BUILD AN I/O EXPANSION BOARD

Amazing COMPUTING™

Your Original AMIGA® Monthly Resource

For The Commodore AMIGA®

Volume 6 No. 2 February 1991
US $3.95 Canada $4.95

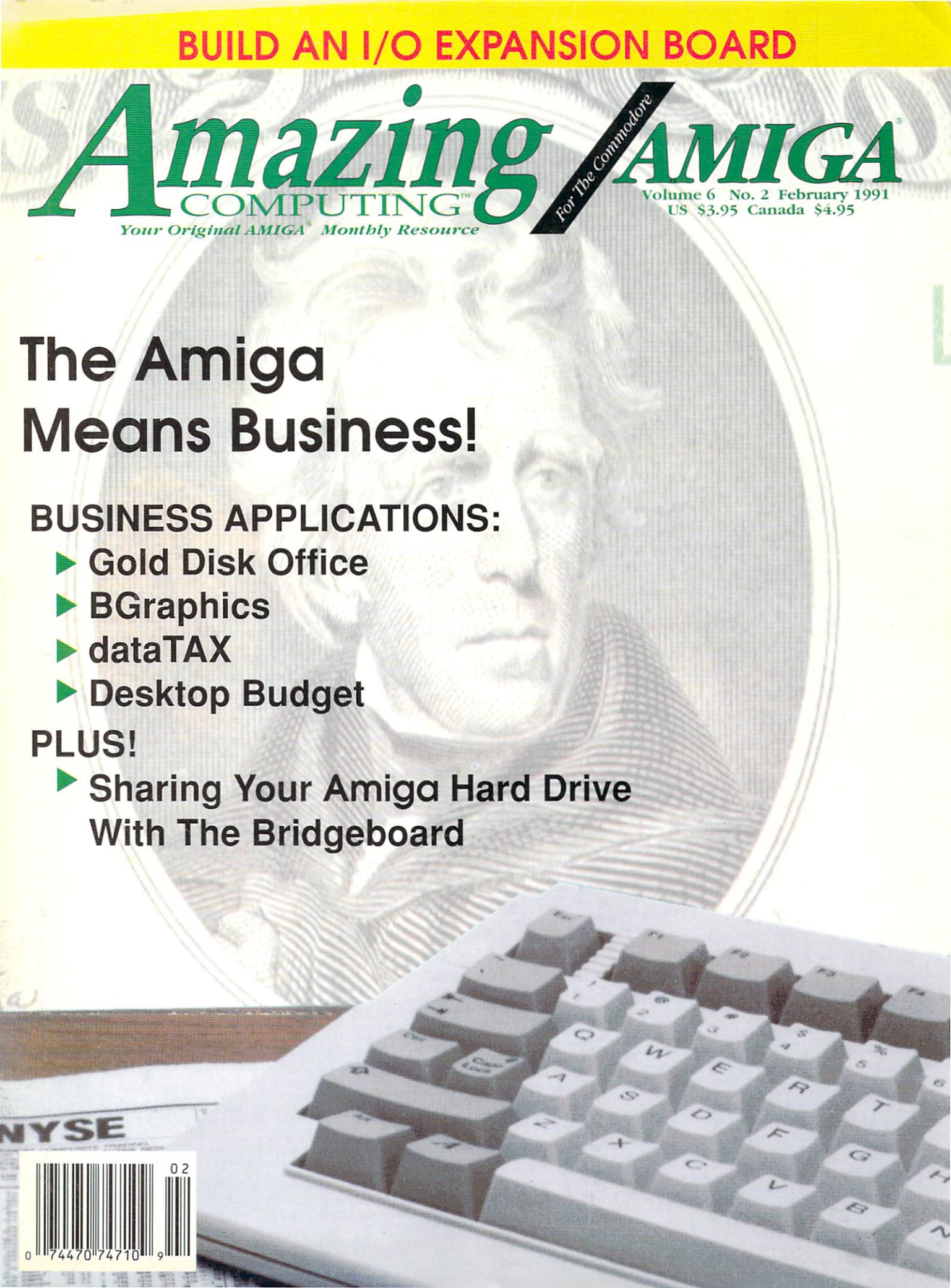
The Amiga Means Business!

BUSINESS APPLICATIONS:

- Gold Disk Office
- BGraphics
- dataTAX
- Desktop Budget

PLUS!

- Sharing Your Amiga Hard Drive With The Bridgeboard



02
0 74470 74710 9

CONTENTS

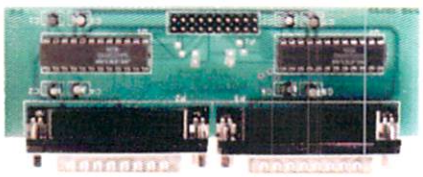
MS-DOS has long ruled the workplace, but given its great versatility—combined with the development of more and better business software—the 9-to-5 Amiga's stock is rising. AC's focus on business begins on page 34.

Departments

Cover by
Ernest P. Viveiros, Sr.

Reviews

In This Issue



The serial interface board for Jeff Lavin's I/O Expansion Board. See page 61.

Amazing COMPUTING™ For The Commodore AMIGA

Volume 6
Number 2
February 1991

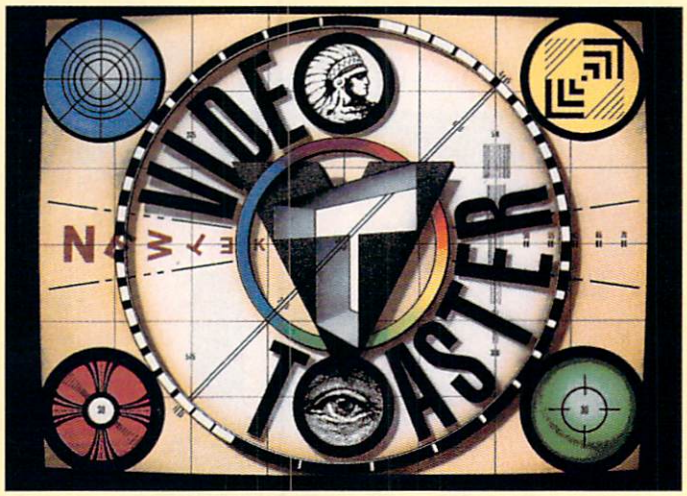
Columns

Cinemaware's Dragon Lord

Doing Business

In the next issue of AC:

THE VIDEO TOASTER!



Video Consultant Frank McMahon reviews the Toaster after a month of working extensively with NewTek's *amazing* new video computer at home and in a commercial cable television studio.

AC is the first Amiga publication to put the Toaster to work in a commercial TV operation! You'll see how it performs at the center of a "live-on-tape" rock video production, and a whole lot more!

CES – LAS VEGAS!

CES – Las Vegas (January 10–13) marked Commodore's official worldwide introduction of CDTV. You'll be interested to learn that CDTV comes with more features than anyone ever thought possible! Plus, get the first details on Commodore's announcement of a new peripheral that will bring CDTV technology to any Amiga!

AC will be the only Amiga publication to provide complete, timely coverage of all the CDTV announcements and everything else new for the Amiga at the Consumer Electronics Show!

In short, the March issue of Amazing Computing will be loaded with information you simply won't find anywhere else!

But then, *that's* nothing new.

Amazing COMPUTING / AMIGA

Amazing Computing For The Commodore AMIGA™

ADMINISTRATION

Publisher:	Joyce Hicks
Assistant Publisher:	Robert J. Hicks
Admin. Assistant:	Alisa Hammond
Circulation Manager:	Doris Gamble
Asst. Circulation:	Traci Desmarais
Corporate Trainer:	Virginia Terry Hicks
Traffic Manager:	Robert Gamble
International Coordinator:	Donna Viveiros
Marketing Manager:	Ernest P. Viveiros Sr.
Marketing Associate:	Greg Young
Programming Artist:	E. Paul

EDITORIAL

Managing Editor:	Don Hicks
Associate Editor:	Elizabeth Fedorzyn
Hardware Editor:	Ernest P. Viveiros Sr.
Technical Editor:	J. Michael Morrison
Technical Associate:	Aimée B. Abren
Copy Editor:	John Rezendes
Video Consultant:	Frank McMahon
Art Director:	William Fries
Photographer:	Paul Michael
Illustrator:	Brian Fox
Graphic Designer:	Kim Kerrigan
Research & Editorial Support:	Alisa Hammond
Production Assistant:	Melissa-Mae Lavoie

ADVERTISING SALES

Advertising Manager: Donna Marie

1-508-678-4200
1-800-345-3360
FAX 1-508-675-6002

SPECIAL THANKS TO:
Buddy Terrell & Byrd Press
Bob at Riverside Art, Ltd.
Swansea One Hour Photo
Pride Offset, Warwick, RI
Printers' Service & Supply, Inc.
Mach 1 Photo

Amazing Computing For The Commodore Amiga™ (**ISSN 0886-9480**) is published monthly by PiM Publications, Inc., Currant Road, P.O. Box 869, Fall River, MA 02722-0869.

Subscriptions in the U.S., 12 issues for **$24.00**; in Canada & Mexico, surface, **$34.00**; foreign surface for **$44.00**.

Second-Class Postage paid at Fall River, MA 02722 and additional mailing offices.

POSTMASTER: Send address changes to PiM Publications Inc., P.O. Box 869, Fall River, MA 02722-0869. Printed in the U.S.A.

First Class or Air Mail rates available upon request. PiM Publications, Inc. maintains the right to refuse any advertising.

PiM Publications Inc. is not obligated to return unsolicited materials. All requested returns must be received with a self-addressed stamped mailer.

Send article submissions in both manuscript and disk format with your name, address, telephone, and Social Security Number on each to the Associate Editor. Requests for Author's Guides should be directed to the address listed above.

AMAZING DEALERS

The following **Amazing Dealers**, carry *Amazing Computing*™, your resource for information on the Amiga™, and *AC's Guide To The Commodore Amiga*, the total Amiga product guide. If you are not an Amazing Dealer, but would like to become one, call.

1-800-345-3360

Alaska
Best Electronics — Anchorage
Juneau Electronics — Juneau
Alabama
Alabama Computers Inc. — Huntsville
Madison Book & Computer — Madison
Pasco Industries — Birmingham
The Computer Image — Birmingham
The Computer Nut — Birmingham
Universal Computer System — Mobile
Arkansas
Commodore Connection — North Little Rock
Commodore Connection — Sherwood
Computer Concepts — Gosnell
Microtronix — Fort Smith
The Micro Shop — Little Rock
Arizona
Bookman's — Tucson
Books Brothers Ltd. — Tucson
Books Etc. — Tempe
Brain Child Software — Phoenix
Computer Library, Inc. — Tempe
Computer Y's — Tucson
Livingston's Books, Inc. — Sierra Vista
North American Digital — Tucson
Try Tech Inc. — Phoenix
California
3 E Software And Systems — Hayward
Aday International — Foster City
American Magn & Books Ltd. — Englewood
Arcadia Newsstand — Arcadia
B. Dalton Books — San Rafael
Baiboa Office Supply — San Diego
Bits & Bytes — Fairfield
Bits n Pieces Comp Prod. — Anaheim
Bookland — Marysville
Booklstar — San Diego
Brentano's — Sacramento
Brentano's — San Francisco
Brown Knows Computing — Redlands
CAL-Tech Bookstore — Pasadena
Candy Computer — Elk Grove
Capri Products Company — Burlingame
Castro Kiosk — San Francisco
Catri Product Company — Burlingame
Centerfold News — Los Angeles
Central Park Bookstore — San Mateo
Century Computer Systems — La Habra
Circus of Books — Los Angeles
Circus of Books — Los Angeles
Commodore Land — Alhambra
Commotech — National City
Computer Attic — Palo Alto
Computer Literacy Books — Sunnyvale
Computer Literacy — San Jose
Computer Literacy — Santa Clara
Computer Nook, Inc. — San Bernadino
Computer Outlet — Chula Vista
Computer Outlet — San Marcos
Computer Room — Scotts Valley
Computer Showcase — San Francisco
Computer Spectrum — Burlingame
Computer Time — Citrus Hts
Computers Plus — Grove City
Coronet Newsstand — Oceanside
Covina Bookstore — Covina
Dataphile — Watsonville
Del Amo Books & News — Terrance
Delauer's News Agency — Oakland
Discount Computer Station Inc. — Long Beach
ECX Computer Co. — Walnut Creek
Empire Computers — Santa Rosa
Encinitas News — Encinitas
Fil-American — San Francisco
Fisher Computers + Software — Rancho Cucamonga
Harding Way News — Stockton
Heinrichson, Schneider & Young, Inc. — Berkeley
Home Computing Center — Concord
Home Computing Center — Mill Valley
Home Computing Center — San Leandro
HT Electronics — Sunnyvale
Int's Periodical Dist — San Diego
International Telecine — Santa Ana
K J Computers — Granada Hills
L. A. Int's News — Vanice
Little Professor Books — Placentia
Lyon Enterprises — Berkeley
Lyon Enterprises — Berkeley
Micro Galaxy — Santa Rosa
Micro P. Technologies — Lawndale
NewsBeat — Davis
Norma McCay — San Diego
Northridge Newsstand — Northridge
Op Amp Tech Books — Los Angeles
Paras Newsstand — San Diego
Parsin International — San Diego
Printers Inc. — Palo Alto
Put's Electronics — North Highlands
Ridgecrest Computer Ctr. Inc. — Ridgecrest
S.O.S. Computers — Los Angeles
Sawyer's News Inc. — Santa Rosa
Siskiyou Business Systems — Mount Shasta
Software Cellar — Anaheim
Software Central — Pasadena
Software First — Santa Rosa
Software First — Vallejo
Software Industry & General Hardware — Romona
Software Plus — Citrus Heights
Software Solutions Plus — El Cerrito
Stacy's #5 — Modesto
Technitronics Service — South Pasadena
The Booksmith — San Francisco
The Computer Connection — Tracy
The Lively Computer — El Cajone
Third Avenue News — Chula Vista
Tower Books — Chico
Tower Books — Citrus Hts.
Tower Books — Concord
Tower Books — Mountain View
Tower Books — Sacramento
Tower Books — San Mateo
Universal News — Hollywood
Vintage Wire — San Diego
Warner Engineering — San Diego
WCI Computer Central — Eureka
Winners Circle — Berkeley
World Book & News — Hollywood
Colorado
Aurora Newsstand — Aurora
Citadel Computers — Colorado Springs
Computer Discount — Denver
Computer Repeats — Boulder
Computer Room — Aurora
Micro World — Lakewood
Paragon Computers — Colorado Springs
Paragon Software & Electronics — Colorado Springs
Sun Country Computers — Colorado Springs
Tattered Cover Bookstore — Denver
Westminister Newsland — Westminster
Connecticut
Aetna Life Club Store — Hartford
Bella Press — Derby
Computers' Etc. — Fairfield
Deric Electronics — Hamden
Friendly Computers — Southington
G & G Christ Church — Derby
Gordon & Gotch — Derby
Inkotronics, Inc. — Woodbury
Int'l Mag Dist/Capetown — Derby
Lac Distributors — Norwalk
Lebanon/Levant Dist. — Derby
Liberty Book — Derby
Mnemonics Inc. — Norwalk
Software City — Orange
Software Kingdom — East Hartford
Tricom Computers — North Windham
District of Columbia
Prograna — Washington
World News — Washington
Delaware
Newark Newsstand — Newark
Florida
Amazing Computers — Orlando
Ami Comp Computer Center — Oviedo
Bookstop — Clearwater
Bookstop — Orlando
Brentano's — N. Palm Beach
Chuck's Newsstand — Vera Beach
City Newsstand — Melbourne
Commodore Country Inc. — Pinellas Park
Computer Bar — Pennsacola
Computer Image — Miami
Computer Lane Inc — Pembroke Pines
Computer Room — Ft. Lauderdale
Computer Specialties — Melbourne
Computers + Video Creations — Palm Beach
Computers Etc. — Sarasota
Computers Plus — S. Daytona
Creative Equipment — Miami
Design Computer Systems Inc. — Lake Worth
Extra Extra — Tampa
Florida Book Store — Gainesville
Gen-Rod — Miami
Gulf Coast Computer Exchange — PanamaCity
Joe's News, Inc. — Miami
Malvar Freight — Miami
Mark Twain Smoke Shop — Lakeland
Micro Computer Center — Largo
New Age Electronics — Clearwater
New Age Electronics — Largo
PC Collection — Coral Gabels
Program Store — Clearwater
Program Store — Pinellas Park
Prospect News & Books — Ft. Lauderdale
Public Domain Solutions — Sarasota
Software City — Orange Park
Sunny's Al Sunrise, Inc. — Sunrise
Sunshine Software — Ft. Lauderdale
Georgia
Ampex System — Norcross
BFJ Enterprises — Roswell
Brentano's — Atlanta
Cardinal Computers — Dalton
Jackson's Computer Center — Savannah
Micro Center/Marietta — Marietta
Mostly Software — Columbus
Oxford Books, Inc. — Atlanta
Software City Savannah — Savannah
Software South Inc. — Savannah
Techno World — St. Mary's
The Musician — Macon
The 64 Store — Atlanta
Hawaii
Computronics — Honolulu
Data One Computer Center — Honolulu
J & C Repair — Aiea
Idaho
A.B.I. Computer & Video — Nampa
The Creative Edge — East Ketchum
Illinois
Audio Visual Req. — Chicago
Books & Bytes, Inc. — Naperville
Computer Software Connection — Moline
Cooperssmith — Vernon Hills
Digital World — Naperville
DigitalWorld — Addison
DOS Computer Center — Niles
FD Software & Caddi — Bloomingdale
Keep In Pace Computers — Champaign
Krochi's & Brertano's — Aurora
Krochi's & Brertano's — Chicago
Krochi's & Brertano's — Orland Park
Krochi's & Brertano's — Schaumburg
M222 Inc. — Champaign
Megabyte Computer Works — Springfield
Memory Expansion — Bloomington
Micro Age — Oaklawn
Micro Ed Enterprises Inc. — Chicago
Micro Tech Soultions — Aurora
Micro Tek — Kankakee
Ring Software — Geneva
Software City — Bellville
Software Plus Chicago — Chicago
Software Plus West — Hanover Park
Software Plus — Wheeling
Unique Computer — Sterling
Warren Radio/FRANCO — Peoria
Indiana
Bookland — Indianapolis
Burkat Computer Ctr. — South Bend
Cal Com Inc. — Kokomo
Computer Corner — Ft. Wayne
Computer Corner — Marion
Computer People Inc. — Michigan City
CPU Inc. — Indianapolis
Indiana News — Indianapolis
Micro Computer Centers Inc. — Indianapolis
The Book Corner — Bloomington
Vons Computers — West Lafayette
Xerox Computer Center — Indianapolis
Iowa
Computer Solutions & Facts — Des Moines
Computers & More — Des Moines
Gronert Computers — Des Moine
Soft Search — Ames
Kansas
Ars Electronic Distributors — Wichita
Brentanos — Mission
Micro Media — Hays
Midwest Computers — Manhattan
Software City — Overland Park
Software Exchange of KS — Wichita
Thoroughbred Systems — Topeka
Kentucky
Computer Dimensions Inc. — Lexington
Computer Mania Inc. — Florence
Expert Services — Florence
Hawley Cooke — Louisville
Hawley Cooke — Louisville
Reality World Computers — Lexington
Softech Computer Systems — Lexington
The Computer Lab — Louisville
Louisiana
Booklstar — New Orleans
City Newsstand — Baton Rouge
Lakeside News — Metairie
Modern Business Machines — Metairie
Software Center International — Metairie
Software Source — Lafayette
The Book Shelf — Slidell
Maine
Skylight Software — Belfast
Maryland
Buried Treasure — Rockville
Capital Classics Ltd — Silver Spring
Greetings and Readings — TowsonSystems
Plus — Overland Park
Knowledgeware Systems — Kensington
Micro Computer Center — Baltimore
New Age Computers — College Park
Professional Micro Services — Baltimore
Software Advantage — Rockville
Software City — Rockville
Massachusetts
Computer Works — Middletown
Computer Zone — North Attleboro
Dox — Williamstown
HCS Computer Center — Marshfield
LCA Video & Computer Ctr. — Norwood
Memory Location — Wellsley
Newsbreak, Inc. — Swansea
OmniTek Computers — Tewksbury
Pioneer Valley Data Equipment — Amherst
Soft Designs — Belmont
Softpro — Burlington
Software Connections — Swansea
The Bit Bucket — West Newton
Tycom Inc. — Pittsfield
Validata — Hadley
Michigan
Better Mousetrap Computers — Flint
Book Center Of E. Detroit — E. Detroit
Book Nook — Allen Park
Borders Book Shop — Novi
Central Park Computers — Okemos
CompuSoft — Kalamazoo
Computer Emporium — Lansing
Coopersmith's — Livonia
Direct Access — Lansing
Global Computer — Dearborn
I/O Software — Flint
Little Professor Books — Brighton
Michigan News Agency — Kalamazoo
Michigan Software — Novi
Micro World — Livonia
Micro World — Milford
Micro World — Roseville
Micro World — Southfield
Micro World — Southgate
Micro World — Sterling Heights
Micro World Computer Center — Southfield
Microworld Computer Center — Dearborn
Midland Computer Shop — Midland
Midwest Micro Computer — Lapeer
New Horizons Bookshop — Roseville
Norman Business Control Sys. — Wyoming
RACC Enterprises — Alanson
Readmore Newscenter — Lansing
Rite Way Computers — Warren
Data Byte Computer Co. — St. Louis
Software City — Independence
Systems Plus of St. Louis — St. Louis
Systems Plus — Overland Park
Montana
Computer House — Missoula
Nebraska
Computers "R" Us — Lincoln
Double E Computer Systems — Omaha
My Com Inc. — Omaha
Nevada
Computer House — Sparks
Nat'l Discount Computer — Las Vegas
Tower Records — Las Vegas
New Hampshire
Dartmouth Bookstore — Hanover
Digital Connection Computers — Dover
Diversified Computers — Keene
System Eyes — Nashua
New Jersey
Act One — Vineland
Atlantic News — Atlantic City
Business System Professional — Scotch Plains
Connecting Point — Union
Enschede Enterprises — Fort Lee
Family Computer Centres — South Orange
Garden State News — Cliffside Park
Hudson News — New York
Program Store — Princeton
Software Station — Rockaway
The Program Store — Eaton Town
The Program Store — Wayne
Unlimited Software Inc. — Rutherford
Village Computer Center — Cedar Knolls
Waldensoftware — Paramus
Wilson Group USA — Jersey City
New Mexico
New Horizon Computer System — Alamogordo
Newsland Bookstore — Albuquerque
Page One Newsstand — Albuquerque
Road Runner — Santa Fe
New York
Amagination — New York
Amcorp Ltd — Huntington Station
Amicus- Hudson Valley — Wappingers Falls
Amigo Business Computers — East Northport
B.C. Communications — Huntington Station
Book Distributor — Huntington Station
Broadway News — Saratoga Springs
Byte Shop — Merrick
Compumite Center — White Plains
Computer Metropols — New Paltz
Computer Outlet — Jamestown
Contemporary Computing — Latham
Creative Computers — Binghampton
Cromland Inc. — Brooklyn
Custom Computer Specialists Inc. — Hauppauge
Global Software — New Hyde Park
Island Software Computer Services — Coram
Kemco Publisher Ser — East Northport
Leigh's Computers — New York
MicroWorks — Kenmore
Mnemonics — North Port
Oxide Industries Inc. — Westbury
OB Software, Inc. — Forest Hills
Ray Supply Inc. — Platsburg
Readers Market — Tonawanda
Rochester Books — Rochester
Sherry Tunkel — New York
Singapore Book — Huntington Station
Software & Such — Scotia
Software City — Spring Valley
Software House — Fairport
Software Link — White Plains
Software Supermarket II — Cheektowaga
Syntare Trading — New York
Sysput Computers — Brooklyn
The Computer Cellar — Albany
The MicroWorks — Tonowanda
Unicorn Electronics — Johnson City
Video Computer Bin — Brooklyn
Video Computer Center — Rome
Village Computer Inc. — New York
North Carolina
Digitz — Raleigh
K&S Newsstand — Clemmons
K&S Newsstand — Kernersville
K&S Newsstand — Winston-Salem
News Center — Cary
Parker News Inc. — High Point
Servatronic Technologie — Burlington
Software City — Charlotte
Software City — Fayetteville
Software City — Raleigh
Triad Computers — Winston-Salem
North Dakota
Computer Associates — Fargo
G. F. Computers — Grand Forks
Software House — Fargo
The Computer Store — Minot
Ohio
BS Software — Columbus
Brentanos — Cincinnati
Cincinnati Fin SQ News — Cincinnati
Computer Network — Newark
Eddy's Cigar Store — Elyria
Fairborn Home Computer — Dayton
Infinity Computing — Columbus
Lakewood International News — Lakewood
Leo's Book & Wine Shop — Toledo
Local Computer Store — Chesterland
Medical Computers — Centerville
Micro Center-Columbus — Columbus
Micro Center-Westerville — Westerville
Microtech Computer Center Inc. — Toledo
Microware Magic — Fairfield
News Shop — Kent
North Coast Programming — Willoughby
Not Just Software — South Toledo
Not Just Software — West Toledo
Paper & Ink — Tiffin
PC Powerhouse, The — Fairfield
Power Computing Inc. — Toledo
Salem Computer Center — Salem
Software Centre International — North Olmsted
Software and More — Cincinnati
Software Connection — Mayfield Hts.
Somers Photo & Comp. Upgrade — Cleveland Heights
Video-Comp Inc. — North Olmstead
Oklahoma
Amazing Computer Systems — Oklahoma City
Info 1 Computers — Oaklahoma City
Little Professor Books — Stillwater
Micro Link Computer Store — Tulsa
Second Hand Software — Oklahoma City
Strider Computer Inc. — Lawton
Oregon
Andromeda — LaGrande
Clackamas Computers — Beaverton
Clackamas Computers — Clackamas
Comm-Shack — Salem
Computer U.S.E.R.S. — Springfield
Libris Books Inc. — Eugene
News & Smoke Shop MF — Medford
PC Express — Eugene
Powell's Tech — Portland
Rich Cigar Store — Portland
Sixth & Washington News — Portland
Soft Cell Software, Inc. — Portland
Software Pipeline-Salem — Salem
Software Pipline — Beaverton
Tech Books — Portland
Pennsylvania
ATD Software — Sayre
Computer Basics Inc. — Erie
Bryn Mawr News — Bryn Mawk
CDR Systems — Pittsburgh
Circle Computer — Ephrata
Clark Worldwide — Middletown
Computer Basics Inc. — Hermitage
Computer Wurx — Stroudsburg
Computers and Games — Reading
Elmo's Computers — Brownsville
Floppy House Software — Palmyra
Gene's Books — King of Prussia
Lauer-Todd Computer Solutions — Newtown
Mentor Inc. — Monaca
North Central Digital Systems — Danville
Pittsburgh Computer Store — Pittsburgh
Software Hut Inc. — Philadelphia
Some Hole in The Wall — Philadelphia
T A Slick & Co, Inc — Lancaster
Tasco Computer Center — Lancaster
The Floppy Disk — Mechanicsburg
Triangle Computers — Indiana
Walden Hill Images — Berlin
Rhode Island
Micro Limits — Warwick
Software Connections — Warwick
The Computer Place — Woonsocket
South Carolina
Avcom International Inc. — West Columbia
Software Haus — Charleston Hts
Watson's Jewlery — Chesterfield
Tennessee
Bristol Micro Technolog — Bristol
ComputerLab of Memphis — Memphis
Computer Systems Inc. — Nashville
T.Y. Corp — Bartlett
Texas
A&E Computers — Grove
All Systems Go Software — San Antonio
Amazing Computer Systems — Dallas
Amazing Computer Systems — Fort Worth
Amazing Computer's — Austin
Amazing Computer's — San Antonio
Bookstop — Arlington
Bookstop — Austin
Bookstop — Dallas
Bookstop — Houston
Bookstop — San Antonio
Brentano's — Dallas
Computer Ease — Corpus Christi
Computer Magic — Austin
Computer Skills — Eules
FNS Computer Services — Texarkana
Malagorda Computers — Bay City
Maxwell Book Inc. — Desota
Metropolitan Computer — Richardson
Micro Search — Houston
Software Library — Wichita Falls
Software Terminal — Fort Worth
The Computer Experience — San Antonio
The Computer Stop! — Amarillo
The Federated Group — Mesquite
Trinity News Company — Fort Worth
Utah
Armadillo Bros — Salt Lake City
Magazines and Gifts — Salt Lake City
People's Computers — Provo
Virginia
Audio Fidelity Corp — Richmond
Brentanos — Alexandria
Discover — Fairfax
Family Computer Center — Fairfax
Family Video & Computer Center — Newport News
I/O Computer — Norfolk
Tract Software — Prince William
University Bookstore—VA Tech — Blacksburg
Video Computer Retailers — Chesapeak
Virginia Micro Systems — Woodbridge
Washington
Amazing Electronics — Spokane
Apple Valley Computers — E. Wenatchee
Bits, Bytes and Nibbles — Spokane
Brentano's — Seattle
Bull Dog News — Seattle
Butlers Computer Services — Federal Way
Byte World — Kent
Computers + Inc. — Tacoma
Family Computers — Everst
Micro Age Computer Store — Bellevue
Nybbles & Bytes — Tacoma
Omni International — Seattle
Port Book and News — Port Angeles
Software Gallery — Walla Walla
Steve's Broadway News — Seattle
Swan Computers — Yakima
Take A Byte — Kennewick
Tech Star — Kent
The Computer Shoppe — Vancouver
Tower Books — Bellevue
Tower Books — Seattle
Tower Books — Tacoma
Y Not Magazines and Books — Federal Way
West Virginia
SOA Computers Inc. — Hurricane
Wisconsin
20th Century Books — Madison
Computer Software Center — Milwaukee
Fox Valley Personal Computer — Oshkosh
Madison Programmer's Guide — Madison
Software City — Racine
TMW Software Inc. — Wausau
Wyoming
Byte Emporium — Laramie
Computer Works — Laramie
Crazy Mountain Electronics — Casper

