
Fatter Agnus Chip 1MB	59.95
Fatter Agnus Chip 2MB	85.00
DKB Megachip for above	234.95
2MB Agnus Bundle w/swapout	285.00
AlfaData Kickstart Switch	39.95
MultiStart II 500/2000	68.00

Hard Drives & Accelerators

GVP Series II HCS/O HD Cont	\$169.00
GVP G-Force Combo 030/25MHZ/1MB	649.00
GVP G-Force Combo 030/40MHZ/4MB	1099.00
Above cards w/various hard drives	Call
GVP SIMM 32 - 1MB 60ns for above	59.00
GVP SIMM 32 - 4MB 60ns for above	209.00
GVP FastROM for A2000	39.95
Quantum & Seagate Drives available	Call
Wangtek Tape 150MB w/cart. AmiBack	475.00
CBM 2630 25MHZ Accelerator 2MB	499.00
CBM 2630 25MHZ Accelerator 4MB	689.00

Motherboard Replacements

A500 w/swapout (all revisions)	\$150.00
A2000 w/swapout (rev. 4.5 or above)	225.00
A2000 w/swapout (rev. 3.9 to 4.4)	350.00
A3000 16MHZ w/swapout	449.00
A3000 25MHZ w/swapout	489.00
Phoenix A1000 Upgrade Board	849.00

Amiga Chips & RAM Chips

8520 CIA Chip	\$11.50
Denise 8362 or Paula 8364 Chip	23.95
Gary 5719 Chip	14.00
KickStart v1.3 ROM	29.00
1x8 SIMM Module 80ns	37.95
4x8 SIMM Module 80ns	149.95
Motorola 68030 CPU 50MHZ	189.00
Above CPU w/68882 50MHZ Math Co.	269.00

Power Supplies, Floppies & Keyboards

CBM A2000 Power Supply	\$159.00
Above item w/swapout	119.00
CBM A500 Power Supply	35.00
A2000 Keyboard	95.00
A500 Keyboard	75.00
A2000 Internal Disk Drive	89.00
A500 Internal Disk Drive	109.00
Above item w/swapout	84.00
Alfa Data or Air External Drive	89.00

Amiga Computers & Monitors

Amiga 500-DS Model or 500-C Model	\$399.00
A501 512K RAM Type Expansion	49.00
A520 Video Adapter	38.00
1084S Stereo Monitor	289.95
1084 Monitor	265.00
1950 Multiscan Monitor	519.00



Software Hut, Inc.
2534 S. Broad Street
Philadelphia, PA 19145

To Order Call:
(800) 848-0079

In PA or for more information call:

(215) 462-2268
(215) 339-5336 (Fax)



Many additional products available for immediate shipping. Please call for information. Shipping on chips is \$3.00. Power Supplies, Drives and Keyboards are \$6.00. COD shipping please add \$4.00. For other items or air shipping, please call. We accept International and Canadian orders and only charge actual shipping charges. We accept Visa, MC, Discover, Money Order or Personal Check. All items are shipped same day from stock, personal checks allow 10 days to clear.

Circle 88 On Reader Service Card.

InfoMarket

Top-notch Amiga software products & hard drive experts!

FractalPro 5.1: HAM & 24-bit Fractal Art/Animation: \$149.95

"... some of the most breathtaking images ever seen... Four Stars +"

ScapeMaker 2.0: Turn IFF pics into VistaPro DEMs: \$39.95

"... strange and wonderful possibilities! Four Stars +". (Info 3/92)

DRI 42M 3.5 \$ 179 155M 5.25/FH \$ 499 594M Optical \$2850

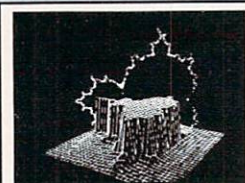
200M 3.5 569 330M 5.25/FH 949 1Gig Optical 3499

426M 3.5 1349 660M 5.25/FH 1449 2Gig DAT tape 1499

S 520M 3.5 1449 1Gig 5.25/FH 1999 and more, so CALL!

MegageM 1903 Adria Santa Maria, CA 93454 805-349-1104

Circle 167 On Reader Service Card.



Seven Seas Software, Inc.

PO Box 1451

Port Townsend, WA 98368

(206) 385-1956

MathVISION

"Math and Scientific Visualization Software"

Circle 164 On Reader Service Card.

AMIGA Files to Slides or Negatives

* IFF, IFF24, RGB, HAM, Toaster, Ham-E, Sculpt, Turbo Silver, DCTV, Imagine, Caligari, JPEG



* 2000 Line Resolution Maintains RGB Quality & Anti-aliasing

* No Mosaic Pixel Appearance

* 16.7 Million Colors & Overscan

* 48 Hour Inhouse Turn Around for Slides

For pricing & samples call: 1-715-856-5627 Or write: GRAPHIC IMPRESSIONS POB 254 Wausaukee, WI 54177

Circle 67 On Reader Service Card.



ELECTRONIC SERVICES INTERNATIONAL

ACCELERATE YOUR AMIGA TODAY WITH A CSA MEGA MIDGET RACER

CLOCKED AT 25 MHz

with math chip

\$375.00

Nobody cheaper!

Sales Technical Support Line

1-800-729-4361

Visa/MC/COD

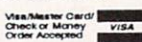
Circle 185 On Reader Service Card.

FUN PICTURE-WORD GAME FOR AGES 6 AND UP

Mr. Robot's Speak'n Spell is like trivial pursuit except with real-time speech animation, several musical scores by Bach, superb graphics, addictive crossword picture puzzles, and about 500 screens worth of full color pictures - 204 levels of play - 1020 picture/word pairs easy examples: caboose, tornado, wharf, laser, awl, funnel, stereo difficult examples: hookah, bathyscaph, bartizan, narwhal, palanquin classroom tested family fun - highly addictive - only \$49.95 - Mr. Robot's Speak'n Spell is distributed by Vertical, Inc.