Additional U.S. Distribution by
Ingram Periodicals Inc. — La Verne, TN
International Periodical Distributors — San Diego, CA

Distribution Outside of the United States

Canada
Alberta
Coles, Book People — Calgary
Coles, Book People — Edmonton
Software Supermart — Edmonton,
British Columbia
Compulime Computer & Software — Prince George
Strider Computer Centres — Delta
Unihall — Vancouver
Manitoba
Adventure Software, Ltd. — Winnepeg
New Brunswick
Computer World — Moncton
P.G. Compusystems Inc. — Campbellton
New Founland
J.W. Allan Co. Ltd. — St. John's
Nova Scotia
Atlantic News — Halifax
Coles, Book People — Yarmouth
Kobelek Systems — Halifax
Renmat Enter Ltd. — Greenwood
Ontario
All Computers — Gloucester
Arkon Electronics Ltd. — Toronto
Brittons Smoke Shop — Ottawa
Canadian Software Source — Downsview
Chatham Computer Sales — Chatham
Classic Computer — London
Colley's News Depot — St. Thomas
Coles Bookstore — Rexdale
Coles, Book People — Guelph
Coles, Book People — Scarborough
Coles, Book People — Toronto
Coles, Book People — Willowdale
Comput-or Software — Barrie
Computer & You, The — Islington
Computer Express — Mississauga
Computer Force — Sudbury
Computer House — Chatham
Computer Odyssey, Inc. — Hamilton
ComputerLand — Cornwall
Computronics — Brampton
Computronix Data Centre — Toronto
Compuvec — Toronto
Con-pute — Oshawa
Cryston Computer System — Midland
CVF Data Systems — Peterborough
Daily Planet, The — Whitby
Data Marketing Kingston — Kingston
Desktop Computer, Inc. — Kitchener
Electronics 2001 — Willowdale
Foreign Correspondence — Kingston
Globe Magazine — Ottawa
Gran Bookstore, The — Toronto
Granger T.Y. Ltd. — Goderich
Hi-Land News — Barrie
Horizon Computers — Whitby
Humber College Stores — Rexdale
Kahle Electronics — Kanata
Lichtman's — Thornhill
Lichtman's — Willowdale
Lightman's News & Books — Toronto
Litchtman's — Toronto
Lyna Technical Services — Ottawa
Mage & Page — Ottawa
Mikadon Computer Engineering — Thunder Bay
Mr. Diskettes — Ottawa
Novatech — Niagra Falls
Nu-Info Teck — Ottawa
Peach Micro — Ottawa
Personal Computers — London
Personal Keyboard Systems — London
Prospero Books Ltd. — Ottawa
Smoker's Corner — Pickering
Smoker's Place — Colborne
Smokers Plus — St. Catherines
The Software Project — Hamilton
U of W Bookstore — Waterloo
World's Biggest 200 — Toronto
Zoez Software — Brantford
Zoez Software — Milton
Quebec
Azimut Infor. Inc. — Quebec
Camelot-Info — Montreal
E. M. Press & Books, Inc. — Montreal,
Jupiter Technologies Inc. — Ft-Claire
Logicel International — Montreal
Multimicro — Ville D'Anjou
Ordinateurs 2000 Inc. — Hull
Quebits Logicel Inc. — Montreal
Star Tek Infosolutions — St. Leonard
Saskatchewan
CD's Computer Connection — Saskatoon
Computer Answers — Prince Albert

Distributed in Canada by
Ingram Software Distributors — Concord
Compulit Distributors — British Columbia

Distributed in Europe by
Stars & Stripes

Argentina
Logic Computer — Buenos Aires
Australia
Computermart — Leederville,WA
Computermate — Mt. Kuring-GAI, SW
Diskworks — Greenwich, NSW
John Verhoeven — Cloverdale, WA
Maxwell Office Equipment — Abbotsford, Melbum
Run Soft — Melbourne
Saudia Arabia
Abdulla Fouad & Sons — Daman
Scotland
The Amiga Centre of Scotland — Edinborough
Sweden
Procomp

Amazing Computing™ is also available in most B. Dalton Booksellers, B. Dalton Software Stores, Crown Books, Software Etc., selected WaldenBooks Stores, and Walden's Software Store locations.

EDITORIAL CONTENT

Stop the presses!

Commodore Business Machines has announced that Harry Copperman will advance from the office of President of Commodore Business Machines USA to Vice-President of Commodore Business Machines International. Jim Dionne, former General Manager of Commodore Business Machines Canada will become the General Manager of Commodore Business Machines USA (see the World of Amiga story "Toronto, Canada" on page 31 of AC 6.1, January 1991). No information is available at press time as to why the top CBM USA title was changed from president to general manager as Mr. Dionne (an eleven-year veteran of CBM) took the post. Mr. Copperman's new responsibilities at CBM International will include development of Amiga multimedia strategies.

Commodore also announced staff reductions in its USA operations, primarily in the areas of administration and factory overhead. This appears to be standard operating procedure most for US companies this past quarter.

While both Mr. Copperman and Mr. Dionne were unavailable for comment at press time, it is important to note that the promotion of each is in keeping with the best interest of the Amiga. Harry Copperman's elevation to Vice President of Commodore Business Machines International will allow him to continue to promote on a worldwide scale the Amiga's superior technology in the area of multimedia. Since Mr. Copperman is also experienced in the marketing of both IBM and Apple computers, he is clearly the best candidate for this position.

Jim Dionne's continued success in promoting the growth of Commodore product sales in the Canadian market makes him a natural to fill the post at CBM USA. Our congratulations to both men and to CBM.

An Anniversary

With this issue, *Amazing Computing* enters its sixth year of Amiga coverage. As always, the inclusion of the above story, long after the rest of the magazine has gone to press, demonstrates AC's commitment to its readers. Six years is a long time to present a monthly magazine in a market as diversified and rapidly changing as the Amiga market. Even with exceptionally short lead times, extra effort was made to place stories at—or even *after*—deadline.

While I was preparing this editorial, I reviewed the effort that AC has made in the last year:

May 1990—AC was first to inform Amiga users about the features of NewTek's Video Toaster, while it was still in prototype, in a sneak preview. AC broke all sorts of records in air shipping an Amiga 3000 back and forth between Commodore and our editorial offices to introduce the newest, most professional Amiga to its readers.

June 1990—AC alerted the Amiga market to the new KCS Power PC Board for the A500, released by Pulsar at World Of Commodore in New York. We also covered the details of Commodore's elaborate launch of the A3000, as well as a full report on the rest of WOA New York.

July 1990—AC was the first magazine to show Commodore's highly secretive CDTV in this issue, with a full complement of specifications and pictures.

August 1990—As AC showcased an active cable television company using Amigas in everyday video production, we also reported on the ground-breaking work being conducted in Chicago by FASA Corporation, TTR Development, ESP Corporation, and Incredible Technologies with BattleTech. This story was so noteworthy that CNN and even *The New York Times* did feature stories about it—months later.

October 1990—The Amiga was responsible for the multiscreen advanced multimedia presentation created at Georgia Tech on behalf of the Atlanta Organizing Committee which helped Atlanta win the honor of being host city for the 1996 Summer Olympic Games. The Amiga had succeeded in playing a primary role in the most prestigious multimedia presentation of the year, and AC readers got the story as the announcement was being made.

January 1991—AC was the first to provide Amiga users with complete coverage of the Köln, Germany Amiga '90 show, CBM's activities at COMDEX in Las Vegas, and the very successful World Of Commodore in Toronto.

Keeping It Going

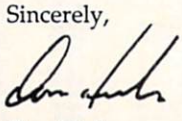
From show reports to new product announcements, the *Amazing Computing* staff has consistently pushed to bring the latest events to the Amiga public. While it may appear that this is important to us in helping to sell magazines (and it is), it is just as important for the Amiga marketplace.

In a market as diversified and as vibrant as this, we must follow every new development. It isn't just a matter of AC outperforming its competition. We do this to make the market grow.

When an Amiga developer creates a new product that increases the capability of the Amiga, or a news event greatly changes the way we think of the Amiga, the Amiga market has grown. It is our responsibility to provide such information. And that has been our intention since February 1986.

I apologize to any of you who think I am bragging. I am not. AC began with the idea that solid information and unique coverage provided on a timely basis, plus a clearly demonstrated commitment to our readers, would prove beneficial to everyone. And while I am very proud of what we have been able to do, I feel the pressure we are under to continue this tradition in the very challenging years ahead. The Amiga has a great many tools and features that make it a remarkable, exciting computer and its future looks even brighter than its past. We cannot rest. Our work has only just begun.

Sincerely,



Don Hicks

IT MAKES A LOT OF SENSE TO BUY A MAST PRODUCT

• **INTERNATIONAL AMIGA PERIPHERAL SUPPLIER** • USA • GERMANY • AUSTRALIA • SWEDEN • UK • AUSTRIA

• **TECHNICAL EXCELLENCE** - **Professionally driven**, 60% of our senior executives are **ENGINEERS.**

• **PERFORMANCE QUALITY PRODUCTS** - We use **PREMIUM COMPONENTS** (FUJITSU Drives for example), **INNOVATIVE DESIGNS** (who else has a SCSI INTERFACE with its own 68000 AND UP TO 2 MEG OF RAM), and some ot the most **ELEGANT**, not to mention smallest, external cases that you will see in the industry. Cost effective designs, efficient mass production , and our worldwide resources, bring you high performance products at budget prices. As our President answered to one customer who asked how we do it - **"we're clever and we are not greedy"**

BLITZ BASIC

GIVES YOU CONTROL OVER YOUR AMIGA HARDWARE

CREATE YOUR OWN GAMES, GRAPHICS PRESENTATIONS, AND EDUCATIONAL PROGRAMS WITH MINIMAL PROGRAMMING EXPERIENCE

IT'S NEW, ITS ULTRAFAST, IT'S EASY TO USE

Blitz Basic puts you in control of the Amigas custom sound and graphics chips. **Now you can write sophisticated programs** that previously needed 'C' or Assembler. Blitz is a fully integrated programming language that puts you in control of your Amiga. Unlike s-l-o-w interpreters, Blitz is a true compiler that generates native object code.

Spectacular graphics can be generated with a minimum of commands using the custom chip specific commands included with Blitz. This Basic language enables you to produce QUALITY COMMERCIAL CODE.

$149

FEATURES:

- **Lightning Fast** Compiler • Fast Optimised Object Code
- Rewrite of Amiga Graphics Libraries
- Integrated Editor/Compiler
- Special Effects such as **FADE IN/ FADE OUT**
- Basic Commands to handle IFF Brushes, Anim Brushes and Sound Files
- Direct access to and control of Sprites, Blitter and Audio Hardware
- Supports Dual Playfield, HAM & EHB
- **Queue system** makes blits easy to use
- Number of screens only limited by memory
- Vertical Interupt command allows smooth animation
- Double Buffering, Page Flipping are easily achieved
- **Sound Sequencer** included
- **Machine Language** Subroutines can be added

IMPORTANT NOTE - When you see the demo of **VECTOR BALLS**, remember that the images are being **CALCULATED IN REAL TIME**. This program alone should convince you of the **POWER OF BLITZ**. The source listing will convince you of its **SIMPLICITY**

Demo disks are available for $5. You may also load them off the MAST BBS (702) 359 0132 or (702) 359 0137

FIREBALL - True DMA SCSI interface for the A2000, for sustained performance in a multitasking computer $149

OCTOPLUS - 8 MB RAM for A2000 With 2Mb $269 Extra 2mb $119 GREAT VALUE!.

FANTASTICALLY FANTABULOUS

What else could describe a produduct that amazed visitors to our booth at the LA Ami Expo

$495 COLORBURST $495

TRUE 24 BIT COLOR FOR ANY AMIGA

YES! Every Single pixel on your amiga screen can be any of 16.8 million colors. The color is equal to or better than a Mac. Colorburst supports many video modes and allows digital fade in/out. Dynamic white balance correction is possible. Real time image processing is a reality. It can be configured as a third hardware playfield allowing Amiga graphics to be overlaid - great for animation. We do not use HAM or Composite Y-C mixing, this is pure 24 bit RGB - there is no blurring of colors or loss of definition with colorburst. This product generates BROADCAST QUALITY IMAGES for both PAL & NTSC systems.

FURTHER INFORMATION ON THIS EXCITING PRODUCT IS A !!!! MUST MAST MUST MAST MUST MAST MUST !!!!

WE CHALLENGE COMPETITORS TO MATCH OUR CLARITY, COLOR & PRICE

STARBLAZER

8 MB RAM & SCSI INTERFACE FOR A500 AND A1000

While many vendors want you to buy a hard drive before memory (because their memory expansions are inside the drive unit), we believe that many customers need memory first. Additionally many people don't want a bulky hard drive right beside the computer, our customers prefer the flexibility offered by an independant external drive that can be placed at a convenient location and even plugged into a different SCSI interface on another computer. Starblazer is an 8 MB memory and SCSI interface in a miniscule case only slightly larger than our very popular Minimegs. It is available populated to 2,4,6,8 megabytes, with or without the SCSI interface installed.

STARBLAZER is real zero wait state ram that lets your Amiga run at full speed. Don't be misled into buying memory that plugs into the A501 slot and is advertised as "fast ram", it is always slow old chip memory. **Starblazer** includes the MAST **Bytemachine** SCSI Interface. Starblazer Plus includes **WordMASTer** - a SCSI interface that uses a 16 bit interface for high performance. When you need a hard drive, just plug **Tiny Tiger** into the Bytemachine or WordMASTer interface - it **autoboots, automounts** and is **very fast. Starblazer with 2 MB included from $299. Call for pricing options.**

YOU HAVE TO SEE THIS TO BELIEVE THAT THERE IS SO MUCH POWER IN SUCH A SMALL PACKAGE

Bytemachine $89 WordMASTer $119

ENHANCED UNIDRIVE

The only Amiga external floppy drive in the world that includes **digital track display**, hardware **write protect switch** and inbuilt **hardware virus detection** system - for only **$149** why would you want to buy any other. PS. The box looks great.

UNIDRIVE

For those on a budget who still want a **great looking, reliable and quiet** drive, how about the **good o'l Unidrive**. At a list price of **$119**, this is a very attractive deal.

A2000 Internal Floppy $83

Fujitsu Quality Hard Drives

45 meg	$339	90 meg	$539
136 meg	$669	182 meg	$770
410 meg	$1795	672 meg	$2295
1.2 GIG	$3900		

SYQUEST INTERNAL $519
SYQUEST EXTERNAL $625
CARTRIDGES $95

EXTERNAL HARD DRIVES:
Tiny Tiger Deluxe - add $189 to internal drive prices
Tiny Tiger Budget - add $129 to internal drive prices

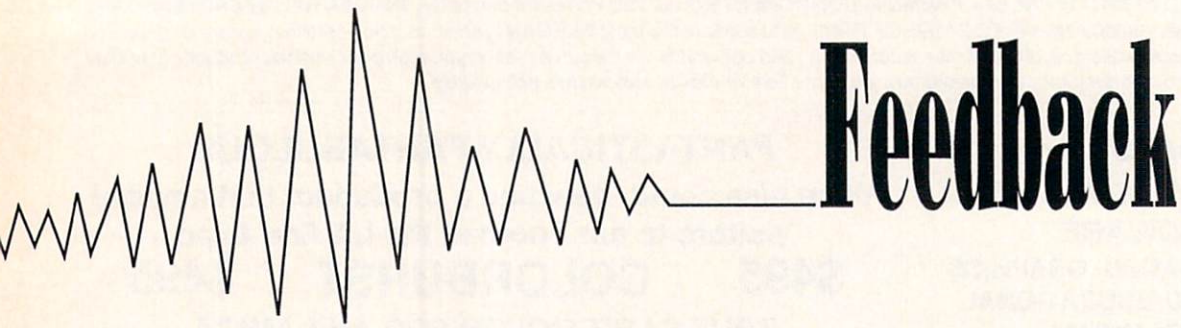
MAST MIDI INTERFACE with integrated SMPTE to MIDI TIME CODE CONVERTER. $199

DEALERS WELCOME

Send for our color catalogue- there is more than you see here!!

MEMORY AND STORAGE TECHNOLOGY 1395 GREG ST. SPARKS NV 89431 (702) 359 0444
Australia (02) 281 7411 Germany (0221) 771 0918 Sweden (40) 190710 Austria (0)3 16-373763

Circle 160 on Reader Service card.



Feedback

CABLE FOIL FIX

I recently purchased an Applied Engineering heavy duty power supply to accommodate my ever-expanding A500 system. The power supply works fine except that it causes my monitor (1080) to display a somewhat annoying interference pattern over the normal Workbench screen. The constantly shifting lines are worse than interlace mode and make the display hard on the eyes.

I tried moving the supply around and disconnecting peripherals, but the pattern remained. When I called AE's technical service, I was informed that my monitor cable is insufficiently shielded for such a heavy supply. Not wanting to replace an otherwise working cable, I tried wrapping it with aluminum foil along its entire length.

Fortunately, this quick fix eliminated the problem entirely and returned my normal rock solid screen. Perhaps AE should package a roll of aluminum foil with each new supply?

Sincerely,
David Wright
Bedford, VA

MANUAL INSTRUCTION

I just finished reading Keith Cameron's excellent article on stripping the Workbench disk in the November issue. CBM ought to hire Mr. Cameron to write their manuals. I bought my first A500 in late 1987 and was shocked by what was foisted onto the consumer as documentation. Happily, the "Enhancer" manual enclosed with my new A500 is much better. There is no excuse for anyone needing to learn by trial and error, as Keith said he did. Most haven't the time or motivation to do so—I didn't.

Sincerely,
Barlow Soper
Ruston, LA

SOFTWARE SHORTFALL

I am writing with the hope of giving an idea for a new product to an Amiga Developer. Has anyone out there ever considered writing software to support one of the numerous parallel port Ethernet adapters produced for IBM laptops on the Amiga. It shouldn't be too difficult unless the Amiga's parallel port isn't fast enough to handle the I/O. With one of these Ethernet adapters and the right software any Amiga including 500s and 1000s could be connected to a UNIX, Novell or other network. Let's see, an A500 with 4 meg RAM, a 40 meg Hard Drive, the GfxBase X-Window software and a parallel port Ethernet adapter with networking software might produce a mean little X-Window workstation. I want one!

Are you listening Commodore?

Sincerely,
Hamilton L. Davies
Miami, FL

LIBRARY BOOK CORRECTION

For anyone who programs in AmigaBASIC and uses the LIBRARY statement to access features not supported by AmigaBASIC, here is some advice. If you have the space for it, particularly if you have a hard drive, put the .bmap files in the LIBS: directory. This way you do not have to do a CHDIR command, before the LIBRARY call. Remember, however, case counts in the LIBRARY statement:

```
LIBRARY "dos.library"      (CORRECT)
LIBRARY "Dos.Library"      (INCORRECT)
```

Don't worry that some .library files, such as intuition.library and graphics.library are not found in the LIBS: directory they are in the Kickstart ROM or loaded from the Kickstart disk on the Amiga 1000.

The book "Advanced AmigaBASIC" by Tom R. Halfhill and Charles Brannon incorrectly states that AmigaBASIC looks only in the current directory for the .bmap file.

Sincerely,
Jonas S. Green
Cambridge, MA

COMPATIBILITY IS THE KEY

I love your magazine except for one problem: As any Amiga 3000 owner who does animation can tell you, there is a real problem with A3000 compatibility in animation and multimedia software. Even mainstream programs, such as DeluxePaint III, DeluxeVideo, Disney Animation Studio, and Sculpt 4D all either crash on the machine or work only partially with significant discrepancies, such as failure to do overscan.

Trumpcard Professional...

the Frontrunner in SCSI disk controllers

State of the art users deserve state of the art hardware

NEW!

Trumpcard Professional is a new generation SCSI controller card for the new generation of 20 Megabit per second drives. While Trumpcard Professional is incredibly fast with drives of any speed, its performance is unmatched with the new generation drives, up to an unprecedented 1.9 MEGABYTES per second with DPERF2! Trumpcard Professional is state of the art. From its surface mounted custom gate array for swift, smooth and seamless data transfers to its new TCUTILS 2.0 utilities with the look and feel of the new WB 2.0, Trumpcard Professional sets a level of performance and functionality others can only aspire to attain.

- Auto mounts all partitions up to 1 minute after RESET, slow partitions don't hold up autoboot.
- Full support for removable media built into autoboot ROM. No need for DISKCHANGE.
- Full implementation of RDB's and standard Direct SCSI interface.
- User selectable Trumpcard SCSI ID for SCSI bus arbitration allows multiple computers to share hard drives.
- Supports all drives at 1:1 interleave for fastest data transfers possible.
- Full Mac emulator support.
- 1 year warranty on parts and labor.

Naturally, Trumpcard and Trumpcard 500 owners can upgrade with IVS' *Trumpcard plus $100* upgrade policy. Call IVS for details. Upgrade available from manufacturer only.

Trumpcard Professional
List Price: $279.95

Trumpcard 500 Professional is available for A500 users.
NEW!
Lower Price on Standard A2000 Trumpcard!
$169.95

TRUMPCARD PROFESSIONAL

INTERACTIVE VIDEO SYSTEMS • 7245 Garden Grove Blvd., Suite E • Garden Grove, CA 92641 • Voice: (714) 890-7040 • Fax: (714) 898-0858

Circle 140 on Reader Service card.

This is not just a function of the new operating system, but is related to the A3000 hardware itself.

Thankfully, compatible updates for these products are in the works for some, though not all, of these products and I expect to soon have the ideal multimedia machine.

In the meantime, however, I am spending a lot of money on software which is turning out to be only partially compatible with my machine. The response from manufacturers is less than heartening, though some very responsive companies (such as the makers of the now-compatible Perfect Sound 3) do exist.

Even phone calls for information to manufacturers can be misleading. I have received numerous opposing facts about A3000 compatibility when calling Electronic Arts. A phone call to the software support number for the makers of Disney's Animation Studio revealed that the company did not even have access to the A3000 to test their product.

The point is, when you do a review or a product "roundup", it would be extremely valuable if you would simply state whether the product is A3000 and/or Workbench 2.0 compatible.

Then, finally, I can make an informed decision and stop throwing my money away.

Thank you,
Steven Mussey
Whiteman AFB, MO

ATTENTION PROGRAM TESTERS

This is not a question or comment, but a plea for help. I am in the process of creating an engineering program for the Amiga. It is a coordinate geometry program I intend to call Ami-CoGo and I intend to place the program in the public domain. My plea for help involves a request for help to test the program operation. I am working on the program by myself and do not have time to test all the possible options. It is extremely important that as much testing be done as possible to avoid disaterous erroneous results of incorrect calculations.

All that will be required is someone with a civil engineering or a surveying background to test the program's many options. As it presently stands, the program has about fifty commands. Each command averages about three options. I will supply a copy of the program and documentation to anyone who has the necessary qualifications. I think that it will be responsible on my part to require any volunteers to sign a non-release agreement until the program is fully tested and is reliable.

Thank you very much for your help.

Yours truly,
D. Benson
Carson City, NV 89702

DEAR CNN: IT'S SPELLED A-M-I-G-A!

I love your comments and features. Keep up the great work!

On December 3, I spotted the Amiga on cable TV in the CNN Headline News and CNN News. The latter featured a story on the "Students for a Free Kuwait" in Pomona, California, a cable TV show using Amigas for its production, foreign news gathering and overseas faxes. The Amigas were shown, but [there was] no mention of the name.

On CNN Headline News's "Science And Technology Today", the Atlanta Olympics presentation was given a lavish four-minute review in virtually every aspect. It was an excellent display on the graphics, user interface and features of the system. Ruefully, when they broke down the hardware elements, they reported "...utilizing CD-ROM and two computer systems..." in a nameless generic reference without mention of Amiga proper. My bitter beef is that any regular viewer of CNN knows their reporters, primarily all Mac users on the news set, go out of their way to mention the technology, education or health features, but the Amiga, even when starkly viewed, is given mute reference. Is this simple neglect or overt favoritism or outright contempt for the Amiga?

I am sending CNN a letter of complaint, and I hope fellow users on Amiga bulletin boards follow suit.

Thank you,
James W. Greenidge
Jamaica, New York

All letters are subject to editing. Questions or comments should be sent to:

Amazing Computing
P.O. Box 869
Fall River, MA 02722-0869
Attn.: Feedback

Readers whose letters are published will receive five public domain disks free of charge.

Trumpcard 500 ...

The Only A500 Expansion System That Offers Free Hardware Upgrades for the A2000 and A3000!

Trumpcard 500 expansion cards are the same cards sold by IVS for the A2000 and the A3000. The ultra reliable *Trumpcard* SCSI disk controller, *Trumpcard Professional*, the ultimate high performance SCSI disk controller, and Meta4, a 512k - 4M fast RAM expansion card, all work flawlessly in the Trumpcard 500 expansion chassis. So when you upgrade to an A2000, 2500, or 3000, just pull the cards from the Trumpcard 500 chassis and plug them into the new computer. No problems, no sweat, no charge. It's that simple.

- Trumpcard 500 can house a Trumpcard or Trumpcard Professional SCSI disk controller, Meta4 RAM board, and a 3.5" SCSI hard disk drive.
- Totally flexible, Trumpcard 500 allows you to add up to 4Mbytes of fast RAM first then add SCSI drive and Trumpcard controller later. Or add hard drive and controller first, then add up to 4Mbytes fast RAM later.
- Meta4 and Meta4/500 provide 16 bit, 0 wait state, low power fast RAM. Meta4 is available populated or 0k and is expandable in increments of 512k, 1M, 2M, or 4Mbytes using 256k x 8 or 1M x 8 SIMM memory modules.
- Trumpcard 500 autoboots into FFS and includes full support of removable media drives at no extra cost.

HOLIDAY SPECIAL!
Trumpcard 500 & Meta4 0k
Bundle $399.95

INTERACTIVE VIDEO SYSTEMS

7245 Garden Grove Blvd., Suite E • Garden Grove, CA 92641 • Phone: (714) 890-7040 • Fax: (714) 898-0858

Circle 114 on Reader Service card.

Xetec's CDx-650

A few months ago I read about a new device from Xetec, Inc.—a CD-ROM device for the Amiga bearing the name CDx-650. Since it was the first of its type to make an appearance, I didn't want to let this one slip by without a look, so I quickly ordered it. As is common in the market, the actual device did not make its way to me until nearly two months later, but I am happy to say it was well worth the wait.

by

Lonnie

Watson

The CDx-650 is, in fact, a Chinon CD-ROM device along with driver/installation software. This CD-ROM device is a read-only ISO-9660 format device and is the same one used in Commodore's yet-to-be-released CDTV. Presumably this will allow CDTV-formatted CDs to be played in it. Since there is not a single CDTV CD device available yet to the general public, I was unable to test this assumption.

The unit can be purchased in two formats, internal (CDx-650i) and external (CDx-650e). The internal device must mount in the 5.25" drive bay. The external unit sits in one of Xetec's FastTrak expansion cases and comes complete with power supply and connecting cables. A quick look through the brief but fairly complete documentation showed installation to be rather straightforward.

Internal installation involves the usual disassembling of your Amiga 2000 and screwing the unit into its home in the 5.25" drive bay. Then one end of the included cable (a 50-pin SCSI ribbon cable w/three 50-pin SCSI header connectors on it), is plugged into the back of the ROM reader. The middle connector then is placed on the back of your existing hard drive; finally, the end connector is plugged into your existing hard drive controller.

". . . the Xetec CDx-650 is definately a must for anyone who wants to have CD-ROM capability and does not want to wait for who knows how long..."

The external unit is even simpler to install. Its cable is a standard 25-pin to 25-pin Mac-type SCSI cable. One end of this cable plugs into the back of the reader, (marked HOST adapter); the other end plugs into the hard drive controller's external port.

There are a few things to keep in mind when doing all this, one of which is what drive is at the end of the SCSI chain. By convention, the last drive in a SCSI chain must have terminating resistors installed on the drive. Most anyone who has a hard drive in their machine will have terminating resistors already installed on that drive. Anyone with an external hard drive will also have terminating resistors installed on the drive.

If you connect the CD-ROM reader to the end of a terminated drive, you will have to remove the termination from that drive and throw the terminating DIP switch on the back of the reader. The other thing to keep in mind is the SCSI address settings. SCSI drives use a scheme called "address numbers" to allow the controller to differentiate between different drives on the system. SCSI controllers usually allow 7 drives to be addressed on any single SCSI bus. The CD-ROM unit as shipped is preset as device 5. Most hard drives are set up as 0 or 1, but this is not always the case. SCSI address conflicts will create a nonbooting system.

What if you don't have a hard drive already? Well, Xetec has a hard drive controller card called the FastCard. They also have a smaller version called, appropriately enough, the Mini FastCard. Setting up a system using any of these cards is supposed to be the same as above except you would have only the CD-ROM on the card. Doing so, however, will present you with the only problem I found with the device: It seems that, if you try to install the CD-ROM on a hard drive controller that does not already have a hard drive on it, the CD-ROM will not be mounted.

CD-ROM technology for the Amiga: the CDx-650e.

Xetec has provided software that will list all the SCSI devices out there and, indeed, the CDx-650 shows up but Amiga DOS has no idea it's there and, as such, the unit is completely unusable. I tried this with practically every configuration I was able to devise but still couldn't get the CD-ROM reader to mount using it as the only drive on any controller (not just Xetec's). For me this was not necessarily a problem as I have Commodore's 2091 installed in my system (I use it for my A-MAX partition). I was able to plug my external CD-ROM into the back of the 2091, set up the jumpers and terminators as necessary and, low and behold, there it was: CD-ROM! I am still unable to figure out why this problem exists and several calls to Xetec headquarters have provided me with no further answers (although the folks at Xetec were more than helpful). To be fair, I really feel that the problem exists due to software. The CD-ROM reader is accessed through a spell file system handler. It is possible that a small bug in that handler would result in the above prob-

lem. My suggestion is that, if you are looking for larger storage than floppy drives supply, you should get a hard disk first as the CD-ROM reader is a read-only device and, as such, is quite impractical as a program storage device. Having purchased a hard disk you can easily place this device on the controller that operates your existing hard drive. This is where the CD-ROM device and its driver software shine. The CD-ROM is compatible with a whole host of hard drives from Commodore including the 2091 and 2090a, the 590 hard drive for the 500, and the built-in hard drive controller on the A3000; it is also compatible with Supra's WordSync, and GVP's SCSI hard drives. The ROM will not work directly with an A2000 equipped with a GVP accelerator card as the GVP hard drive controller included on that card is not SCSI. To use the CD-ROM on such a 2000 will require you to purchase a separate hard drive controller and place at least one hard drive on that controller as well as the CD-ROM.