SEE YOUR DEALER OR CALL TOLL FREE: 1-800-272-4601

add \$4 shipping and handling - CA residents add 7.75% sales tax Brain Technologies Co., P.O. Box 215147, Sacramento, CA 95821



Circle 184 On Reader Service Card.

KASARA MICRO SYSTEMS 1-800-248-2983 • 914-735-0960

Now the only source you will need for your Commodore product requirements. We have been your AUTHORIZED source for more than a DECADE of quality service.

COMPETITIVE

prices on NEW or USED CPUs & accessories, upgrades, replacement parts & assemblies

SAVE MONEY

with our EXCHANGE programs, repair/maintenance services and stock-to-one-week delivery

REDUCE COSTS

with our MONTHLY SPECIALS, 90 day warranty on parts/repairs & quantity discounts



Weekday Hours 9:00 AM-6:00 PM EST

COLOR RIBBONS & PAPER

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

Ribbons: Price Ea. Black Color T-Shirt

Brother M1109 5.50 6.50 7.50

Citizen GSX 140 4.00 5.00 7.50

Citizen GSX 140 4C * 12.50 15.00

Okidata 192 5.00 7.50 —

Panasonic 1124 5.00 7.50 —

Seikosha SP1600 4.50 6.00 7.50

Star NX1000 3.50 4.50 6.75

Star NX1000 4C — 6.25 10.00

Star NX1020 4C 6.50 12.50 15.00

T-Shirt (Heat Transfer Ribbon) All Colors

Color Banner Paper: 45 ft. roll \$8.95/pk.

Asstd. Pastel Paper: 200 shts. \$7.90/pk.

Asstd. Bright Paper: 200 shts. \$10.90/pk.

Minimum orders \$25.00. Minimum S&H \$5.00.

Call for other ribbons and supplies. Price & spec. are subject to change without notice.

RAMCO COMPUTER SUPPLIES

PO Box 475, Manteno, IL 60950 USA

USA (800) 522-6922 or (815) 468-8081

Canada (800) 621-5444

Circle 188 On Reader Service Card.

ULTRA HIGH RESOLUTION

35mm COLOR SLIDES

from COLOR POSTSCRIPT • 24-BIT IFF
HAM • Standard IFF

• Over 4000-line Resolution • NO Scanlines • NO Curvature Distortion • Brilliant Color

HAMMOND PHOTOGRAPHIC SERVICES
(310) 390-3010

Call or Write for order form, price list & sample:
11280 Washington Place
Culver City, California 90230

Circle 194 On Reader Service Card.

EXCITING AMIGA PREWARE!

Hundred's of previews of old and new games! Now you can test drive many programs cheaply before actually buying the final product! We also have an incredible amount of adult software and music modules! A 2-disk adult sampler is available for \$7.00 (must sign stating you are over 18). All shipping is free. Write for a FREE catalog today!

Foxy Tec • PO Box 2266 • Gresham, OR 97030

Circle 166 On Reader Service Card.



A500 Keyboard\$ 89 A2000 Power Supply.....\$189
A1000 Keyboard.....\$130 A3000 Power Supply.....\$249
A2000 Keyboard.....\$120 Super Denise.....\$ 50
A500 Power Supply.....\$ 89 Fatter Agnus.....\$ 79

Check for all other parts

A-500 / A2000

Repair

\$37.95

plus parts

AMPEX SYSTEMS, INC.
5344 Jimmy Carter Blvd.
Norcross, GA 30093
(404) 263-9190

Discounts for Dealers & Schools

Authorized Commodore / Amiga Service Center
(800) 962-4489 • Info: (404) 263-9190

Circle 96 On Reader Service Card.



DIGIVISIONS INCREDIBLE \$5 OFFER CONTINUES!

Choose ANY 4 FredFish Disks PLUS FREE Fred Fish/DigiVision Catalog!

And Always...10 Fish/\$20, 5 DV/\$15, 5 Custom/\$20

(918) 254-1718

DigiVision
8125 "D" East 51st st.1543
Tulsa, OK 74145

\$5 Offer 1per address. S&H Incl. Add \$4 for COD

Circle 61 On Reader Service Card.

EARL WEAVER BASEBALL™

Absolutely the best stats disk yet! HALF-CENTURY TEAMS

American and National League. The 25 greatest players from each team, 1950...present. Over 650 players. Exhaustive Research!

Please send \$12.95 + \$3.00 shipping in Check,

Money Order or COD to:

Desirable Productions

PO Box 13244, Los Angeles, CA 90013

™ Earl Weaver is a TRADEMARK OF ELECTRONIC ARTS

Circle 83 On Reader Service Card.

COMMODORE AMIGA SERVICE CENTER

AMIGA 500 (Repair) \$75.00 includes parts/labor

We service the entire Amiga product line and carry replacement parts & power supplies. Call for prices.

A&M Computer Repair • 20 Guernsey Dr., New Windsor

New York 12550 • (914) 562-7271

24 Hour Turnaround • Dealers Call For FREE Catalog

1-800-344-4102

Circle 190 On Reader Service Card.

The InfoMarket

AMIGAWORLD's InfoMarket is a great opportunity for those with AMIGA products to reach over 100,000 Amiga owners. AmigaWorld is the only publication with a subscription offer reaching every new Amiga owner, national newsstand distribution by Kable News Co., and single copy sales in computer stores carrying the AMIGA as well as large bookstores such as B. Dalton and Walden Books.

To reserve your InfoMarket page display ad, call Heather Guinard at 1-800-441-4403 or 603-924-0100. We accept checks, money orders, MasterCard or VISA.

MicroMiga

Lowest Prices!!

Supra • Progressive Peripherals • GVP
Psygnosis • NewTek • Microbotics
ICD • ASDG • Gold Disk • Accolade
Electronic Arts • IVS • MicroProse
ReadySoft • ROCTEC • Quantum
Spectrum Holobyte • CSA • Taito

We carry over 2000 hardware and software titles for the Amiga. We also offer Fred Fish disks for \$2.50 each. Ask about our Fred Fish Subscription Plan for \$1.50 each. Our low prices, and friendly service will amaze you. Call today!

1-800-733-AMIGA

PO Box 1898
Spring Valley, CA 91977

Customer Service: (619) 670-3161
BBS 3/12/2400 bps (619) 670-1095
24 hr. Fax (619) 670-9732
Call for Pricing or
FREE Catalog

Circle 183 On Reader Service Card.

Bigfoot 200 Watt A-500 Power Supply	\$129.95
Universal Joystick/Mouse Switch.....	\$ 29.95
Slingshot A-2000 Slot For The A-500.....	\$ 39.95
Eureka 512K A-501 Clone.....	\$ 74.95
Eureka 4MB Ram Expansion.....	\$ 89.95
Eureka Swiftly 300 D.P.I. Mouse.....	\$ 34.95
Eureka Midi (1 In, 2 Out, 2 Thru).....	\$ 39.95

Micro R. & D. is pleased to be the North American representative for

Omni-Eureka Electronics

corporation. Omni-Eureka's product line represents an exceptional value for the Amiga user, low in cost, high in quality. These products are

warranted by Micro R. & D. See your dealer!



(308)745-1243

(308)745-1246 FAX

Circle 99 On Reader Service Card.

AMIGA Programmers Wanted!

The AmigaWorld Tool Chest has created a fantastic opportunity to publish new, uncirculated Amiga programs. If you've written something special for the Amiga, and would like to earn some extra money, please contact us for our Tool Chest Author Guidelines. Perhaps you'll be the next Tool Chest Star!

AmigaWorld Tool Chest

Submissions Dept.

11835 Carmel Mt. Rd. #1304

San Diego, CA 92128

619-486-9538

A500 Repair Only \$69.95*

• 10 years experience fixing Commodore Equipment. • 90 day warranty on all parts replaced. • Factory Trained Service Technicians. • Low Flat Rate Prices.

No charges for Commodore In-Warranty Service

• A2000 \$95.00* • C64 39.95* • 1541 45.00* • C128 \$75.00*

Commodore Monitors \$35.00 Plus Parts

TO: J & C Repair RD #2 BOX 9
Rockton PA. 15856

Phone (814) 583-5996 FAX (814) 583-5995

Send Computer or drive with your name, address, phone number and a description of the problem

* Most Recent Repair Only

We will return Your System VIA UPS Ground COD. Commodore in-warranty repairs please include copy of sales slip

Circle 47 On Reader Service Card.

Blowouts \$19.97 or 3 / \$49.97 Blowouts

Action Fighter	Blue Angels	Dungeon Master	Hillsfar	Securities Analyst
Airstrike U.S.A.	Bumper Stkr Mkr	Easy Titler	Iron Lord	Spritz
Altered Beast	Clue	Eye Of Horus	Manhunter 2	Star Command
Archipelagos	Damocles	Future Wars	Math Blaster Plus	The Ball Game
Art Gallery 1&2	Day Of The Viper	Galactic Empire	Money Mentor	Third Courier
B.A.T.	Death Bringer	Germ Crazy	Pictionary	UltraDos Utilities
Battlehawks 1942	Dragons Breath	Heat Wave	Pro Write Fonts I	Universe 3
Blood Money	Dragon's Lair II	Heroes Of Lance	Puffy's Saga	Waterloo

1-800-638-1123 10-9M-Th
Tech Support: (304) 529-3232 10-5F-Sat
E.S.T.

Bare Bones Software

All titles are new and fully guaranteed. Call for free brochure of many other blowouts plus our extensive line of current releases and used Amiga titles. We accept Visa, American Express, Discover, Mastercard, and COD orders.

Circle 85 On Reader Service Card.

SIZZLING SOFTWARE

We offer the Best in Public Domain and Adult-Oriented Software.

Over 250 Disks in Stock, Prices as Low as \$3 per Disk.
Free Brochures. Visa, MasterCard Accepted. Our Disks are Loaded!
3-Disk Adult Sampler: Send \$10, Signed Statement of Age (21+) to:

CLEARLIGHT SOFTWARE
PO BOX 1411, DEPT. A
MILWAUKEE, WI 53201

Circle 196 On Reader Service Card.

BriWALL

Total Solution Mailorder

MODEMS

Speed up your file transfers!
With file sizes increasing and modem prices dropping, slow modems just don't make sense. If you have questions, we'll be glad to help.

Courier HST 38.4	\$599
Courier HST Dual Standard	\$899
Supra FAX 9600 v.32bis	\$299
SupraModem 2400	\$99
SupraModem 2400+ MNP v.42bis	\$145

Telecommunications

Atalk III	\$39
Baud Bandit	\$35
Online! Platinum	\$29

EXTRAS

Expand and Enhance
It's part of the fun of owning a computer. Call us for ideas!