That one problem aside, the Xetec CDx-650 is definitely a must for anyone who wants to have CD-ROM capability and doesn't want to have to wait for who knows how long for it. The CDx-650 will even play regular audio CDs. Included with the installation software is a little program that brings up a graphic display resembling a standard CD player. The CDx-650 boasts 8 times oversampling and to my untrained ear sounds as good as my fairly expensive JVC CD player. Connecting audio to the device can be done in two ways. There are line audio outs on the back of the reader (3 pins). The signal here is just like any line out on any good CD player and can be wired as such. There is also a small headphone jack on the front of the reader. Here you plug in any standard headphone like those used on "walkmans". It truly is a versatile device.

But wait! Along with the CDx-650 CD-ROM device, Xetec has published a CD called "Fish & More". This glowing little disk is, in fact, a CD with over 500 megs of public domain and shareware programs, pictures, animations, utilities, songs, text files, and other goodies. There are 70 animations on this little gem, as well as 180 games, 48 programming languages, and 720 pictures!

The collection contains the Fred Fish collection up to disk #370 and over 180 megs of other material! This is definitely a frequent BBSer's dream come true and is, in fact, the reason I bought the CD-ROM in the first place. To buy the Fred Fish collection in such a complete state would easily cost over $1000 and then you would have hundreds of disks to contend with. With the CD, I have it all at my fingertips and can locate most anything with ease. Perhaps the most beautiful thing about all this is that, no matter how much I mess up, I can't erase the ROM and lose that data. Marty Flickinger at Xetec has gone through great pains to make all that data easy to get at and use. The software is separated into two main categories (Drawers), "Fish" being one and "More" being the other. In each drawer there are subdrawers for animations and pictures, utilities, demos, and audio utilities. To be fair, there is a small degree of duplication on some of these, but the amount of material that appears twice hardly requires discussion.

Having purchased a hard disk, you can easily place [the CD-ROM reader] on the controller that operates your existing hard drive. This is where the CD-ROM device and its driver software shine...

Access to all this is surprisingly fast. While the CD-ROM reader has an access time of something like 300 milliseconds, the actual transfer is quite quick. I'm not saying that it's as fast as a hard drive but overall the speed is not an issue. All in all, Fish & More is quite an accomplishment.

The CD-ROM sets itself up as a standard write-protected hard disk device. As far as DOS is concerned, it is simply a huge write-protected disk drive. The installation software that allows you to run the unit with most hard disk controllers also has some other settings that allow you to further control the drive. The ISO 9660 CD format stipulates that disk sectors are 2048 bytes long each. The CDx-650 actually reads disk blocks in that 2K size. You can, however, provide better controller flexibility by telling the driver software to emulate 512 byte sectors (the standard sector size of most other Amiga drive devices). The software installation can also enable or disable write/delete errors. Say you are running a game off the drive (there are 180 of them you know!). This game may want to save a high score list—BANG, you get a "VOLUME FISH & MORE Is Write Protected" error message on the Workbench. Cancel will get you out of it but you then have to send the Workbench screen to the back to see your game again. Some of the early games would also crash here but the software handler can be told to emulate writes to the disk surface and DOS will have no idea that those writes did not actually take place: A rather rude but effective way to get around the requester problem and still be transparent to the user.

All in all I am very impressed with the ROM device. Working at an Amiga dealer, I have sold the CD-ROM drive to others and can say that it works well on every system I've had it on. I even take it back and forth to work, demonstrating to quite a few people the virtues of CD-ROM. I had to wait a few months for it but, now that I have Xetec's CDx-650, I wouldn't trade it off for anything.

•AC•

CDx-650i: $599.00
CDx-650e: $699.00
Inquiry #271
Xetec, Inc.
2804 Arnold Road
Salina, KS 67401
(913) 827-0685

NEW PRODUCTS & other neat stuff

by John Rezendes

M.A.S.T.-ER THE POSSIBILITIES

Memory And Storage Technology (M.A.S.T.) is now producing a professional-quality, 24-bit colorcard called **ColorBurst**. A complete, ready-to-use system, ColorBurst includes hardware, Sculpt, Silver, Digi-View loaders, a 24-bit IFF paint and image-processing program, and a slide program.

ColorBurst has 1.5 megabytes of chip RAM built-in, and its Video Coprocessor enables many special effects including 24-bit vertical scrolling in real time, dual playfield displays, dual 24-bit display, double buffering and page flipping, as well as explodes, dissolves, or wipes in any shape or pattern; you can also change graphics modes, priority modes, display modes, and palettes on any scan line. Each pixel is described by its own 24-bit number.

ColorBurst is capable of continuous, double-buffered, full overscan, and flicker-free 24-bit animation at 20 frames/second or 60 frames/second in 8-bit mode. ColorBurst updates changes to the screen instantly so you can see your results as you go. Availability in both NTSC and PAL versions, powerful features, and broadcast quality are all benefits of ColorBurst. *ColorBurst, price: $499.00, Memory And Storage Technology, 1395 Greg St., Sparks, NV 89431, (702) 359-0444. Inquiry #273*

AMONG THE PRODUCTS FEATURED THIS MONTH:

- M.A.S.T.'s ColorBurst
- Spirit Technology's X-RAM
- Gold Disk's All-In-One
- Taliesin's ProVector 2.0
- ICD, Inc.'s AdIDE

COOL COLORFONTS

CV Designs has updated and added to their Cool Colorfonts' line creating **The Cool Colorfonts Collection**. This package, which consists of fonts with sizes in-between other font creations, is designed to act as a complement to other graphic packages.

There are three disks in the new portion of the package, each with its own characteristics. Disk 1 includes Modern and Bold Heavy Colorfonts; Disk 2 features Serif and Sanserif Colorfonts, and Disk 3 has a Gold Brass font and a Written Script Colorfont. (The disks may be purchased separately or together as the Collection.) The fonts are easily importable into any paint or video program supporting the Colorfonts standard and are sized in 80 to 55 lines high.

Colorfonts require 1 Meg and Paint/Video Program. *Cool Colorfonts Collection, price: $16.95/disk or $40.00 for all three, CV Designs, 61 Clewley Road, Medford, MA 02155, (617) 391-9224. Inquiry #274.*

TRAVELIN' RAM

Spirit Technology has announced the release of **X-RAM**, an 8MB RAM board housed in an external chassis that plugs into their 86-pin expansion port. It is actually a 100-pin board with an 86-pin adapter interface, thereby giving it a "travel" appearance. To use it in an A2000, simply take it out of the chassis and plug it into an A2000 100-pin expansion slot.

By using Spirit's X-RAM on an A1000, users will already have an 8MB A2000 RAM board in the event of an upgrade to an A2000. The same holds true with the A500 adapter. X-RAM populates in 2MB increments with 1 meg x 1 DRAMS. *X-RAM, price: $270.00 (0K), Spirit Technology, 220 West 2950 South, Salt Lake City, UT 84115, (800) 433-7572. Inquiry #277*

E-Z FM Synthesizer

The Other Guys have begun shipping the **E-Z FM Synthesizer**, an easy-to-use software program for creating instruments and sounds for the Amiga. Features include DX-7-like sounds, over 75 examples, six fully independent operators, availability of 32 FM algorithms, full waveform-examining capabilities (including a waveform animator), and logical screen layout. The E-Z FM Synthesizer creates sounds and instruments for, among other programs, Synthia Professional, Synthia II, AmigaVision, Deluxe Music, and Sonix.

E-Z FM requires a minimum 512K, and is AmigaDOS 2.0-compatible. *E-Z FM Synthesizer, price: $59.95, The Other Guys, 55 North Main Street, Suite 301-D, P.O. Box H, Logan, UT 84321, (801) 753-7620. Inquiry #281*

FACE DANCING

Spectrum HoloByte has released **Faces...'Tris III**, the third game in the Soviet series by Alexey Pajitnov. Once again, players are presented with the task of positioning falling pieces, only this time the blocks represent the different facial features of various people. As they fall, you must stack the pieces in correct order so as to form any one of the 60 colorful faces. As in Tetris, it is important not to allow the stacks to get too high; if they reach the top, the game is over. A complete face earns points and perfect faces are worth bonus points.

Quick reflexes and recognition are a requirement in order to advance in the ten levels of difficulty and achieve success. Added features to FACES...'TRIS III include a special customizing feature which allows for the creation of new faces by using a paint program, a tournament mode for up to ten players, original musical themes throughout every level of play, and a scoring system for the top ten high scorers.

Faces...'Tris III requires a minimum 512K with 1MB necessary for sound. *Faces...'Tris III, price: $39.95, Spectrum Holo Byte, 2061 Challenge Drive, Alameda, CA 94501, (415) 522-0107. Inquiry #282*

ALL-ENCOMPASSING

New from **Gold Disk** is **Gold Disk's All-In-One**, a complete package containing six programs and a videotape tutorial designed to help set up and use the Amiga 500. The package includes programs that explore the areas of word processing, painting, music creation—even gaming!

"Write" is an easy-to-use, high-speed word processor. Resumes, reports, and long documents can all be handled with advanced features such as search and replace, cut, copy and paste, spell checking, and document analysis. "Paint" provides graphic tools and friendly icon bar interface to allow anyone to create colorful pictures. Painting tools include custom brushes, an airbrush, and full Amiga font support. "Music" has full music notation, an on-screen piano keyboard, a selection of instruments, volume, tuning, and tempo control which makes it easier in creating new songs. The ability to print sheet music adds to the versatility of this program. Three games—Silhouette, Bouncer-Shaker, and Intrigue—are challenging additions to this comprehensive package.

Gold Disk's All-In-One will run on any 500, 1000, 2000, 2500, or 3000 with a minimum 512K RAM. *Gold Disk's All-In-One, price: $79.95, Gold Disk, 5155 Spectrum Way, Unit 5, Mississauga, Ontario, Canada L4W 5A1, (416) 602-4000. Inquiry #280*

CAN-DO INTRO PAK

INOVAtronics has announced the release of a no-nonsense guide for their CanDo authoring system called **The CanDo Intro Pak**. Consisting of a 100-page book and disk, the Intro Pak includes several CanDo example decks that are accompanied by easy-to-understand tutorials revealing how to make practical use of CanDo's abilities.

The package also includes information on CanDo installation, setting of Tool Types, and tips from experts on buttons & menus, scripting techniques, technical topics, and general aids. Intro Pak requires CanDo v1.02. *The CanDo Intro Pak, price: $39.95 plus $3.50 s&h, INOVAtronics, Inc., 8499 Greenville Ave, Suite 209B, Dallas, TX 75231, (214) 340-4991. Inquiry #283*

GRAPHIC DESIGNER

Graphic Designer, New Horizons Software's new structured drawing program, allows users to create detailed and precise drawings from the simple to the complex. The program treats graphic elements as independent objects—not a collection of pixels—that may be modified and arranged.

Features include smoothable curves using a Bezier smoothing algorithm, multiple drawing layers, and a flexible text-handling system that allows for the use of any Amiga font, size, style, and an unlimited number of multicolored patterns. Graphic Designer also includes an ARexx port with a complete macro language, which makes automating the creation of drawings and interaction with other ARexx programs possible.

Control over printing, reduction, enlargement, sideways printing, and adjustable print density are provided. Drawings of over 64 square feet can be assembled with the program.

Graphic Designer requires 512K of memory and Kickstart 1.2 or later. *Graphic Designer, price $125.00, New Horizons Software, Inc., P.O. Box 43167, Austin, TX 78745, (512) 328-1925. Inquiry #284*

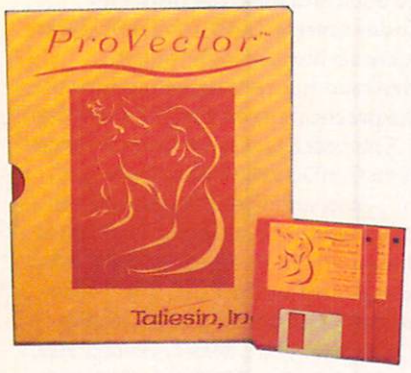
LABELDEX!

EasyScript! Software's latest, **LabelDex!**, solves the problems of organizing, managing names, addresses, phone numbers, fax numbers, floppy disk libraries, and electronic mail addresses you accumulate as you work.

LabelDex! provides access to searching, sorting, and easy phone dialing, and prints address pages, rotary file cards, mailing labels, envelopes, and phone numbers. It automatically logs your floppy disks catalog info straight from the floppy and can then automatically format and print professional-looking 3.5" disk labels.

A variety of printers are supported including LaserJet, DeskJet, Laser PostScript, and Epson-compatible. Ready-to-use standard label formats are provided and specially sized laser and pin-fed labels are also available. Users can also create and save ARexx scripts and control other multitasking ARexx-compatible programs .

LabelDex!, price: $74.95, EasyScript!, 10006 Covington Drive, Huntsville, AL 35803, (205) 881-6297. Inquiry #285



PROVECTOR 2.0

Taliesin Inc. has announced the release of **ProVector 2.0**, a structured drawing program that works with any Amiga computer. Features such as a multiple level "undo", a complete and flexible "layers" system, and the ability to flow text to any path such as a curve have been included in the package.

ProVector 2.0 has many additional benefits for artists and illustrators including AmigaDOS-2.0 compatibility; support for any Amiga-compatible printer; the ability to save files in ProVector (IFF-DR2D), IFF-ILBM, HP-GL, or PostScript format; as well as a dithering routine to simulate 256 on-screen colors.

Users may create drawings compatible with Amiga desktop publishing programs, or create bitmapped paintings compatible with DeluxePaint III and other programs. ProVector 2.0 is NTSC and PAL-compatible, features multiple windows with cut and paste function, and is ARexx-compatible.

ProVector 2.0 allows the graphic artist to create complex artwork without requiring an expertise in mathematics, and includes a fast and accurate freehand drawing tool as well as Bezier tools. *ProVector 2.0, price: $299.95, Taliesin, Inc., 1327 Corte De Los Vecinos, Walnut Creek, CA 94598, (415) 256-1195. Inquiry #286*

REMOTELY POSSIBLE

Communications Systems Engineering has announced the release of **ProImage 1.1**, a custom, menu-driven software program designed to display and update color IFF images in a seamless fashion. In addition to animations, ProImage 1.1 supports hi-res images in up to 4096 colors and is designed for remote operation.

Users may control this program from anywhere in the world as long as they have a phone and modem. A powerful scripting capability provides total control over sequencing pages in a loop or random fashion and the ability in setting exact dates and times for those pages. The additions and deletions can be done without taking the system off line, creating the seamless look to the program. Features of ProImage include a user base with multiple users and password/level control, a resolution up to 736 X 482, and a delay or dwell which is programmable in seconds.

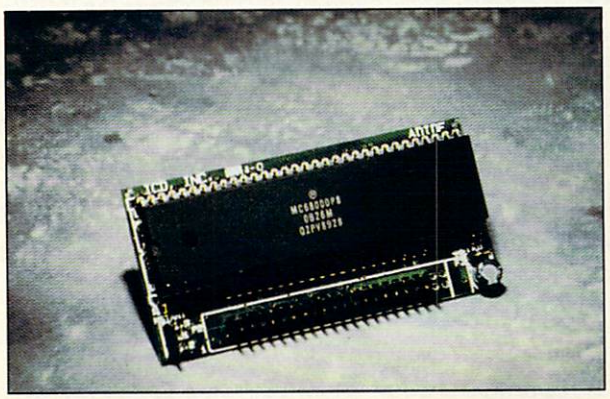
Applications already in use include bulletin board systems, video classified channels, remote kiosks, pay-per-view announcement channels, business presentations, interactive systems, and closed circuit communication message centers. The system can be customized to fit the users exact needs. *ProImage, Communications System Engineering, 20 Trafalgar Square, Suite 430, Nashua, NH 03063, (603) 883-3910. Inquiry #278*

SCARY STUFF

Accolade has a new release in the graphic adventure category and the star is none other than the most famous spokesperson for ghouls and goblins: Elvira. In **Elvira, Mistress of the Dark,** players are lead on a ghostly and grisly role-playing adventure through a demon-filled medieval castle. Recent castle renovations have allowed hundreds of evil spirits into the realm of the living and they are all in search of the "The Scroll of Spiritual Mastery".

The location of the scroll must be determined as well as that of the six keys needed to open the chest it is housed in. Along with the game comes a book of spells for Elvira to conjure up in the kitchen. Some creatures can be fended off with combat; others can only be stopped by magical spells. Exploration, combat, and intriguing puzzles are all involved in the nearly 800 locations in the castle, dungeon, catacombs, courtyard, gardens, hedge maze, and castle moat.

The game features real-time, hand-to-hand combat with a variety of weapons and the physical effects taking place on all adversaries. The attention to detail and the network of puzzles work well in the spooky environment, with Elvira's presence adding tremendously to the game's aura. *Elvira, Mistress Of The Dark, price: $59.95, Accolade, 550 South Winchester Boulevard, Suite 200, San Jose, CA 95128, (408) 985-1700. Inquiry #275*



ICD's AdIDE

IDE FROM ICD

ICD, Inc. has announced the release of **AdIDE**, an autobooting IDE (Intelligent Device Electronics) hard drive controller which gives Amiga owners access to 2.5- and 3.5-inch hard drives.

An affordable and easily installed device, AdIDE fits nicely into any Amiga 500, 1000, or 2000-series computer and supports full autobooting under Kickstart version 1.3 and higher. AdIDE is also compatible with other devices on the external expansion port (SCSI cards, memory cards, etc.) and allows booting from external floppies when desired. Measuring in at just 3.32 X 1.62 inches, AdIDE is the smallest host adapter developed for the Amiga. *AdIDE, price: $159.95. ICD, Inc., 1220 Rock Street, Rockford, IL 61101, (815) 968-2228. Inquiry #276*

ALL IN THE FAMILY

Norris Software Ltd. has announced the release of **norgen 2**, an update to Version 1 of the company's genealogical database. In norgen 2, there is no logical limit on the number of records, the length of any given record, the length of any one data field within a record, or the number of siblings, marriages, children, or notes in a record. The only restraint is storage. There are over 10 user-defined fields, a powerful search facility, linkage to IFF pictures, and an enhanced set of standard genealogical reports.

All reports can be sent to screen, printer, or text files, and all screen buffers can be printed. Custom utilities are available to reorganize the entire database, to verify the accuracy of logical and physical indexes, and to restart on demand.

The genealogical database supports all Amiga models, single floppy to hard disk systems, European PAL monitors, the Alternate Key set, and foreign Keymaps. *norgen 2, price: $99.95, Norris Software Ltd., 3208 West Lake Street, Suite 65, Minneapolis, Minnesota 55416, (612) 827-2766. Inquiry #279*

•AC•

The universe is expanding...well, at least exploration of it is...

Distant Suns Libraries

by Jeff James

AS THE MOST POPULAR astronomy program available for the Amiga, Distant Suns is widely regarded in the Amiga community as an excellent package for both educational and recreational use [*see review in AC V5.4, April 1990*].

Yet, while Distant Suns comes with a wide range of options and features to accommodate the needs of most amateur Amiga astronomy buffs, there are always those of us out there who want more. If you've been hoping to see what the Andromeda galaxy (M31) looks like up close, or feel like you cannot sleep another wink until you know the magnitude (brightness) of at least 20,000 stellar objects, then your wait is over.

Virtual Reality Laboratories and Mike Smithwick, the author of Distant Suns, have come up with three additional disks to expand the usefulness of Distant Suns: Skymap-Level 1 (Skymap) and Deep-sky Objects-Level 1 (DSO), which are both reviewed here, plus the Yale Bright Star Catalog. Skymap and the Yale Catalog add tens of thousands of new stars and their appropriate data to Distant Suns, while DSO adds over 200 images of galaxies, nebulas and star-clusters. Unfortunately, you can't find these expansion disks at your local Amiga dealer; they can only be purchased directly from Virtual Reality Labs.

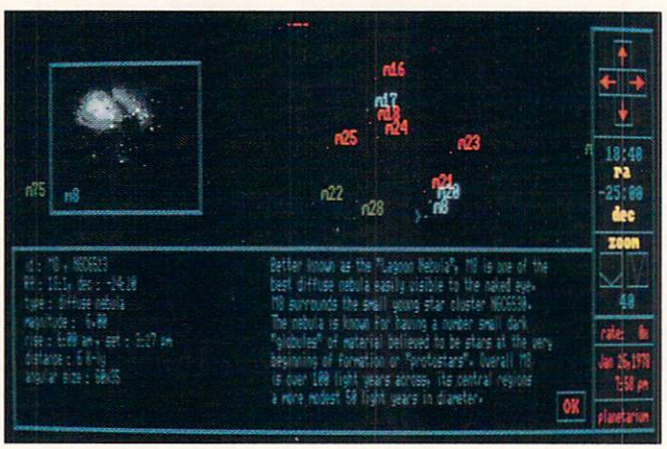
Skymap consists of two non-protected diskettes loaded with data on more than 20,000 additional "Distant Suns". The data for these stars (such as their location, luminosity, etc.) was taken directly from NASA's own deep-star catalog, which is comprised of relevant information on over a quarter-million stars. Skymap-Level 1 includes the brightest stars from that catalog, or those with magnitudes of 7.25 or brighter.

In astronomy, magnitude refers to the *apparent* brightness of a stellar object. The lower the magnitude number, the brighter the object. The dimmest objects visible to the unaided eye have a magnitude of around 6.5.

Only a single printed sheet of instructions accompanies the diskettes; this sheet quickly points out that Skymap requires at least 1.35 megabytes of hard disk space, along with at least 1 megabyte of RAM. If your system meets those requirements, you must then go into the CLI to do a little command line entry in order to join two text files on the Skymap disks together on your hard disk, as well as to replace the stars.bin file in your distant_suns/data/stars directory with the larger stars.bin file from the Skymap disks. Everything you need to get Skymap up and running is detailed on the instruction sheet, although I would have preferred an icon-based installation routine.

Once Skymap has been successfully installed on your Amiga, be prepared for longer loading times when booting Distant Suns. With the sheer amount of data contained in the new stars.bin file, Distant Suns takes nearly a minute just to boot itself past the title screen. The program itself runs quite a bit slower as well, especially in redrawing the visible field of stars. Since plotting the positions of and drawing over 20,000 stars does take some time, the instruction sheet recommends that you limit your field of view by using the "Show mag" menu item in Distant Suns' systems menu. Unless you have an '020- or '030-based Amiga, limiting your magnification is the easiest way to speed the display up.

If you liked the three sample star images supplied on the original Distant Suns diskette for galaxies M3, M57, and M101, you'll love what DSO has to offer.



Exploring nebulas with the Distant Suns expansion disks.

The Best Assembler

Macro68

Suggested retail price: US$150

Macro68 is a powerful new assembler for the entire line of Amiga personal computers.

Macro68 supports the entire Motorola M68000 Family including the MC68030 and MC68040 CPUs, MC68882 FPU and MC68851 MMU. The Amiga Copper is supported also.

This fast, multi-pass assembler supports *both* the *old* and *new* Motorola M68000 Family assembly language syntax, and comes with a utility to convert old-style syntax source code painlessly. The new syntax was developed by Motorola specifically to support the addressing capabilities of the new generation of CPUs.

Macro68 boasts macro power unparalleled in products of this class. There are many new and innovative assembler directives. For instance, a special structure offset directive assures maximum compatibility with the Amiga's interface conventions. A user-accessible file provides the ability to customize directives and run-time messages from the assembler. An AREXX(tm) interface provides "real-time" communication with the editor of your choice. A number of directives enable **Macro68** to communicate with AmigaDos(tm).

Possibly the most unique feature of **Macro68** is the use of a shared-library, which allows *resident* preassembled include files for incredibly fast assemblies.

Macro68 is compatible with the directives used by most popular assemblers. Output file formats include executable object, linkable object, binary image, and Motorola S records.

Requires at least 1 meg of memory.

ReSource, the powerful disassembler for the Amiga that has received rave reviews, now has a big brother.

Like the original version, **ReSource'030** will tear apart your code like no other program. And it will do so even faster now, because **ReSource'030** is written in native MC68030 code. This means that it won't run on a vanilla 68000, but will fly on an A3000, or another machine with a 68020/030 board.

ReSource'030 supports the new Motorola M68000 Family assembly language syntax, and is a perfect companian to **Macro68**.

If you're new to **ReSource**, here are a few facts:
ReSource is an intelligent interactive disassembler for the Amiga programmer. **ReSource** will enable you to explore the Amiga. Find out how your favorite program works. Examine your own compiled code.

ReSource will load/save *any* file, read disk tracks, or disassemble directly from memory. Symbols are created automatically, and virtually *all* Amiga symbol bases are supported. Additionally, you may create your own symbol bases.

"If you're serious about disassembling code, look no further!"

The original **ReSource** continues to be available for owners of 68000 based machines. Both versions of **ReSource** require at least 1 meg of ram.
Suggested retail prices: Original **ReSource**, US$95, **ReSource'030**, US$150

ReSource

The Best Disassembler

The Puzzle Factory, Inc.
P.O. Box 986
Veneta, OR 97487
Orders: (800) 828-9952
Customer Service: (503) 935-3709

Distributors for the U.S. and Canada **Dealer Inquires Invited**

"Quality software tools for the Amiga"

VISA, MasterCard, check or money order accepted - no CODs.

Amiga and AmigaDOS are trademarks of Commodore-Amiga, Inc.

Circle 129 on Reader Service card.

DSO provides over 200 images of galaxies, nebulas and star clusters for you to examine with the "Identify" option listed in the Distant Suns "Display menu".

DSO is delivered on one diskette accompanied by a single sheet of instructions which details usage and installation in the same concise fashion as that for Skymap. DSO's hardware requirements are more modest; while Skymap demands a hard disk and at least one megabyte of RAM, I didn't run into any problems running Distant Suns in df0: and DSO in df1: on a dual-floppy, 1MB Amiga 500.

DSO can easily be installed on a hard disk by following the brief instructions outlined on the instruction sheet, or you can simply leave DSO in one of your disk drives, as Distant Suns will automatically detect its presence and fetch the image data from disk when needed. Nearly all the objects from the Messier Star Catalog are included, as well as over 100 NGC (New General Catalog) objects.

Die-hard astronomy buffs with fairly loaded Amigas complete with a hard disk and extra RAM: Skymap Level-1 could just be just what you're looking for to expand the scope of the original Distant Suns. However, the amount of storage space (both in RAM and on hard disk) that Skymap-Level 1 requires precludes it from being used by Distant Suns owners with modest hardware configurations. Distant Suns itself contains well over 2,200 stars, which is more than adequate for a casual student of astronomy. If you want even more star data, you might want to take a look at the Yale Bright Star Catalog expansion disk, with data on more than 7,000 additional stars.

As for the Deep-sky Objects disk, I heartily recommend it to every owner of Distant Suns. DSO runs on any machine that runs the original program, and to simply point to an obscure pinprick of a star and see a detailed photograph of how it looks to professional astronomers using high-powered visual instruments can be very satisfying.

•AC•

Skymap–Level 1
Price: $25.00
System requirements
(all of these products require Distant Suns to operate):
1 MB RAM, hard disk.
Inquiry #267
Yale Bright Star Catalog
Price: $18.00
Inquiry #268
Deep-sky Objects–Level 1
Price $30.00
System requirements:
1 MB RAM.
Inquiry #269
Virtual Reality Laboratories, Inc.
2341 Ganador Court
San Luis Obispo, CA 93401
(805) 545-8515

Circle 131 on Reader Service card.

AC Disks

Source code and executable programs included for all articles printed in *Amazing Computing*.

1 AC V3.8 and V3.9

Gels In MultiForth Parts I & II: Learn how to use Gels in MultiForth. Author: John Bushakra

FFP & IEEE: An Example of using FFP & IEEE math routines in Modula-2. Author: Steve Faiwiszewski

CAI: A Computer Aided Instruction program with editor written in AmigaBASIC. Author: Paul Castonguay

Tumblin' Tots: A complete game written in Assembly language. Save the falling babies in this game. Author: David Ashley

VGad: A gadget editor that allows you to easily create gadgets. The program then generates C code that you can use in your own programs. Author: Stephen Vermeulen

MenuEd: A menu editor that allows you to easily create menus. The program then generates C code that you can use in your own programs. Author: David Pehrson

Bspread: A powerful spread sheet program written in AmigaBASIC. Author: Bryan Cately

2 AC V4.3 and V4.4

Fractals Part I: An introduction to the basics of fractals with examples in AmigaBASIC, True BASIC, and C. Author: Paul Castonguay

Shared Libraries: C source and executable code that shows the use of shared libraries. Author: John Baez

MultiSort: Sorting and intertask communication in Modula-2. Author: Steve Faiwiszewski

Double Playfield: Shows how to use dual playfelds in AmigaBASIC. Author: Robert D'Asto

'881 Math Part I: Programming the 68881 math coprocessor chip in C Author: Read Predmore

Args: Passing arguments to an AmigaBASIC program from the CLI. Author: Brian Zupke

3 AC V4.5 and V4.6

Digitized Sound: Using the Audio.device to play digitized sounds in Modula-2. Author: Len A. White

'881 Math Part II: Part II of programming the 68881 math coprocessor chip using a fractal sample. Author: Read Predmore

At Your Request: Using the system-supplied requestors from AmigaBASIC. Author: John F. Weiderhirn

Insta Sound: Tapping sound from AmigaBASIC using the Wave command. Author: Greg Stringfellow

MIDI Out: A MIDI program that you can expand upon. Written in C. Author: Br. Seraphim Winslow

Diskless Compiler: Setting up a compiler environment that doesn't need floppies. Author: Chuck Raudonis

4 AC V4.7 and V4.8

Fractals Part II: Part II on fractals and graphics on the Amiga in AmigaBASIC and True BASIC. Author: Paul Castonguay

Analog Joysticks: The code for using analog joysticks on the Amiga. Written in C. Author: David Kinzer

C Notes: A small program to search a file for a specific string in C. Author: Stephen Kemp

Better String Gadgets: How to tap the power of string gadgets in C. Author: John Bushakra

On Your Alert: Using the system's alerts from AmigaBASIC. Author: John F. Wiederhirn

Batch Files: Executing batch files from AmigaBASIC. Author: Mark Aydellotte

C Notes: The beginning of a utility program in C. Author: Stephen Kemp

5 AC V4.9

Memory Squares: Test your memory with this AmigaBASIC game. Author: Mike Morrison

High Octane Colors: Use dithering in AmigaBASIC to get the appearance of many more colors. Author: Robert D'Asto

Cell Animation: Using cell animation in Modula-2. Author: Nicholas Cirasella

Improving Graphics: Improve the way your program looks no matter what screen it opens on. In C. Author: Richard Martin

Gels in Multi-Forth-Part 3: The third and final part on using Gels in Forth. Author: John Bushakra

C Notes V4.9: Look at a simple utility program in C. Author: Stephen Kemp

1D_Cells: A program that simulates a one-dimensional cellular automata. Author: Russell Wallace

Colourscope: A shareware program that shows different graphic designs. Author: Russell Wallace

ShowILBM: A program that displays lo-res, hi-res, interlace and HAM IFF pictures. Author: Russell Wallace

Labyrinth_II: Roll playing text adventure game. Author: Russell Wallace

Most: Text file reader that will display one or more files. The program will automatically format the text for you. Author: Russell Wallace

Terminator: A virus protection program. Author: Russell Wallace

6 AC V4.10 and V4.11

Typing Tutor: A program written in AmigaBASIC that will help you improve your typing. Author: Mike Morrison

Glatt's Gadgets: Using gadgets in Assembly language. Author: Jeff Glatt

Function Evaluator: A program that accepts mathamatical functions and evaluates them. Written in C. Author: Randy Finch

Fractals: Part III: AmigaBASIC code shows you how to save/load pictures to disk. Author: Paul Castonguay

More Requestors: Using system calls in AmigaBASIC to build requestors. Author: John Wiederhirn

Multi-Forth: Implementing the ARP library from Forth. Author: Lonnie A. Watson

Search Utility: A file search utility written in C. Author: Stephen Kemp

Fast Pics: Re-writing the pixel drawing routine in Assembly language for speed. Author: Scott Steinman

64 Colors: Using extra-half-brite mode in AmigaBASIC. Author: Bryan Catley

Fast Fractals: A fast fractal program written in C with Assembly language subroutines. Author: Hugo M. H. Lyppens

Multitasking in Fortran: All the hard work is done here so you can multitask in Fortran. Author: Jim Locker

7 AC V4.12 and V5.1

Arexx Part II: Information on how to set up your own ARexx programs with examples. Author: Steve Gilmor

Leggo My LOGO: A Logo program that generates a Christmas tree with decorations. Author: Mike Morrison

Trees and Recursion: An introduction to binary trees and how to use recursion. Written in C. Author: Forest Arnold

C Notes: A look at two data compressing techniques in C. Author: Stephen Kemp

Animation? BASICally: Using cell animation with AmigaBASIC. Author: Mike Morrison

Menu Builder: A utility to help build menus in your own programs. Written in C. Author: Tony Preston.

Dual Demo: How to use dual playfields to make your own arcade games. Written in C. Author: Thomas Eshelman.

Scanning the Screen: Part four in the fractals series. This article covers drawing to the screen. In AmigaBASIC and True BASIC. Author: Paul Castonguay.

C Notes: Recursive functions in C. Author: Stephen Kemp.

8 AC V5.2 and V5.3

Dynamic Memory!: Flexible string gadget requester using dynamic memory allocation. Author: Randy Finch.

Call Assembly language from BASIC: Add speed to your programs with Assembly. Author: Martin F. Combs.

Conundrum: An AmigaBASIC program that is a puzzle-like game, similar to the game Simon. Author: Dave Senger.

Music Titler: Generates a titler display to accompany the audio on a VCR recording. Author Brian Zupke

C Notes From the C Group: Writing functions that accept a variable number of arguments. Author: Stephen Kemp

Screen Saver: A quick remedy to prolong the life of your monitor. Author: Bryan Catley

9 AC V5.4 and V5.5

Bridging The 3.5" Chasm: Making Amiga 3.5" drives compatible with IBM 3.5" drives. Author: Karl D. Belsom.

Ham Bone: A neat program that illustrates programming in HAM mode. Author: Robert D'Asto.

Handling Gadget and Mouse IntuiEvents: More gadgets in Assembly language. Author: Jeff Glatt.

Super Bitmaps in BASIC: Holding a graphics display larger than the monitor screen. Author: Jason Cahill

Rounding Off Your Numbers: Programming routines to make rounding your numbers a little easier. Author: Sedgwick Simons

Mouse Gadgets: Faster BASIC mouse input. Author: Michael Fahrion

Print Utility: A homemade print utility, with some extra added features. Author: Brian Zupke

Bio-feedback/Lie detector Device: Build your own lie detector device. Author John Iovine.

Do It By Remote: Build an Amiga-operated remote controller for your home. Author: Andre Theberge

10 AC V5.6 and V5.7

Convergence: Part five of the Fractal series. Author: Paul Castonguay

Amiga Turtle Graphics: Computer graphics and programming with a LOGO-like graphics system. Author: Dylan MnNamee

C Notes: Doing linked list and doubly linked lists in C. Author: Stephen Kemp

Tree Traversal & Tree Search: Two common methods for traversing trees. Author: Forest W. Arnold

Exceptional Conduct: A quick response to user requests, achieved through efficient program logic. Author: Mark Cashman.

Getting to the Point: Custom Intuition pointers in AmigaBASIC. Author: Robert D'Asto

Crunchy Frog II: Adding windows and other odds and ends. Author: Jim Fiore

Synchronicity: Right and left brain lateralization. Author: John Iovine

C Notes From the C Group: Doubly linked lists revisited. Author: Stephen Kemp

Poor Man's Spreadsheet: A simple spreadsheet program that demonstrates manipulating arrays. Author: Gerry L. Penrose.

11 AC V5.8, V5.9 and AC V5.10

Fully Utilizing the 68881 Math Coprocessor Part III: Timings and Turbo_Pixel Function. Author: Read Predmore.

C Notes From the C Group 5.8 & 5.10: Functions supporting doubly linked lists, and a program that wil examine an archive file and remove any files that have been extracted. Author: Stephen Kemp

Time Out!: Accessing the Amiga's system timer device via Modula-2. Author: Mark Cashman

Stock-Portfolio: A program to organize and track investments, music libraries, mailing lists, etc. in AmigaBASIC. Author: G. L. Penrose.

CygCC: An ARexx programming tutorial. Author: Duncan Thomson.

Programming in C on a Floppy System: Begin to develop programs in C with just one megabyte of RAM. Author: Paul Miller.

Koch Flakes: Using the preprocessor to organize your programming. Author: Paul Castonguay

AudioIllusion: Experience an amazing audio illusion generated on the Amiga in Benchmark Modula-2. Author: Craig Zupke

Pictures: IFF pictures from past Amazing Computing issues.

12 AC V5.11, V5.12 & V6.1

Keyboard Input In Assembly: Fourth in a series of Assembly 68000 programming tutorials. Author: Jeff Glatt.

A Shared Library for Matrix Manipulations: Creating a shared library can be easy. Author: Randy Finch.

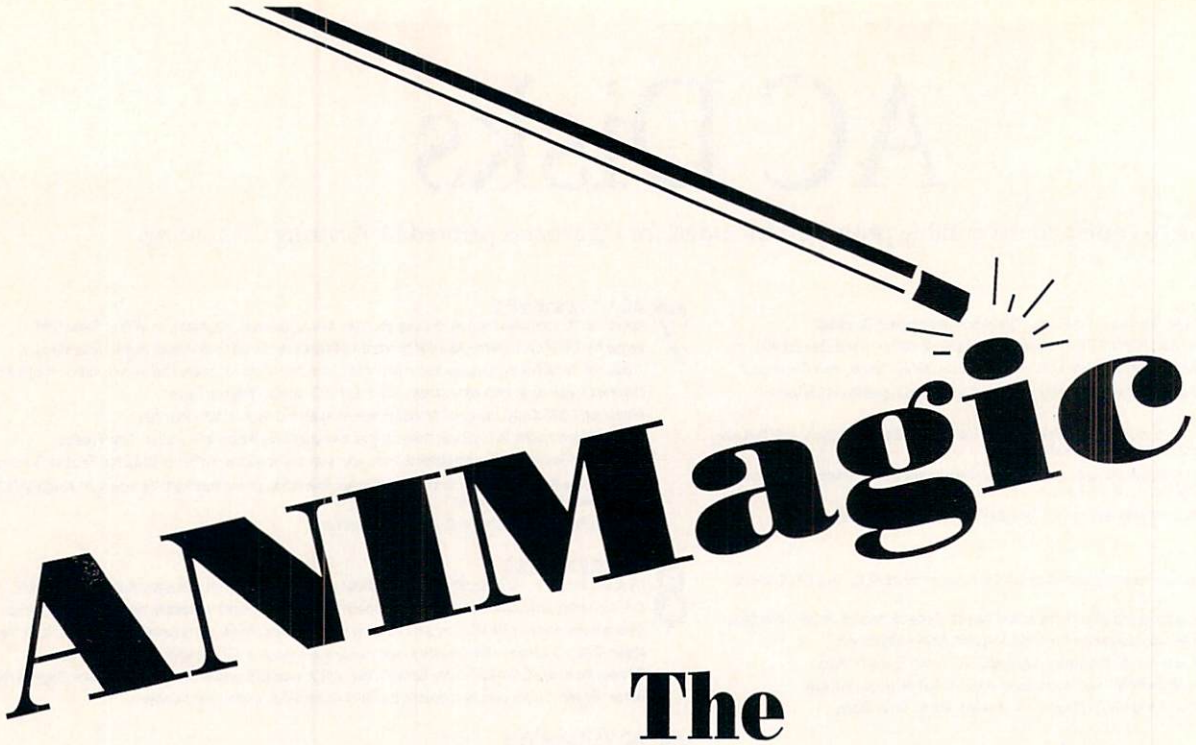
C Notes From The C Group: A discussion on cryptography. Author: Stephen Kemp

ZoomBox: Attaches a zoom box to an Intuition window and allows the user to toggle the window's size and its position. Author: John Leonard

13 AC V6.2

C Notes 6.2: A reminder program that allows you to display a message on a chosen day. Author: Stephen Kemp

For PDS orders, please use form on page 95.



The Presentation Powerhouse

by Rajesh Goel

ANIMagic is not another paint program; rather, it is a graphics tool much in the style of The Director *(The Right Answers Group) and* Elan Performer *(Elan Design). That is to say, it is one of those programs that you may not absolutely need, but if you do have it, it is sure to spice up your presentations.*

ANIMagic allows you to take pictures and/or ANIMs and combine them in many exciting ways and in a very intuitive manner. It performs wipes and transitions much like the Digital Video Effect Generator machines that are found in most broadcast studios today, the major difference being that those machines create effects with live video, while ANIMagic does the same thing with IFF pictures and ANIM files.