A500 BigFoot 200watt	\$95
Bodega Bay	\$259
Bomac Tower A2000	\$269
CBM 1.3/2.0 ROM's	Scall
ECE A500/2000 ext. MIDI	\$49
External SCSI Case	\$85
Mouse/Joystick Switcher	\$29
Switch It ROM Switcher	\$52
Switchbox A/B db25	Scall
Totes, Skins, Covers	Scall

PRINTERS

Show off your ideas on paper
Tell us your needs and we can match a printer to your system.

Citizen GSX140+	\$329
Citizen GSX200	\$179
Canon BJ300 Bubble Jet	\$499
HP DeskJet 500 Color	\$759
NEC SilentWriter 2 Model 90	\$1699

Ribbons, Inks, Cables, Switchboxes, Color kits, Call!

STORAGE

(Hard Drives)

Increase your storage!
Upgrade your Amiga system with a faster, or larger hard drive. We offer a full range of sizes and controllers that make sense for your system.

SCSI Controllers

DataFlyer	\$79
GrandSlam	\$239
GVP Series 2 HC8	\$199
IVS GrandSlam	\$249

IVS Trumpcard Pro \$169

AT Controllers

AdiDE 40	\$99
AdiDE 40 kit	\$139
Rocharad 500	\$259

Call for AT drive prices

SCSI Packages

GVP A500 52MB Quantum	\$499
GVP A500 120MB Quantum	\$649
GVP A500 240MB Quantum	\$919
GVP A2000 52MB Quantum	\$409
GVP A2000 120MB Quantum	\$539
GVP A2000 240MB Quantum	\$839
DataFlyer (add drive)	\$149
GrandSlam (add drive)	\$329

SCSI Drives

Floptical 20MB**	\$549
Maxtor 120MB*	\$399
Maxtor 676MB*	\$1499
Quantum 052MB*	\$269
Quantum 120MB*	Scall
Quantum 240MB*	Scall
Ricoh Optical	\$1899
Syquest 44MB*	\$349
Syquest 88MB*	\$469
Wangtek Tape 250MB*	\$629
Wangtek Tape 525MB*	\$1129
Xetec CD-ROM**	\$579

*Add \$129 for complete external setup
**Add \$100 for external setup

SOFTWARE

Here's just a sampling of the software and books we carry! Please call us when you're looking for any software title!

Ami...Alignment	\$29
AmiBack	\$49
AMOS	\$62
Arexx on Amiga	\$27
Arexx V1.5	\$32
AudioMaster IV	\$65
BEST Business v3	\$129
Barney Bear (any)	\$22
Bible Search v1.1	\$69

C. San Diego (any)	\$33
CrossDOS v4.0	\$26
DataTax '91	\$49
Diskmaster v2	\$44
Distant Suns v4.0	\$59
Doctor Ami...	\$25
DOS-2-DOS	\$35
Excellence v2.0	\$99
Family Tree	\$49
Final Copy	\$59
GVP DSS	\$99
HomeFront v2.0	\$59
MathVision	\$129
MaxiPlan Plus	\$59
Metascope	\$62
Office	\$129
Opus	\$39
PenPal	\$89
Perfect Sound 3.1	\$65
PHASAR v4.06	\$59
ProCalc	\$179
Proper Grammar	\$59
Prowrite v3.2	\$99
Quarterback Tools	\$53
Quarterback v4.3	\$43
Recipe Fax v2.0	\$32
SAS/Lattice C v5.1	\$199
Sound Master	\$129
Studyware SAT or GRE	\$32
Super Jam!	\$89
Superbase V4.0	\$259
TREXX Pro v1.0	\$89
Visionary	\$59
Wordperfect v4.1.11	\$169
World Atlas 2.5	\$39
...and many more!	

RAM

(Memory)

All of your applications will appreciate more memory! We can explain your options and help you add memory efficiently.

A500	512KB	1MB	2MB	8MB
501-type	\$39	\$--	\$--	\$--
Baseboard	\$129	\$149	\$189	\$--
SupraRAM RX	\$--	\$139	\$229	\$599
A1000	1MB	1.5MB	2MB	8MB
DataFlyer (with case)	\$--	\$--	\$289	\$499
Insider 2	\$239	\$259	\$--	\$--
A2000	0MB	2MB	4MB	8MB
8-up!	\$109	\$179	\$249	\$379
Supra	\$119	\$199	\$269	\$399
DataFlyer	\$99	\$189	\$279	\$399
GVP	\$119	\$189	\$279	\$449
A3000	4MB	8MB	16MB	
Static Column Zip	\$229	\$399	\$799	
ProRAM	\$559	\$729	\$1059	

Also...Super Denise, 1MB/2MB Agnus, 8520, Dipp's, Zip's, SIMM's

SPEED

(Accelerators)

68030, 68040, MMU, EC, math co's, memory, combo boards, MHz... let us help you through the maze to experience the satisfaction of the right choice for your needs!

Adspeed	\$189	GForce 68040	\$2,099
Combo 68030 25MHz	\$649	Mercury 68040	\$2,159
Combo 68030 40MHz	\$1,199	Progressive 040 A3000	\$1,499

Combo 68030 50MHz	\$1,549
MegaMidget 030EC 25MHz	\$399
MegaMidget 68030 25MHz with 68882	\$499
MegaMidget 68030 33MHz with 68882	\$599
Progressive 040/2000	\$1,649
VXL30 40MHz EC	\$479
Zeus 68040 Combo	Scall

A3000

PC/MAC

Just for those MSDOS and Mac fans!

286 Bridgeboard AT	\$459
AtOnce Plus	\$299
GVP PC286 module	\$369
Amx-II	\$159
Amx-II Plus	Scall
Mac ROMs + Drive	\$429

Call the Briwall BBS at (215) 683-7499
Complete catalog on-line!

VIDEO

(Hardware)

Create. The technology is expanding so rapidly, you can merge computer, video and still images in ways never before imagined. And we can help you select the proper tools.

GRAPHICS

(Software)

Produce perfection. In print, on screen, and in video, your work is a reflection of you, and it must be as you visualize it. Make it so. The tools you need are here today.

Call for fonts, textures, video tapes, conversion utilities and more!

AmiLink Junior	Scall	Kitchen Sync Dual TBC	\$1,649
BCD2000A SFC	\$799	Minigen	\$199
CBM2320 Display Board	\$249	Panasonic AG1960	\$1,199
Color Splitter	\$119	Panasonic & Sony	Scall
DCTV	\$399	Panasonic 1410 Camera	\$179
DMI Resolvers as low as	\$999	RGB Splitter	\$299
DPS Personal TBC v2.0	\$839	Rambrandt	Scall
DPS Personal V-Scope	\$799	SFC/Personal	\$389
DPS Personal TBC230	\$1,729	Supergen	\$659
Firecracker 2400	\$829	Video Blender	\$979
Frame Grabber	\$419	Video Master	\$1,099
GVP Impactvision	\$1,899	VideoToaster v2.0	\$2,199

Art Department Pro v2.0	\$179	Pelican Press	\$59
Broadcast Titler II	\$229	Pixel 3D v2.2	\$79
Caligari V2.0	\$259	Pixmate	\$45
CanDo v1.5	\$89	Presentation Master	\$179
Deluxe Paint IV	\$115	Pro Draw v2.0	\$129
Digi-View MediaStation	\$159	Professional Page 2.1	\$179
Disney	\$79	Pro Video Post	\$169
Draw 4D Pro	\$219	Real 3D Turbo Pro	\$299
Fractal Pro v5.0	\$99	ScapeMaker v2.0	\$29
Imagine	\$129	Scenery Animator	\$59
Imagine v2.0	\$269	Showmaker	\$229
InterFont	\$79	TV Text Pro	\$99
Pagestream 2.2	\$179	Texture City Pro	Scall
		Vista Pro v2.0	\$59

INPUT

Simplify your work. From new mouses to scanners, always use an input device that matches your needs. Don't know what these products do? Call us and we'll be glad to explain.

Amtrac Trackball	\$68
Bar Pro Wand Package	\$659
Boing Optical Mouse	\$89
Champ (Logitech-like) Mouse	\$35
Cordless Mouse	\$79
Epson ES-300C Scanner	\$1,199
Hand Scanners (b&w starting at)	\$179
GI Mouse	\$36
Gravis Joystick	\$39
Keyboards	Scall
Sharp JX100 Color Scanner	\$559
Sharp JX320 Color Scanner	\$1,259
SketchMaster 12x12	\$459
Wiz Draw Tablet	\$259

A1000

Expand your Amiga 1000

Add memory, storage, speed, or all three with these exciting expansion products. We support your A1000!

Adspeed	\$189
CBM1300 Genlock	\$59
DataFlyer case & SCSI	\$229
DataFlyer 2MB package	\$289
Fastrak case & SCSI	\$289
Insider II (1.5MB)	\$259
Keyboard	\$119
Kwikstart II	\$69
MegaMidget Racer 25mhz	\$399
Phoenix Board	\$850
Rejuvenator w/1MB Agnus	\$419
Rejuvenator w/2MB Agnus	\$469

FLOPPIES

Eliminate disk-swappers' cramp!
Add another floppy make life easier.

A500 or A2000 3.5" internal	\$85
A3000 3.5" internal	\$99
Roctec Ultralite 3.5"	\$94
Boot Drive Selector	\$29
Bodega Bay Kit	\$99
Disks 25-pack 3.5"	\$19

DISPLAY

Ease your eyes

It shouldn't hurt to look at your monitor. Whatever your needs, composite through multiscan, call us.

CBM1084S Stereo	\$299
CBM1950 Multiscan	\$569
DiamondScan AUM 1391A	\$569
DiamondScan 20L	\$2,199
NEC MultiSync 3FGX	\$699
Sony 1304	\$669
Flicker Free Video	\$259
Flicker Fixer	\$259

All standard and custom cables

...Knowledgeable Sales Consultants...In-House Technical Staff...

BRIWALL

Solid Products and Solid Support

SYQUEST

Removeable-media Hard Drives. Perfect for backups, animations and DTP

44MB 5.25" Internal \$349
88MB 5.25" Internal \$469

External -- We'll add a case, SCSI cable, and setup for just \$129
Please specify the SCSI controller you own

Cartridges -- Call for prices!

New Video Products

AmiLink Jr. -- Cuts-only editor for use w/Future Video products.

DPS Personal V-Scope -- An internal card with both waveform monitor and vectorscope.

TREXX Pro -- Script generator for the Video Toaster.

Texture City -- Collection of textures in HAM, DCTV or 24-bit Video Toaster 2.0 software!

BOOKS & TAPES

AmigaDOS Inside and Out w/disk \$19
AmigaDOS Manual 3rd edition \$22
Amiga Primer VHS \$21
Animation Video Vol. 1 VHS \$19
Desktop Video Power \$22
Imagine Companion \$24
Hot Rod Your Amiga VHS \$20
Imagine Guided Tour VHS \$26
Using AREXX \$27
Video Toaster VHS \$20

Addison-Wesley
ROM Kernal
manuals (2.04)

Libraries, Devices,
Hardware, Includes,
and Intuition Style
Guide

Get all 5 for \$99!

Professional Page 2.1

Powerful, Easy to Use, Desktop Publishing!