A few caveats before we take a plunge into this marvelous piece of software engineering, the first being that this program is incredibly memory hungry. The manual says that 1 meg is recommended; in actuality, that is just barely enough. If you plan to do anything with large ANIM files or even anything beyond lo-res (320 X 200) pictures, then you really should have at least 2 megs of RAM, although even more would be better.

The second bit of advice I can offer you is that ANIMagic is also very power-hungry. By that, I mean that it needs a 68020 or 68030 board to perform its magic. On a standard Amiga 2000HD with 3 megs of RAM and the 1 meg Fat Agnus, one 50 frame, full-screen effect required approximately 2.5 hours to achieve. On a 68020, however, it took just 20 minutes to achieve the same effect.

My third piece of advice is that you run this program on a system with a hard drive, especially if you intend to work mostly with hi-res and HAM images. The resultant 10-frame animations can be as big as 600K!

On a positive note, the ANIMagic manual is one of the best that I have ever encountered. It is well written and the tutorials range from the simple to very complex without insulting the user's intelligence. Another plus for all those who have a 68020 or 68030 accelerator board with math coprocessors is that ANIMagic also comes in a 68020 version optimized for faster CPUs and dedicated math processors. This benefit is included free of charge on the second disk.

Another plus is on-line help which is activated by pressing the 'Help' key. Once you press help, the cursor turns into a question mark "?"; then, all you have to do is position the dot at the bottom of the question mark on the appropriate gadget. Just click and it brings up a small window containing a quick summary of the gadget's features and operations.

Why should you get ANIMagic?

Every artist that I know has a vast library of pictures which he or she displays in the most common way: in a slideshow program. While slideshow programs are nice, they can be boring and are apt to put everyone to sleep after the first few pictures. With ANIMagic and a bit of pre-planning, you can grab an audience by its eyeballs and hold it there until you are finished. In fact, this could very well be the single most important Amiga product for getting people interested in your new works and ideas.

Summary of effects

ANIMagic performs quite a few effects (the manual estimates that there are more than 900 possible combinations all together), such as: Horizontal Blinds, in which picture 1 rotates like venetian blinds and reveals picture 2, either on the backside of the blinds or in the background; Vertical Blinds, which is identical to the Horizontal Blinds effect, rotated 90 degrees; Pageturn, where picture 1 lifts up like a page of a book or a magazine and reveals picture 2 underneath; Confetti, in which a picture dribbles down, blows upward, or explodes from anywhere on the screen, then comes together again to form a coherent picture; and Dribble, in which picture 2 dribbles down in long, thin, vertical strips over the face of picture 1.

In fact, ANIMagic includes 24 predesigned effects called DVEmaps (Digital Video maps) which are nothing more than very sophisticated scripts. The beauty of this program is that you can create new DVEmaps on the fly without having to type in or edit a script!

The ANIMagic begins

For the purposes of this article, we will create a small animation using the Horizontal Blinds, Confetti, Pageturn, and Dribble maps with four IFF pictures.

When you first run ANIMagic, you should get the Aegis ANIMagic title screen and the "No Project File Found" screen. Just click 'OK' and load up a picture or ANIM file. You should get the picture (or first frame of animation) with the colors all out of kilter. Just click on the picture, anywhere on the lower half of the screen and you will see the picture as it should be.

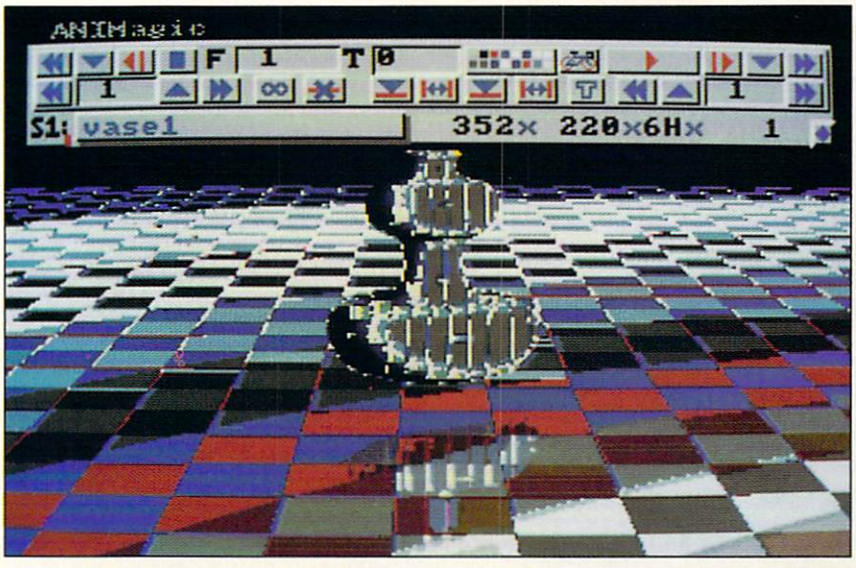
On the screen you should then see a window titled 'ANIMagic', several gadgets, the last line entitled 'S1:' followed by the name of your picture and its dimensions, and a diamond-shaped button. This is the Edit Bay Size Toggle gadget. Simply click on this and the ANIMagic window (called Edit Bay) doubles in size. Now, press the right mouse button and from the 'Project' menu, select 'Open >> Still/ANIM'. This should give you the file requestor. Load your second image now.

The second picture should now be loaded and displayed on screen with its colors reversed. Since this is the second picture and we want the first picture that we loaded to be displayed, click on the 'S1:' gadget. If you keep the left mouse button down, you should see a window pop up with the names of both of the pictures. Move the highlighter bar over the name of the first picture. Once that is down, move down to the 'S2:' gadget and select the name of the second file.

Now click on the 'NoMap' button and select 'DVE Mapping'. This brings up the 'DVE Control' screen. Finally, we come to the heart of the program—its nerve center and engine. Go to the 'Project' menu and open DVE. Use the file requestor to enter the DVEMaps directory and select the HBlind6.map. Click the 'Preview' button and you should see a wireframe of the intended effect. What we want is for the center blinds to rotate first and cause the effect to spread outward, so click on the 'Grid' button.

The 'H Grid' button pops up a highlighted window that lets you select the dimension in which the effect will take

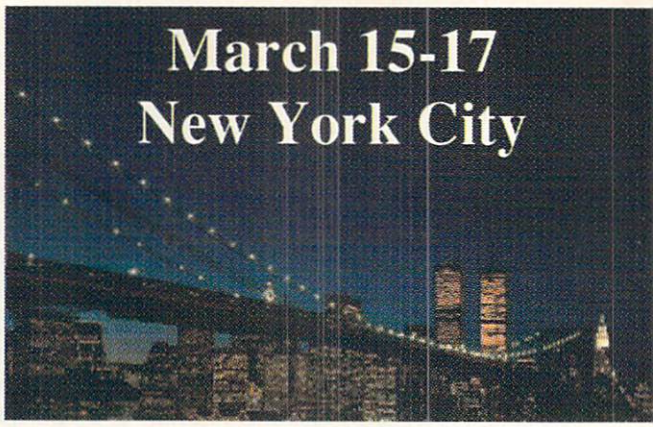
➔



ANIMagic control panel with reversed colors.

AMIGA WORLD EXPO

Formerly AmiEXPO



VIDEO

AmigaWorld Expo brings you the Amiga, the world's first computer! At AmigaWorld Expo you'll find:

- ★ State of the Art Graphics, Animation, 3D and Business Software ★ Hardware to Expand your Amiga to its Limits ★
- ★ Magazines, Value-Added Resellers, and Tutorial Videos to Assist You ★ Bargains on the Hottest Amiga Software and Hardware ★
- ★ Amiga Classes, Seminars and Keynote Speakers Giving You Access To the Most Complete Amiga Information Available ★

EXHIBIT HOURS

Friday, March 15	Saturday, March 16	Sunday, March 17
1:00 PM to 6:00 PM	10:00 AM to 6:00 PM	10:00 AM to 5:00 PM

VIPS

AmigaWorld Expo gives you access to Amiga leaders, each and everyone. Each meeting day, a celebrated Amiga leader will speak on a major topic of importance and interest.

Friday, 5:00 PM	Saturday, 9:00 PM	Sunday, 12:00 Noon
STEPHEN ROBBINS	TIM JENISON	KAILISH AMBWANI
Publisher	President	President
AmigaWorld Magazine	NewTek, Inc.	Gold Disk, Inc.

FREE

AmigaWorld Expo Seminars and Panels are all included with your admission to the Exhibits. Each day, experience the best and the latest that Amiga developers and users have to offer.

FRIDAY	1:00 - 2:30	AMIGA VIDEO OVERVIEW	3:30 - 5:00	AMIGA CONNECTIVITY PANEL
SATURDAY	11:00 - 12:30	AMIGA MULTIMEDIA PANEL	1:30 - 3:00	INSIDE WORKBENCH 2.0 SEMINAR
	4:00 - 5:30	AMIGA TO VIDEO SEMINAR		
SUNDAY	1:30 - 3:00	AMIGA MUSIC/VIDEO SEMINAR	3:30 - 5:00	NEXT GENERATION AMIGA GRAPHICS

AmigaWorld Expo will also announce the Winners of the 3rd Annual Art and Video Contest in our on-going Amiga Artists Theatre. To enter - and have a chance at prizes from NewTek, Inc., Gold Disk, Digital Creations, Supra Corporation, ASDG, Impulse, The Zuma Group, Dakota Corporation, Active Ciruits, Inc., AmigaWorld Magazine, and More! - call us at 1-800-32-AMIGA for the Official Rules and Regulations.
ART CONTEST DEADLINE IS MARCH 1ST.

SAVE

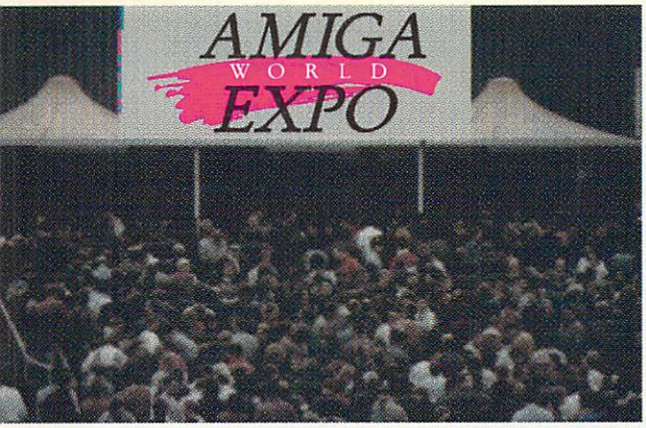
When you Pre-Register to AmigaWorld Expo, you can both money and time. Advance registration will save you $5 off the on-site fee - and time in line. Call us at 1-800-32-AMIGA with a Visa or MasterCard or return the coupon with a personal check or money order made out to AmigaWorld Expo. PRE-REGISTRATION DEADLINE IS MARCH 1, 1991.

ONE DAY - $15	TWO DAYS - $20.00	THREE DAYS - $25.00

These prices already reflect the $5 discount. Prices are $5 more at the door. No refunds or cancellations after the pre-registration deadline. Your registration to AmigaWorld Expo includes admission to the Exhibition, Keynote Sessions, Amiga Seminars, and the AmigaWorld Expo Artists Theatre. Other events may be available for free or a small admission charge.

PLEASE NOTE: You will receive a confirmation of your registration. No tickets will be mailed to you. When arriving at show site, go to Advance Registration to claim your tickets. If you are registering more than one person, please use a separate coupon for each person.

Circle 165 on Reader Service card.



Where the World Comes To See The Amiga!

New York Hilton and Towers at Rockefeller Center

ush your Amiga to its limits. With classes for both those to the Amiga and the aspiring Master, AmigaWorld Expo gives you
ıe creative edge.
ımigaWorld Expo offers two Novice Classes for those beginning with the Amiga and computing in general. Each class is 3 hours long, costs $30 per
erson and is limited to 50 students.

BASIC AMIGA CONCEPTS 10-1, Fri. and Sun.; 2-5, Sat.
- Introduction to All Amiga Models • All Peripheral Expansion
- Full Workbench Coverage • Beginning CLI

UNDERSTANDING THE CLI 2-5, Fri. and Sun.; 10-1, Sat.
- Unleash your Amiga's Power • Most Essential CLI Commands
- Exploring Public Domain • The World of Telecommunications

to efficiently get the most out of your Amiga, you need an . Amiga Master Clases are designed to provide information on
nportant professional topics. There are six different topic areas, divided into Introductory (I) and Advanced (II). Each class runs 3 hours, costs $60 per
erson and is limited to 40 students.

THE AMIGA IN VIDEO Instructor: Oran J. Sands III
VIDEO I 10-1, Friday and Saturday
- Basic Video and Amiga Relationship • Video Hardware
- S-Video vs NTSC • Video Software Overview

VIDEO II 2-5, Friday and Saturday
- Continuation of Video I • Optimizing Video Output
- Video Toaster • Pro Video Post • Genlock Comparison

AMIGA GRAPHICS Instructor: Bradley Schenck
GRAPHICS I 10-1, Friday and Saturday
- Basic Graphic Concepts • Anti-aliasing • HAM Painting
- Palette Selection • Brush Painting • Stencils

GRAPHICS II 2-5, Friday and Saturday
- Advanced Graphic Displays • Image Processing
- Animation Planning • Beyond Bitmaps • Going to Print

AMIGA ANIMATION STATION Instructor: Steve Segal.
ANIMATION I 10-1, Saturday and Sunday
- 2D Character Animation • Digitized Animation
- Storyboarding • Character Design • Recording Your Work

ANIMATION II 2-5, Saturday and Sunday
- 3D Animation • Character Modelling • Frame Requirements
- Texture & Bump Mapping • Solid Modeling • Ray Tracing

AMIGA 3D Instructor: Tony Dispoto
3D I 10-1, Saturday and Sunday
- 3D Concepts • Modeling • Rendering Engines • Lighting
- Scuplt-Animate 4D • Turbo Silver • Imagine

3D II 2-5, Saturday and Sunday
- Continuation of 3D I • 24 Bit Rendering • Use of Paths
- Optical Disk Recording • 3D Animation •

PRESENTATION TECHNIQUES Instructor: Curt Kass
PRESENTATION I 10-1, Friday
- Professional Art and Design Applications
- Presenting for Education • Presentable Hardcopy

PRESENTATION II 2-5, Friday
- Finished Artwork Production • Pre-press Approval Proofs
- Package Design Mock-ups • Product Design and Presentation

AMIGA MULTIMEDIA Instructor: Steve Gillmor
MULTIMEDIA I 10-1, Sunday
- Multimedia Defined • Hardware Options and Requirements
- AmigaVision • Foundation • CanDo • Hypermedia

MULTIMEDIA II 2-5, Sunday
- Commercial Applications • ARexx Connectivity
- Multimedia Design • CDTV and CD-Rom Development

ımigaWorld Expo is pleased to offer all attendees these hotel and travel arrangements.

OTEL ACCOMODATIONS: The New York Hilton & Towers is the show site and headquarters hotel and is located at 1335 Avenue of the
ımericas between 53rd and 54th Streets. Rooms are available for a special Amiga World Expo discount rate: $155 Single or Double. To make a
eservation, call the Hilton directly at 212-586-7000. HOTEL DEADLINE IS FEBRUARY 20, 1990.
IRLINES: American Airlines, the official carrier for AmigaWorld Expo is pleased to offer a 5% discount off any fare to New York City. To
ualify, just call American at (800) 433-1790 and give them this ID number, Star File # 07Z14K.

AmigaWorld Expo • 465 Columbus Avenue, Suite 285 •Valhalla, NY 10595

Circle 165 on Reader Service card.

place. The settings won't effect the HBlind6.map so you can leave them alone. The width and height gadgets allow you to specify how many parts you want the effect to be broken into. If you type '2' in the width window the effect will take place on 12 blinds (6 blinds on the left half of the screen and 6 blinds on the right half). Go to the 'DIR:' gadget and select 'Center->Out'. Since we specified 'Center->Out' as our direction, the left bottom and the right top blind pieces will be the first to rotate, since they are the centermost tiles. Close the window, go back to 'DVE Control' screen, select preview, and see what happens.

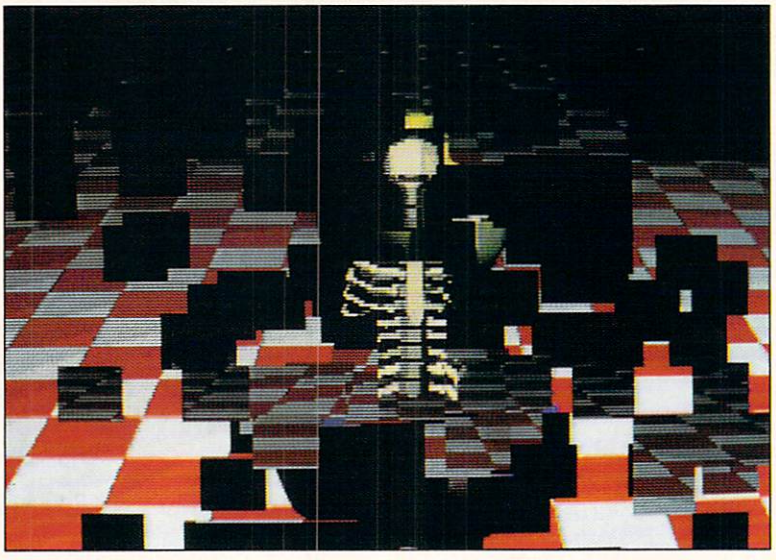
This program truly invites experimentation, so you should change a few numbers here, click on a few buttons there, hit preview, and see how the effects change. Back to the grid screen, where the 'Progressive Delay' sets time between two different and adjacent blind pieces. 'DIR:' controls direction of movement, and the pendulum gadgets below control the Ease In and Ease Out delays. Basically, Ease In makes the effect speed up in the beginning, and Ease Out hurries the effect at the end, thus giving an animation the illusion of speeding up or slowing down. The 'Symmetry' and 'Primitive Orientation' gadgets can be useful but they are not really all that powerful, so we ignore them here.

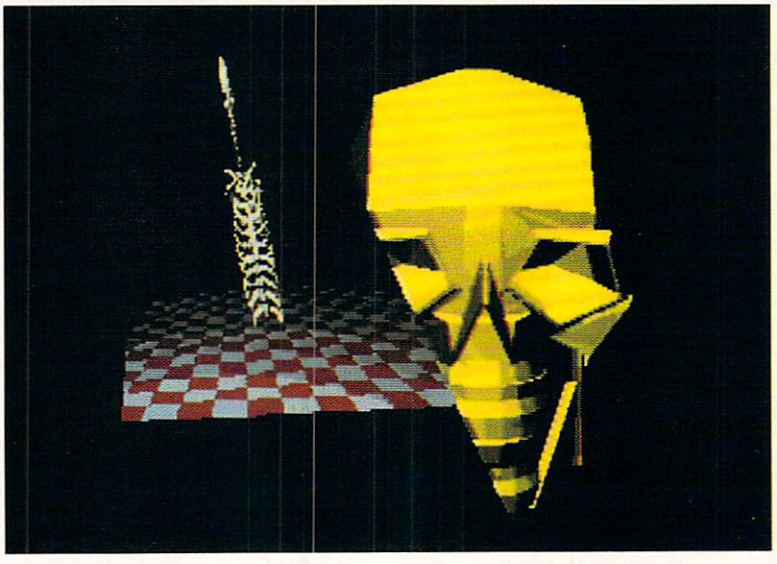
Finally, we come to the most important part of the 'Grid Control' menu—the 'Grid Origin' section. The sixteen buttons here control where on the screen effects originate from. This can be demonstrated fully using the Confetti.map, so let's go back to the DVE screen, preview, go to Grid, choose one of the effect originate buttons (16), go back to the DVE screen, and preview. Repeat those steps until you feel that you understand the effect of each button. The 'C' is the Custom button; this allows you to specify the area where an effect begins and ends. It is useful when you want to animate separate parts of a picture using different effects.

Keep 'H Grid' as is, leave width and height set to '1' & '2', respectively, and keep 'Delay' at '100'. 'DIR:' should be out and the grid origin should be default (the button next to the Custom Button). Go back to 'DVE Control', and make sure that the 'Core DVE' window shows 'HBlind6'. If it doesn't, then click on the window and highlight the correct effect. Set 'No. Frames' to 15, click on preview, and see that it is indeed the Horizontal Blind effect. Quit out of the DVE screen and you should end up on the main ANIMagic screen.