- Landscape printing on dot matrix and laser printers!
- Up to 2X faster than 2.0
- Interactive on-line help disk
- Built-in Word Processor & Spell checker!

ONLY \$179

BRIWALL's Choice for our in-house DTP needs!

1. *Technical expertise to help you make the right decision.* Buying the right product isn't easy. We don't just take your order; we work with you to match your needs with the right products. With over 6 years of experience in this business, we have the technical expertise to make solid recommendations.

2. *Pretested products to help ensure that your purchase works.* Our in-house, trained technicians pre-test memory boards, hard drives and many other products before they leave our door.

3. *Satisfaction guarantee.* Buying mail order can be intimidating but we make it easy and safe. We guarantee that if your purchase doesn't run on your system, we'll help you work with the manufacturer until you are satisfied.

Our personal services help you pick the right product and get it running on your system quickly.

WHY BUY FROM BRIWALL?

Mega-Midget Racer

The upgradable alternative from CSA

If you're going to invest in an accelerator, why lock yourself into a non-upgradable 'solution'? The Mega-Midget gives you the option to upgrade with:

- ▲ 20-33MHz 68030 using the same board
- ▲ 20-33MHz 68881/2 using the same board
- ▲ Up to 8MB of 32-bit RAM (while maintaining all 9MB of your existing system RAM!)
- ▲ Up to 2MB of fast, static 32-bit RAM (for the ROM Kernal, and super-fast screen updates.)

Mega-Midget Racer runs in the A500, A2000 and A1000 (call on the A1000), and is compatible with the Toaster, DTP programs, ray-tracing packages, and all other 68030-compatible software.

Prices starting at \$399

Many other configurations available. Call for details

DKB

Innovative solutions to your needs

Megachip

Expanding your Amiga just isn't complete until you've expanded your graphics capacity to 2MB of chip RAM! You need Megachip to get it into your 500 or 2000 (sorry 1000's).

Megachip 2000 or 500 complete with the 2MB Agnus - \$309

Kwikstart/Multistart

You want to get that 2.04 ROM, but...what about the stuff that doesn't work? Or you want your 1000 to autoboot off the harddrive. DKB offers the solution. An easy-to-install board that allows you to switch easily between 1.3 and 2.0.

Kwikstart A1000 - \$69

Multistart A2000 or A500 (v5) - \$69

Call for prices on 1.3 and 2.0 ROM packages

Insider II

The A1000 is not forgotten! Upto 1.5MB of internal fast RAM with a battery-backed clock & calendar.

Insider II w/1.5MB - \$259

EXPANSION SYSTEMS

The Best Quality at the Best Price

Common question--What hard drive system can I, an average consumer afford? Solution! Dataflyer w/52MB Quantum (no we don't recommend a 20MB drive) And no...you are not giving up quality for price. See article in February 1992 Amiga World.

Dataflyer w/52MB Quantum hard drive

A500 - \$399 A1000 - \$479 A2000 - \$349

Add \$189 for memory board w/2MB

Dataflyer A1000 memory packages as low as \$289!

All Dataflyer SCSI and Memory boards are A2000 compatible.
Talk about upgradeability!

Don't get caught in the 'Delivery Charge' trap!

If you comparison shop, always ask for the 'delivered price' of the item you want to order. You'll find our prices are real, and our shipping charges are fair.

There is so much we want to tell you, and so little room in this ad. Just call us!

Get our Catalog-On-A-Disk, packed full of info. Free with every order!

Se habla Espanol!

Gold Disk

VIDEO DIRECTOR



- Complete Video Editing System for everyone with a camcorder, VCR and an Amiga!
- Quickly and easily catalog and edit the best moments from your video tapes!
- Includes hardware to control most camcorders and VCR's!

only \$169!

VIDEO TOASTER PACKAGES

We build them from the ground up, test them, and install the software to suit your needs. Fully warranted.

Sample Toaster Systems

Starter Package \$4,199
030 25MHz Basic Package \$4,799
030 25MHz Enhanced Package \$4,999
030 40MHz Pro Package \$5,659
030 40MHz Enhanced Pro Pack \$6,099
040 28MHz Basic Package \$5,999
040 28MHz Super Pro Pack \$9,799

Newtek * GVP * IVS * CSA
* CBM * Progressive Peripherals
* DPS * Syquest * Quantum

Let us help you put it all together

Call for Toaster Package literature



GREAT PRODUCTS AT LOW PRICES!

Ultralite Slimline Drive \$94

This drive is absolutely gorgeous!! Ultralite (24 ounces), Ultralim (7/8" high), ultra-quiet, with pass-thru. Comes in either Amiga beige or black (real classy.)

RocHard

Why limit yourself to a single drive format? The RocHard allows you to connect to 2 IDE (*AT*) hard drives to your A500, and with the SCSI option, up to 7 SCSI hard drives as well! There's also room for SMB of expansion RAM, a game switch, and a quiet fan cooling unit.

RocHard AT drive system \$259

RocHard SCSI option \$45

call for drive and memory configurations

1-800-766-5757

(USA and CANADA)

Outside USA: (215) 683-5661 Tech Support (215) 683-5699
Customer Service (215) 683-5433 FAX (215) 683-8567

- ☐ Any Visa and MasterCard accepted with NO surcharge
- ☐ Hardware shipping charges vary depending on weight and value.
- ☐ Software shipping charges are \$5.00 per total order via UPS ground to anywhere in the continental USA
- ☐ All orders over \$300 are insured at customer's expense.
- ☐ We prosecute credit card fraud to the fullest extent of the law!
- ☐ All returns require an RA#. Please call before returning anything!