Go to the 'Project' menu and select 'Record >> Create ANIM File...'. Select path and destination of the ANIM file that we're creating and hit 'OK'. From the ANIMagic screen, click on the red 'R' button which is set above the 'D:' window. This is the 'Record to Disk' button. Click 'OK' on the requestor and this animation takes about 30 minutes.

Once the Hblind ANIM is done, just open the third file and bring it up in the 'S1:' window. Your display ought to read something like this:





above: Frame 7 of 15 Confetti-ized—it's a ticker tape parade!
below: Frame 7 of 15 once again; here, Pageturn flips one picture to reveal another.

'S1:' Contains the third file that we just opened.

'S2:' Contains the second file (Pic 2 from the Hblind ANIM) that we opened.

Select DVE Mapping. Open the Confetti.map effect and click on the 'Grid' option. Select the sixth button from the grid origin options (that is the button with a dot in the center of the screen). Select Center->Out as your direction and go back to the DVE Screen. Click on 'Backdrop', go to 'Backdrop' gadget, and select 'S2:' instead of 'Blank'. Close window, and welcome back to the DVE screen. Make sure that the number of frames is 15 and go back to the main ANIMagic screen. Click on 'Apply Append', and select 'OK'.

So far, we have seen what the HBlind6.map can do and we have used Confetti.map, originating it from the center of the screen.

By now, your system's memory should be getting low, so the best thing to do here is to bring up the first picture in 'S1:'. Go to the 'Project' menu and select 'Destroy'. This deletes the object in 'S1:' and frees up the RAM that was needed to hold that image, ANIM, or buffer. Do the same with the second picture. Load up the fourth picture, place it in 'S2:'; the third pic should be in 'S1:'. Select DVE Mapping and load the 'Page_turn.map'. You may want to experiment with the different settings, but the default is my favorite. Just make sure that the 'Backdrop' is set to 'S2:', and record this effect. Please note that the number of frames is entirely up to you to determine, depending on available memory and storage; I chose 15 because it produces some very smooth effects. Of course, the time needed to generate the effect is entirely dependent on your hardware configuration, so all you '020ers and '030ers may be done in a few minutes, whereas the 1 Meg/Floppy users may have to wait as much as 45 minutes.

Load the first picture again, so we can now use the DRIBBLE.map. Preview and you'll see that the 'S1:' pic dribbles down over the 'S2:' pic (or whatever you set your background to). But what makes this effect even better is one simple change. See the button next to 'No. Frames:' marked 'FWD'? Just click on that and highlight 'Reverse'. Preview this and you will agree that the new effect looks better. By reversing the motion of the effect, the 'S1:' pic lifts up in tiny little curtains at random times, rather than dribbling down over the backdrop (S2) and marring its beauty. This produces a curtain effect reminiscent of old theater or opera houses. It also adds a bit of mystery to your presentation because people are naturally curious and want to see what is behind this curtain. In fact, to add a bit of spice to the presentation, you may want to either lengthen it to 20 frames or shorten it to 10. Varying the number of frames for each effect makes for a less uniform and more exciting presentation, but deciding which effects function to use is a matter of individual taste and complexity, and also depends on the working palette of pictures or animations. Of course, your best choice is often discovered only through experimentation.

Now that we have seen how to use the basic DVEmaps to create some fantastic effects, let's save our work, see what we've done, and go on to more complex ventures. Go to the 'Project' menu on the main ANIMagic (Edit Bay) screen and select 'Record >> Close ANIM File...'. Destroy whatever pictures you have in 'S1:' until only one picture remains. Now load up the ANIM that we've been working on and play it by clicking on the 'Play' gadget—it appears on the first row of gadgets, and looks just like the play button on your VCR.

You may have noticed that the first time the animation played, it played fine but the second time it played, video artifacts (blocks, smears, streaks, etc.) appeared. Don't worry, this is normal and it just means that the ANIM has not been looped yet. Click on the right mouse button to stop the ANIM from playing and click on the 'Infinite Loop' (second row, fifth gadget, looks like a figure 8 laid on its side) button, then select 'OK' and wait a few seconds. When the screen stops flashing and the edit bay is back, play the ANIM to make sure that it has looped correctly. Once you are sure that it loops correctly, select 'Save >> ANIM File...' and save your creation.

So much for the basic stuff. Now let us discuss the more complex (and interesting) uses of ANIMagic. One of the more novel uses that I've found for the program came about at the TV station where I work as a graphics consultant. I went there one day to set up some other software and while I was there, the DVE machine (a $20,000 hardware unit) died. A scheduled news program was half an hour away, but we had absolutely no news graphics ready because normally we use the DVE to just freeze videotape and display selected images in quarter size atop the newscaster's shoulders.

On this day, we quickly frame-grabbed the images that we needed and picked the cleanest grabs. Great, we had the graphics we needed, but they were all full size. The problem was to reduce them to approximately 1/4 size without introducing any extra video artifacts and without losing any picture quality. Here's how we solved our dilemma:

I quickly booted up ANIMagic, loaded up the first image, popped onto the DVE screen, loaded up the HBlind6.map (it's one of the fastest effects), set number of frames to 1, set direction to reverse, set backdrop to blank, and cropped the image to quarter screen.

To crop an image, you must go to the 'Grid' screen and select the 'Custom Grid Path' button (that is the 'C' button in the 'Grid Origin' section). Selecting 'Custom Grid Path' brings up a blank screen (actually, it is your backdrop image). The first step is to move the mouse to the top left spot on the screen (if the image is overscanned, you will end up off-screen), keep the left mouse button (LMB) down and drag it to the bottom left of the screen. By doing this, we are selecting the full image as our origin image. Now, move to the center of the first top row on your monitor and again, press LMB down, keep it down and drag-select a small rectangle that occupies the first quadrant of your

screen. If you have done it correctly, you will automatically jump to the grid screen. Then it is a matter of quitting back to the main screen, creating a 1-frame ANIM, and loading and genlocking out the background. Of course, we had 25 pictures, so I made the ANIM, closed it, loaded it into ANIMagic, clicked on 'Range Forward' (last button, second row), and saved the stills. That's another good use for ANIMagic: it can be used to separate ANIM files into separate stills, to edit the stills, and then save the edited stills. Then load up ANIMagic, 'Record >> Create ANIM...' (use plain.map for the first still), load up the second screen, and 'Record >> Append Frame..'. This is particularly suited for HAM animations because DeluxePaint III (Electronic Arts) can handle the individual frames of a non-HAM ANIM, but I have yet to find a program that does the same for HAM animations.

Ever see the NewTek Demo Reel 3 and wish you could play your ANIMs simultaneously on-screen on those small monitors, just as the NewTek wizards did with their ANIMs? Well, just select which map you want to use, go to 'Backdrop', and select 'Custom' from the 'Destination Placement...' window. Again, just drag click a box where you want your ANIM to appear on screen, go back to the 'Edit Bay' and record. Is that simple, or what?

Now let us say that you have a picture with lots of stuff on-screen. It could be your company's logo, a screen filled with multiple images, or whatever, and you want to add some pizzazz to it. You could simply perform "ANIMagic" to the entire screen, but that's too mundane for our tastes. So what do you do?

Go to 'Backdrop', 'Crop Source 1' and set it to custom. Select which part you want to animate, set 'Backdrop' to 'S1:', select 'Destination Placement...', and set it to custom. Either by eyeballing it or placing transparencies on-screen and marking which part of 'S1:' you cropped, select the same coordinates for your destination. Now set the backdrop to whatever you want it to be: 'S1:', 'S2:', blank, or some other color. I just set the backdrop to 'S1:' so that I could crop the destination area with some degree of accuracy.

•AC•

ANIMagic
Price: $139.95
Inquiry #258
Oxxi/Aegis Development
1339 E. 28th Street
Long Beach, CA 90806
(213) 427-1227

UPGRADES
•
FIXES
•
UPDATES
•
NEW
RELEASES

bug bytes

by John Steiner

CHECKING THE ELECTRONIC mailbag this month, I received a letter from Bill Hamilton who inquired as to a couple of software developers that have apparently either moved or gone out of business.

The first is East-West Software, formerly at 73 Lorna Lane, Suffern, NY 10901. They offer a CAD parts software package. Mr. Hamilton tried to order this package in July, and has not heard from them since. The other company is Transtime Technologies Corp., formerly at 810 Sheridan Drive, Tonawanda, NY 14150-7892. They marketed a database package very early on for the Amiga called DATAMAT. There exists the possibility that this program is still available from another supplier, or is being marketed under another name. If you have any knowledge as to the current status of either of these companies or their products, please pass on the information.

IT APPEARS THE DESKTOP publishing wars are still raging. On the heels of a major release of PageStream version 2.0 is version 2.1. Features of this upgrade include the ability to import and edit Professional Draw clip files (Professional Draw is an illustrator program published by Gold Disk). The upgrade also provides faster text typing, much faster display of Adobe type I text with support for Adobe bitmaps, redesigned color palette requestors, and improved PostScript and IFF printer drivers. Several bugs were fixed, improving import for documents originally saved in PageStream 1.8 format with EPS graphics. Some font repairs were made, and there was an internal program cleanup and reorganization. Registered users of version 2.0 have probably already received this upgrade. If you haven't registered your PageStream, do it today. *Contact: Soft Logik Corporation, 11131 S. Towne Square Suite F, St. Louis, MO 63123, (314) 894-3280. Inquiry #200*

Meanwhile, Gold Disk developers have been working on Professional Page version 2.0. New features include style tagging, rotation of text or graphics boxes at any angle, automatic page numbering, and a built-in word processor with 90,000-word dictionary. The program also previews up to six pages on screen simultaneously. Color desktop publishing is made easier with the built-in Pantone Matching System color selector. Over 65,000 colors are predefined, and color dithering allows up to 1,000 colors to be viewed at the same time. Color images from 24-bit image scanners can now be printed directly from Professional Page, either as Color PostScript documents or as color separations, directly to laser typesetting film. The upgrade is being sent at no charge to registered version 1.3 owners who purchased the program after August 1, 1990. Upgrades for those who purchased Professional Page before August 1 are $75.00. *Contact: Gold Disk, Inc., 5155 Spectrum Way, Unit 5, Mississauga, Ontario, Canada L4W 5A1, (416) 602-4000. Inquiry #201*

LAST MONTH I REPORTED on the release of Quarterback Tools version 1.2A. I began using a copy of the software and almost immediately noticed some unusual problems with regard to disk identification. The program could not find all of the partitions on my hard disks, and also misjudged the size and location of at least one partition. I called Betty Chamberlain of Central Coast Software, and she informed me that they are aware of the problem, which is apparently occurring only in Commodore-manufactured 2090 and 2090A drive controllers.

According to Ms. Chamberlain, if you are using Quarterback Tools on hard drives accessed by either of these

controllers, you could be risking serious data loss. CCS should have a fix available shortly, in the form of a free upgrade to version 1.3 which will be sent to all registered users as soon as it is complete. It was to be ready within a week of my call, so if you have not received the upgrade yet, give CCS a call.

If you own a 2000HD or 2500, it is quite easy to determine whether it has a 2090A or 2091 controller. The 2091 has only one drive partition called Workbench. The 2090A has three—Boot, Workbench, and Work. The 2090 controller was only sold as an add-on, and was never included in the 2000HD. It is not capable of automatically booting directly from the hard disk, and must be booted from a floppy start-up disk. As with version 1.2A, upgrades may be obtained by downloading from a BBS. *Contact: Central Coast Software, 424 Vista Avenue, Golden, CO 80401, (303) 526-1030. Inquiry #202*

IMPULSE HAS ANNOUNCED an extension of their original deadline for Turbo Silver owners to upgrade to Imagine, the company's new 3-D modeling program. Users wishing to upgrade from Turbo Silver can purchase Imagine for just $150.00 until March 1st. Call Impulse for answers to your questions pertaining to the upgrade. *Contact: Impulse, Inc., 6870 Shingle Creek Parkway #112, Minneapolis, MN 55430, (612) 566-0221. Inquiry #203*

VISTA*PRO*—THE NEW expanded version of Vista, from Virtual Reality Labs, Inc.—has been shipping since mid-November. Vista*pro* now displays any Amiga resolution, including the 24-bit IFF format used in several framebuffers. An infinite zoom and infinite lighting controls have also been added. Built-in Gouraud shading completely eliminates the triangle/polygon look prevalent in Vista pictures that resulted from the "camera" being too close to the landscape surface. A disk of more landscape files comes with Vista*pro*, as does a special version of the program for accelerated Amiga systems. Vista*pro* requires 3 megabytes of RAM. Those who wish to upgrade from Vista to Vista*pro* can do so for $35.00. The suggested list price for Vista*pro* is $149.00. *Contact: Virtual Reality Laboratories, Inc., 2341 Ganador Court, San Luis Obispo, CA 93401, (805) 545-8515. Inquiry #204*

COMMODORE ANNOUNCED an "upgrade" of the Amiga 2000HD and 2500 systems. Effective late last November, all A2000HD and A2500 systems come with the same 50-megabyte hard disk that became standard equipment in the Amiga 3000 last August. Commodore's Service Division has also made it clear to dealers that upgrading an Amiga 500 to use the 1 megabyte Fatter Agnus will void the warranty. Perhaps more important is the fact that, since the modification requires the cutting of traces on the board, Commodore will not exchange the board for a new one should the modified board fail out of warranty. What that means is that the end user who makes this modification risks paying the full retail price of a very expensive motherboard if their modified board ever fails.

Commodore's reason for this policy is twofold. Amiga 500 engineers insist that the A500 does not operate reliably with all software due to timing considerations, and the Fatter Agnus upgrade information was not to be released publicly. The other reason is that cutting traces on the board is not a task left to amateurs, and Commodore service has been getting some badly mangled circuit boards, according to an instructor at an Amiga dealer service school. *Commodore Business Machines, 1200 Wilson Drive, West Chester, PA 19380, (215) 431-9100. Inquiry #205*

If you have any workarounds or bugs to report, or if you know of any upgrades to commercial software, you may write to John Steiner, c/o Amazing Computing, P.O. Box 869, Fall River, MA 02722...or leave EMail to Publisher on People Link or 73075,1735 on CompuServe. •AC•

DATA EXPLOSION!

GVP storage solutions keep up with you

IMPACT Series II

Your Amiga® is doing more today than anyone would have guessed a few short years ago. Color graphics. Scanned images. Multi-media. Video Imaging. You need storage solutions that can keep up with these data-hungry revolutions in computing. Without a revolutionary hassle.

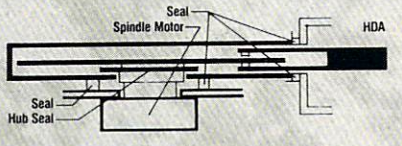
SII-MO9200E/600 shown here in vertical position.

No matter what your mass storage needs, GVP has it! Complete plug-and-play storage solutions for your Amiga, from 50MB to 600MB. From Hard-Disk-Cards to Removable-Cartridge Hard Disk to Rewritable Optical to Streaming Tape.

If you use your Amiga for Graphics, DTP, Image Filing, Database Management, Video Imaging, Multi-Media, CAD/CAM, System-Wide Backup, then you need our removable-media storage solutions...

1 SII-R5500—Ricoh 50MB Removable Hard Disk Drive: Features you cannot ignore.

- Increased storage capacity: 48MB formatted under Amiga DOS per cartridge.
- Sealed cartridge air filtration system ensures data integrity and keeps media free from damaging dust particles for fail-safe reliability, unlike the competition.



- Impressive 25ms average access time.
- Mounts internal in Amiga 2000® 5.25" drive bay or external with GVP's IMPACT XC (see photo below).

IMPACT XC ▶

- Made by Ricoh of Japan, a quality, well-known manufacturer of precision, high-technology products.

2 SII-M09200E/600—Ricoh 600MB Magneto-Optical Drive: Backed by Ricoh's expertise in optical disk technology.

- 600MB formatted capacity per cartridge (300MB per side).
- State-of-the-art Rewritable Magneto-Optical drive using high-tech laser technology, and ISO format compatible.
- Latest Magneto-Optical technology enables cartridges to be over-written many times, offering unlimited storage capacity.
- 66.7ms average access time.

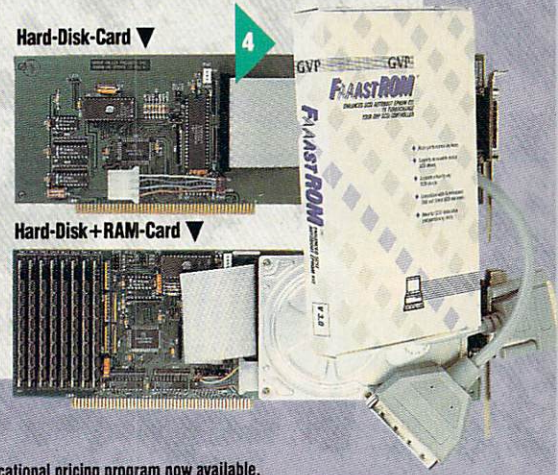
3 IMPACT WT-150—WangTek 150MB Streaming Tape Backup System: Together with GVP's TAPESTORE™ software, makes backups simple and fast.

- High performance with backup speeds of over 6MB per minute when using GVP TAPESTORE software.
- Uses industry standard DC6150 cartridges with 150MB formatted capacity.
- Mounts internal in Amiga 2000 5.25" drive bay or external using GVP's IMPACT XC (see photo, left).
- Comes standard with GVP's comprehensive TAPESTORE backup and restore software package.
- TAPESTORE also sold separately.

4 GVP's New *FAAASTROM*™ SCSI driver and installation software comes standard with the Series II™ SCSI Controllers' giving ultimate removable media drive support. When purchasing GVP mass storage removable devices, be sure to ask for a GVP Series II SCSI Controller! ***Ask for the complete kit.***

Hard-Disk-Card ▼

Hard-Disk+RAM-Card ▼



GVP

Educational pricing program now available.

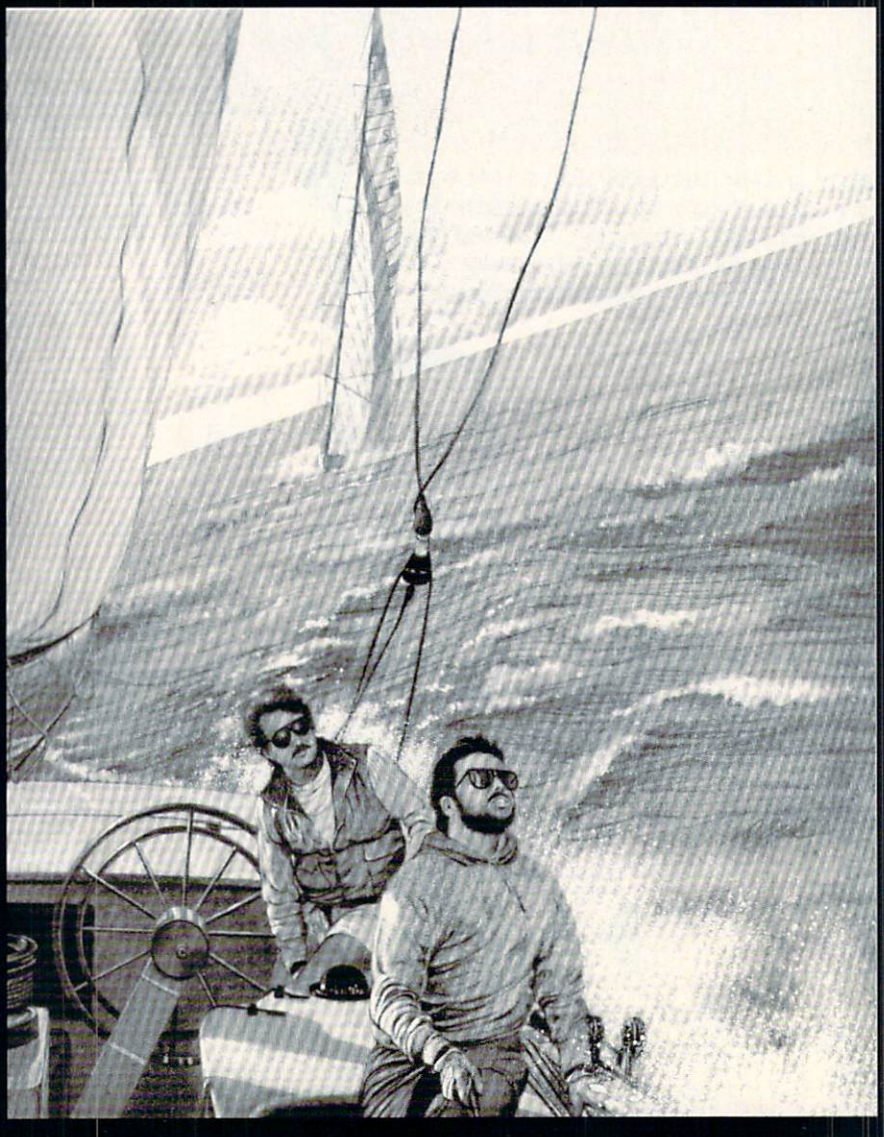
Available on GSA schedule through SMS Data Products Group, Inc.
GSA #GS00K-90-AGS-5242
1-800-331-1767 Ext. 5227

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

For more information, or for nearest dealer, call today. Dealer inquiries welcome.