Federal Express®

Charges for all orders under 20 pounds
2nd Day Delivery \$13
Next Day Delivery \$17

DHL

Canadian and Overseas customers are shipped DHL. Rates as low as \$15 to Canada!

BRIWALL

P.O. Box 129/58 Noble St.
Kutztown, PA 19530

Order lines are open 24 hours (Briwallians are in 9-8EST)
Store hours: Monday - Friday 9AM-6PM, Saturday 10AM-2PM

School and corporate purchase orders are welcome.

We specialize in overseas orders!

THE LAST WORD

Kudos, complaints, comments, concerns, and contributions from our readers.

RUSSIA CALLING US

The development of market economy in Russia needs help of western civilization. And the most efficient help would be economic collaboration in high technologies. I would be most grateful should you publish the following invitation to joint hi-tech project.

I represent a Russian firm, Delta Popolam. Its personnel is highly qualified in software design, system engineering, and videoproduction. The firm has a broad experience in marketing of hi-tech goods and services in Russia and the rest of the former Soviet Union. One of the projects in work is development of Russian version of the program DeluxePaint III.

We are planning to organize in Moscow an Amiga demonstration center—a videoproduction house with accent on 3-D graphics and animation. The company is also interested in distribution of Amiga computers, peripherals and software. For these purposes, we are searching for a foreign partner for a joint venture. The partner could make a contribution in the form of equipment. The primary output could be just above \$30,000 to \$40,000. Problems connected with repatriation of profits are solvable.

More details on this project are available upon request. Any advice will be also gratefully accepted.

*Guennady Matveyev
Delta Popolam
Tverskaya Ul., 15-126
103009 Moscow, Russia*

THE LAST WORD ON WORDPERFECT

I am very tired of hearing how disappointed everyone is that WordPerfect will not be updated for the Amiga. I have had the misfortune of having to use WordPerfect (v. 5.1) on the PC and, to a lesser extent, on the Amiga, and I can tell you the loss is insignificant.

The program is exceptionally difficult to learn on the PC—just ask anyone who has tried. Moreover, the graphics support is either nonexistent or pathetic in both cases. My suggestion is to forget WordPerfect and get something like ProWrite for the Amiga.

*G.U. Graham III
Loup City, Nebraska*

THE DEALER ADVANTAGE

Recently, I almost became a “computer widower” when my Amiga 2000 was struck by lightning, leaving it, as

**I haven't had this
much fun with a
computer since I had
my Commodore 64.**

well as my printer and possibly my Sony 20-inch, virtually useless. What made it worse was that my unit had a Bridgeboard, a hard drive, and three megs of RAM.

I sent the unit to my authorized Amiga dealer, the Vidcom Center in Texarkana. Morris Allen, the owner, confirmed the damage, but pointed out a fact that made my day, namely, that my homeowners insurance would probably cover the cost. He was absolutely right. Mr. Allen provided me with a new system and even customized it to match the old system.

My point is that, although you may save a few bucks by going through a mail-order company, it can never service your needs or equipment the way an authorized dealer can.

*Stephen Franklin
Bossier City, Louisiana*

AMIGAMATH

I very much enjoyed reading “The Scientific Amiga” in your December issue, especially the piece about the Stanford Linear Accelerator Center and its use of the Amiga version of Maple V, the computer algebra system from Waterloo Maple Software. The Mathematics Department here at the State University of New York at Albany was a primary beta tester for that version, and we have been using Maple in our Amiga classroom for nearly two years.

Our setup is rather unusual in that we use a specially designed Computer Classroom (utilizing A2000hds and A2500s), with the entire course meeting there. Students simultaneously interact (in real time) with their computer, with the instructor at the blackboard, with the instructor's computer, and with fellow students. It is a remarkably exciting environment for learning, and it has changed the way we teach mathematics. We offer a full range of classes, from elementary calculus for non-math majors to upper-division courses in algebra and analysis.

*Herbert I. Brown
Mathematics Dept., SUNY,
Albany, New York*

HAPPY SWITCH

I have recently purchased an Amiga 500 system after ten years of owning MS-DOS machines. I was really getting tired of playing catch-up with the MS-DOS community, continually having to add to my system to meet new software requirements. I finally learned that the 386-SX 16-MHz system is the new entry-level PC system. That was it! Now I have my A500, and I haven't had this much fun with a computer since I had my Commodore 64! IBM PC owners should have the kind of support from other users that I have seen in my area for the Amiga.

*Marc Chiarello
Oconomowoc, Wisconsin*

YOU'RE A PRETTY GOOD PROGRAMMER ALREADY. BUT YOU PROBABLY DON'T KNOW IT YET.

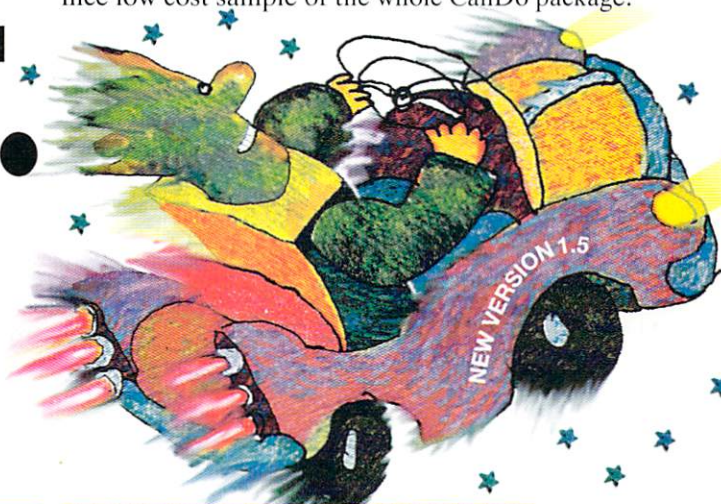
Object Oriented Program Construction for Regular Ordinary People.

While you weren't watching, we turned you and the rest of the world's Amiga users into programmers. With CanDo's intuitive interface and simple but powerful toolkit, ordinary people all over the country have been creating stand-alone utilities, data bases, word processors, vertical market applications, animated multimedia presentations, and all sorts of games.

Experienced programmers (many of them not ordinary at all) have been prototyping applications in CanDo for the sake of expediency and finding as often as not that there's little left to do when they get through. We get rave letters every day.

Give us a call. We'll read you some.

Better yet, just say the word and we'll send you a nice low cost sample of the whole CanDo package.



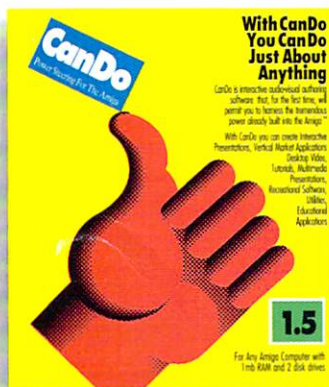
INOVAtronicS, Inc.

8499 Greenville Avenue
Suite 209B
Dallas, Texas 75231
214 340-4991
FAX: 214 340-8514

Trademarks:

Amiga: Commodore-Amiga, Inc.
INOVAtronicS, CanDo: Inovatronics, Inc.

Circle 75 on Reader Service card.



TEST DRIVE CANDO 1.5 FOR JUST 10 BUCKS.

1-800-875-8499

Give us your address and \$10* and we'll send two disks and a CanDo manual by return mail. You'll have created a program before David Letterman goes off.

Get a fresh look at what your Amiga is capable of.

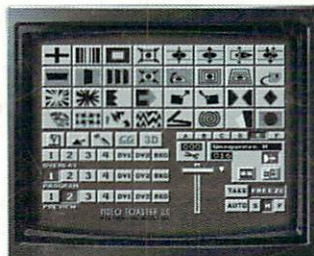
*Buy CanDo later and we'll give you your sawbuck back.



Video Toaster™ System 2.0:

9 essential tools you need if you're using your Amiga for video or graphics.

4 Input Production Switcher



Toaster System 2.0 includes organic switcher transitions like fire, smoke, clouds, pouring liquid and breaking glass. Powerful positionable effects for over-the-shoulder insets, soft-edge wipes and wild "KikiFX" like you've never imagined.

Digital Video Effects



Real-time digital video effects on live video at 60 fps. From flip, spin and tumble all the way to amazing perspective warping effects and even incredible sphere and cube mapping in real-time.

35ns Character Generator



16 million color 35ns broadcast text with over 100 high-quality, anti-aliased type-faces. System 2.0 also features faster loading of pages, framestores for backgrounds, improved keying and text file import.

24-bit Broadcast Paint



ToasterPaint is the only true broadcast-quality NTSC paint system for the Amiga. System 2.0 brings new features including improved auto-scrolling and direct import of images from the Toaster's frame grabber.

3D Animation



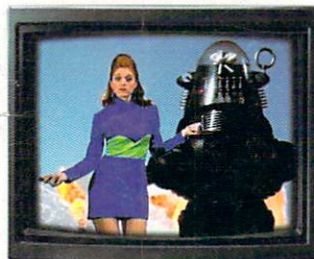
LightWave 3D 2.0 offers over 150 new features including blazing rendering speed, multiple morph targets, 3008 x 1920 resolution and true ray-tracing! 2.0 makes modeling a joy with new tools like bend, twist, taper, skin and magnet.

Dual Frame Buffers



Hold two high-resolution 16 million color video frames in perfect YIQ-encoded RS-170A network quality. System 2.0 brings you enhanced hue matching, even faster loading, and framestore file compression to save disk space.

Luminance Key



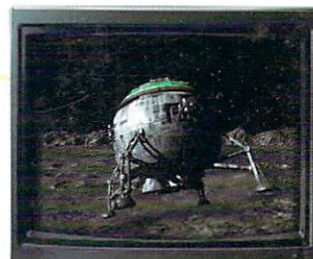
Much more than just simple weatherman over a map, Toaster™ keying lets you do luminance fade transitions, or combine two live sources using a third source as a key and even key-based digital trails.

Color Processing



Control of color effects from the switcher and 20 new default effects make ChromaFX faster and more powerful. Now combine effects and color cycle with new organic switcher transitions for incredible new possibilities.

Still Store/Frame Grabber



Freeze flawless broadcast resolution images instantly from any color camera, laserdisc or even cable TV with better color reproduction, faster loading, and powerful new field and frame saving options.

Free Toaster™ Video Tape

We can't show you the power and quality of the new Video Toaster in a magazine ad. So we've decided to prove it with a free VHS tape about the Toaster *produced entirely with the Toaster*. This award-winning demo-within-a-demo starring NewTek's Kiki Stockhammer is aptly titled "REVOLUTION". Call today to find out about the most successful Amiga product of all time.

Call 800-765-3406

Toaster 1.0 users call your dealer or 800-843-8934 to upgrade today.

Outside North America call 612-882-1662 for your free demo tape. Demo also available on S-VHS, Hi8, 3/4", Mini, Betacam, 1", LaserDisc and D2 at nominal cost. Next-day delivery available. Price and specifications subject to change. Amiga is a registered trademark of Commodore Amiga Inc. Video Toaster, Lightwave 3D, ChromaFX and ToasterPaint are trademarks of NewTek, Inc. © NewTek, Inc.

NEWTek
INCORPORATED