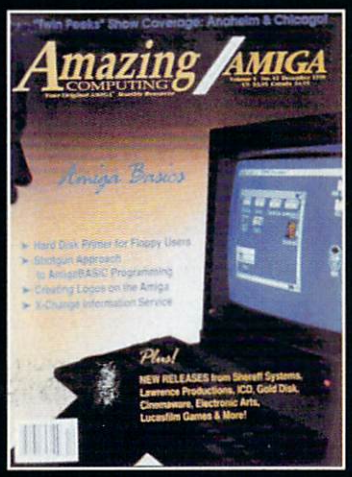
Tel. (215) 337-8770 • FAX (215) 337-9922

Circle 123 on Reader Service card.



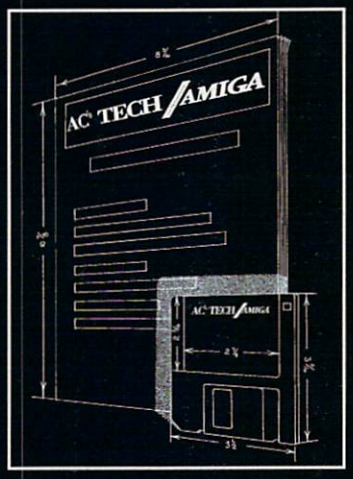
Are you the type of person who needs a really good reason to subscribe to a magazine?

Only the "Amazing" AC family of Amiga publications gives you 3 great reasons to subscribe!



REASON #1

REASON #2



REASON #3

You are not an ordinary Amiga user. Don't subscribe to an ordinary Amiga magazine. Join the AC subscriber family today!

Now there are 6 great ways to join the AC family, too! Start off with a one- or two-year subscription to ***Amazing Computing***, *Your Original AMIGA Monthly Resource*. Or, add ***AC's GUIDE***, the best and most complete Amiga product and information guide in the world, with a one- or two-year AC SuperSub. Finally, explore all things technical with ***AC's TECH*** – check out the premiere January issue, or take advantage of the limited time Charter Subscription Offer! Just use one of the new subscription cards in this issue, or call **1-800-345-3360** with your credit card order!


5TH ST.

A great video computer. A great games computer. A great electronic publishing computer. A great business computer ...

The 9-to-5 Amiga

by Daryell Sippper

Huh? What? Business—and the Amiga?

Unfortunately, that is still the basic perception of the Amiga within the mainstream business community. This has understandably frustrated many Amiga users over the years. The Software Publishers Association's final sales report for 1989 clearly underscores the failure of the Amiga to establish a presence in—and capture a share of—the business market. Seventy-five percent of the software sold in 1989 was MS-DOS, fourteen percent was Macintosh. The Amiga isn't even mentioned in the report.

The bottom line is that in the business sector of the computer market, MS-DOS is the master, with the Mac a distant second. This doesn't mean you can't use your Amiga for business. It just means you have to be a bit more realistic about your decision, until such time as more business applications are developed for the Amiga platform (see the review of Gold Disk Office, also in this issue).

Prospective business computer users *first* define their specific needs, and then search for the appropriate software to manage those tasks. Purchasing the necessary hardware may actually be one of the *last* things that is considered.

But as an Amiga die-hard, you enjoy using the Amiga and have no desire to buy another computer to run your business. You want to use the Amiga—and you most certainly can!

A business computer is different

As a business user, you develop a different perspective about your computer than you will as a hobbyist or a home user. And you *ought* to think differently. Obviously, the computing needs of your successful business operation have nothing in common with the computing needs of your children, for example.

Remember the phrase "time is money"? Don't even consider using the same configuration you'd buy for your kids. You'll go crazy. This means you'll need to purchase things like a hard drive and extra memory right up front. A properly equipped business computer will not only be a pleasure to work with—it will help you to be more productive.

The more Amiga, the better

Remember, we're talking general business here, not video, games, or hobbies. You want your business computer to grow along with your business and mature as your business matures. It also must be extremely flexible, because your needs may change—drastically! You want expansion capabilities. So, while either is more than capable of meeting the challenge early on, you might want to look beyond your A500 or A1000 for business purposes, since it's just a little more

The Hewlett-Packard IIP

If you are thinking about starting your own small business—or already have—you no doubt long to generate the sharp, crisp, professional-looking documents that only a good laser printer can produce. Good news! Within the last year and a half, several companies have introduced laser printers that are more affordable for the small business and home user.

Fortunately, one of those companies is Hewlett-Packard. The new H-P IIP is in every way worthy of the company whose Series II LaserJets have become an industry standard.

My 300 dot-per-inch IIP came with 2.5 megabytes of RAM and a lower cassette paper tray. The total cost at the time was a little over $1,730, though lower prices can now be found. The extra RAM and paper tray were worth the extra money to me; both have improved the capabilities of my system.

Installation is extremely easy; my printer was up and running in less than an hour. The high quality of engineering is evident, and the manual is laid out well and easy to follow. An addition start-up guide is provided, and that should really be all you need to start printing.

The print cartridge itself is an all-in-one type, which means the drum and toner are contained in one cartridge. That makes installation very clean and easy.

The IIP offers both serial and parallel ports. I have my A1000 connected to the parallel port and have never experienced a problem. A jumper inside the back of the printer determines the port, so only one port can be used at a time.

One of the first things you'll notice about a laser printer is its paper speed. The IIP is rated at 4 pages per minute, which may sound slow when compared to that of other laser printers. But if you've never used a laser printer before, you'll be very pleased with this page rate as it's faster than most dot matrix printers, and of course much quieter. A credit to the printer's controller and software is the relatively short amount of time it takes the IIP to begin printing a job. Most of the correspondence and graphics I've done have been printed in a reasonable amount of time.

Normal printing is performed with paper from a multipurpose tray. Unfortunately, this tray only holds about 50 sheets of paper. That is not a great inconvenience, but noticeable. An optional lower cassette tray that holds about 250 sheets of paper is offered. I have the 8-1/2" x 11" paper tray; other sizes are available.

Though many users can get by without the optional $195 lower cassette tray, most will find additional RAM to be a necessity. With its advanced graphics capabilities, the Amiga makes this decision even more likely; graphics use a lot of memory, particularly during the process of printing. I was unable to obtain extra RAM for a few days due to an ordering backlog, but I noticed the need for it immediately. I was glad to receive the RAM card shortly thereafter.

The IIP can rotate fonts and print in both the portrait and landscape mode, which is a real convenience. I have a few spreadsheets and database lists that fit the landscape mode perfectly, although much Amiga software doesn't support the landscape mode. Software that does support "sideways" printing usually does so using Amiga bitmapped fonts, rather than a printer's fonts (this results in the dreaded ugly jaggies).

Fortunately, the IIP can be switched to this mode from the control panel and the software doesn't know the difference. It's an extra step, but I wish developers would recognize that some printers' can print sideways without resorting to bitmapped fonts.

The IIP comes with a 10- and 12-point Courier font, including boldface and italics, and a Line Printer font. The boldface and italics styles can be mixed. Superscripts and subscripts are also supported, as well as underline. Fonts can be downloaded, but I haven't found any Amiga software to support this feature. Font cartridges are available from Hewlett-Packard and third-party vendors.

I've had no problems with the Workbench 1.3 LaserJet printer driver. The only changes I've made were to WordPerfect's Series II printer driver. I had to add the IIP's built-in capability to print italics, but the modifications and renaming of the driver were very easy.

The printer's control panel is very intuitive and easy to operate. A complete set of status messages are available. A self test can be performed, as well as a printing of all the available fonts currently in memory.

The IIP is an easy printer to use. It works as advertised. I've never had a problem with it. I've printed graphics, newsletters, and business correspondence with very satisfying results. The only time I have really needed the manual was in the installation of some control codes (printing sideways) which allow me to print envelopes without stopping to reconfigure the printer from the control panel.

I've also adapted the printer to my PostScript needs with a Pacific Data PacificPage Personal Edition emulator cartridge. Switching between the two print modes (PCL and PostScript) is easy, and I've enjoyed the diversity and low cost of this setup.

Even with the advent of the LaserJet Series III (scalable fonts), I don't regret my decision to buy the IIP. It's small, fulfills my printing needs, and is very quiet. It's output is extremely pleasing to the eye and professional. My PostScript emulator cartridge gives me all the scalable font technology I presently need. I still have my dot matrix printer, but it collects a lot more dust than it used to.

If you would like to upgrade to an affordable laser printer, don't have great speed or paper output demands, and are on a tight budget, then I highly suggest the H-P IIP.—D.S.

LaserJet IIP
Price: $1495.00
System requirements:
Computer with standard parallel or serial port.
Inquiry #206
Hewlett-Packard Company
19310 Pruneridge Avenue
Cupertino, CA 95014
1-800-752-0900

difficult to expand them later. The greater expansion capabilities of an A2000 series or an A3000 will probably do more to enhance the value of all your computer investments along the way.

As already noted, a hard drive is a must. Don't consider anything smaller than 40 megabytes, and if you are planning to work a lot with graphics, you will need closer to 60 megabytes or more. Remember, your Amiga is a multitasking wizard. The more you realize its capabilities, the more you'll demand of it. So, buy as much memory as you can possibly afford. Of course, that goes for RAM as well. Two megabytes or more of RAM really does make a difference.

There's another reason why you'll want the nearly limitless expansion capabilities offered by an A2000 or A3000. Earlier, we admitted that MS-DOS and Macintosh control the business computer market. Sadly, there are presently a number of rather blatant absences in Amiga business software. A Bridgeboard or A-Max can help you easily overcome this shortfall. There's no room for snobbery here, this is business! The Amiga is versatile enough to offer these capabilities. The wise business person will take advantage of them, and utilize all the best software of three business worlds!

The basic business software library

To operate your business, you will need at least a basic software library. That includes a word processor for correspondence, a database to maintain your client list, an accounting package to do the books, and a spreadsheet for number crunching. Some other not-so-apparent needs might include mail-merge capabilities, a hard drive back-up program, a hard drive mainte-

PostScript Emulation With An HP Printer

Most of us are familiar with the difference between PostScript and bitmapped output. PostScript fonts and graphics are mathematically defined and can be drawn at almost any size the user desires without producing the horrible jaggies. PostScript is the closest thing that exists to an industry-wide standard within the computer marketplace. Anyone doing any kind of artwork or page layout and design sooner or later desires to have PostScript compatibility.

Getting PostScript output from our Amigas, however, isn't as easy as we'd like. Most of the available software doesn't support PostScript at all; and that which does requires a PostScript printer, of course. Given the expense of a PostScript printer, many Amiga PostScript users resort to a typesetting service.

Because of my particular business needs, I decided to fully investigate my PostScript options. I found an answer in the Pacific Data Products Company.

Pacific Data offers a variety of cartridges for the Hewlett-Packard LaserJet II, IIP, IID and III printers, all designed for adapting those printers for different output capabilities. They also market font cartridges, plotter emulators, and PostScript emulators. Pacific Data makes the PacificPage Personal Edition PostScript emulator cartridge for my printer—the H-P IIP LaserJet.

I have used this cartridge for several months now, and have not had a single problem with it. I've sent PostScript files using Pro Page and Pro Draw and have been extremely satisfied with the results. I've designed booklets, brochures, and flyers with Pro Page, proofed them on my PostScript set-up, and then uploaded them to a typesetter. The results have always been very professional. I have also edited and printed my user group's monthly newsletter with satisfying results, and have also played with WordPerfect and obtained the expected good output.

The Personal Edition cartridge cost me about $380. The cost of my IIP (including an extra 2 megabytes of RAM and a lower cassette paper tray) was $1730. So my PostScript printer cost me a little over $2100. Not bad!

The cartridge requires no modifications, no software drivers, no controllers—just plug it into the printer. The cartridge does require 2.5 megabytes of memory to operate. It comes with two small manuals and an update sheet. Naturally, everything is written to accommodate the MS-DOS world, but luckily, it all works with no hitches. A 5-1/4" disk is included for installing the software switches to change from PostScript to PCL (H-P's Printer Control Language) and vice versa. The manuals explain how to perform the switches in "non-DOS" systems.

The manuals are easy to read and set-up is extremely uncomplicated. A troubleshooting guide is offered, as well explanations of the printer status messages. If you are using a Bridgeboard, the applications manual offers set-up information for several software packages, such as Ventura Publisher, PageMaker, WordPerfect 5.0, and Microsoft Windows and Word.

The printer always boots up in the PostScript mode whenever the cartridge is installed. The printer also runs an internal self test during start-up. The cartridge remaps the control buttons of the printer and the messages displayed are changed, too. It offers the standard 35 PostScript font selections and font and print tests are included.

Though switching back and forth from PostScript to PCL is easily performed from the printer's control panel, it doesn't take long to realize the software method is more convenient. I've written several start-up scripts for changing between programs, such as between Pro Page and WordPerfect. Within these scripts is the printer command that changes the printer to the appropriate mode. It's that simple.

The current version of this cartridge is 4.00. Pacific Data claims an overall 40% increase in speed over the version I originally purchased (2.34). I upgraded to the new version for $99, and my unscientific tests since then (using Pro Page 1.31) show an average 20% speed increase, with actual increases ranging from 7% to 53%.

I don't have access to a true PostScript printer, so I can't compare print times. I've read that printing time with the cartridge can be 1/2 to 1/3 slower than with a LaserWriter IINT, but this "slow down" isn't noticeable by me.

I'm sure even the new cartridge is still slower than an actual PostScript printer. I actually spend more time daily using the PCL mode than the PostScript mode, so the benefits of low cost and diversity far outweigh printing time considerations anyway. Most part-time PostScript users will probably agree with me.

I highly recommend the Pacific Data Personal Edition PostScript emulator for the Hewlett-Packard IIP. Most of us can't justify the cost of a full-fledged PostScript printer. This cartridge offers a more-than-reasonable compromise.—D.S.

PacificPage Personal Edition
Price: $495.00
System requirements: 2.5MB of printer RAM
Inquiry #207
Pacific Data Products
9125 Rehco Road
San Diego, CA 92121
(619) 552-0880

nance and data recovery program, a DOS/CLI manager, and a time and schedule manager.

Judging specific software needs

Even when considering your initial business software purchases, you must define the specific needs of your business. Is a basic word processor acceptable, or do you need professional writing features? How about spell checking and a thesaurus? And how is your (or your assistant's) grammar? Yes, there are word processors that are equipped to correct bad grammar.

Can you survive with a flat-file database, or will you need a relational database? Are you going to be on the phone much of the day? Consider an automatic phone dialer. Will you need a drawing program? Bitmapped, structured, and drafting programs are available. What kind of standard forms will your business require? Why not design your own? Are you going to produce your own brochures and company literature? If so, you'll need a page layout and design package. Will you need to create presentation graphics?

Then there is project management. Do you need telecommunications capabilities? Have you considered a DOS conversion program, in the likely event some of your clients require files from you (or supply information to you) in MS-DOS or Macintosh format? Are you going to calculate your own taxes? How are you going to perform some of your other financial calculations, such as those pertaining to loans and start-up costs? How are you going to keep track of your jobs and clients? Is ARexx required to merge some of your applications?

What Amiga business software exists?

Only about 10% of Amiga software can be classified as mainstream business software. This is a far cry from what can be found in the MS-DOS and Macintosh worlds. Even so, a very respectable selection of software exists to meet the needs of today's Amiga business user. Which products should you choose? That decision will be defined by your specific needs.

I recommend using *AC's Guide To The Commodore Amiga* to locate the products you think your business requires. Call the vendors of the products that are most suited to your needs and

ask for their literature, as well as demo versions of their programs. Read every magazine review you can get your hands on. Ask your friends and associates, visit your local Amiga users group (again, check *AC's Guide*), or log on to a bulletin board. As before making any critical business decision, do all of your homework. Your business will be much better off in the long run as a result.

One important note about public domain and shareware software. There's a lot out there for the Amiga. Feel free to use these programs, but remember one thing: there are no guarantees. PD software is usually developed for fun, not for profit. If a particular piece of software has a devastating bug or problem within it, the programmer is under no obligation to help you (or your business). By all means, use these programs if they fit your needs. Some of them are very good and do provide an inexpensive way of "getting your feet wet". Just remember the potential risks.

Some of the best in the business

At this point, I'd like to present some of my own personal favorites among Amiga business software. Depending on your own specific requirements, any of those shown here would be good investments, in my opinion.

Among the top professional-level Amiga word processing packages best suited to general business uses are WordPerfect 4.1, ProWrite 3.1 and excellence! All have a built-in spell checker and thesaurus, while ProWrite and excellence! are able to integrate graphics with text; excellence! also adds a built-in grammar and style checker.

Another powerful graphics word processor with built-in spell checker is Pen Pal. With added features like a built-in, flat-file database, a forms designer and a label printer, Pen Pal addresses several of the basic business software needs in one integrated package. Gold Disk Office (reviewed in this issue) also addresses multiple business needs in one fully integrated package.

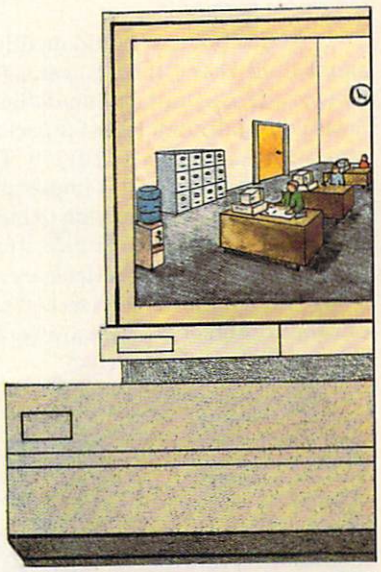
DataRetrieve and Microfiche Filer Plus are good flat-file database packages, while Professional DataRetrieve and Superbase Professional 3.0 are two of the best relational database management packages. Analyze! is a spreadsheet program to consider, while Home Office Advantage is an ARexx-compatible integrated spreadsheet and database package that also creates structured 2-D and 3-D charts and graphs.

Design and layout your brochures, mailers, and related materials on Professional Page, PageStream or Saxon Publisher; use Form Action or Top Form to create professional-looking business forms. Your remaining paperwork—letters, contracts and legal forms—can easily be produced using Ultra-Forms or MicroLawyer.

Other useful Amiga programs can put you in charge of your business' project, time and schedule management (Project Master, Who! What! When! Where!, WordPerfect Library); telecom-

(continued on page 52)

Gold Disk Office



by Chuck Raudonis

What do you do if you want to type a narrative document, back up your narrative with a detail report from a database, move the raw data to a spreadsheet for analysis, graph the analysis and then drop the whole thing into a desktop publishing program to produce a finished document with high-resolution fonts and graphics? You go out and purchase five different programs and spend something approaching the national debt of several small countries, or you buy Gold Disk Office.

Gold Disk Office is an integrated package that combines a word processor, spreadsheet, graphing program, flat-file database, and a full-function page layout-style desktop publishing system. The key word here is *integrated*. Data can be moved from almost any module to any other module (see accompanying table for interchange capabilities). The result: a package far more valuable than any of its components, taken separately, would otherwise be.

Like all good Amiga programs, the "Office suite" of programs makes good use of the keyboard and the mouse. Text in the word processor and cells in the spreadsheet and graph modules can be selected with the mouse or the various arrow key combinations. Almost every major menu function has an Amiga key alternative so you don't have to leave the keyboard to perform any essential functions.

The word processor can stand on its own with any word processing package on the market. Write supports all the standard Amiga text styles and character sets. Macros are also fully supported; up to 10 macros can be defined to the program. Each macro is assigned to a function key and can encompass up to 99 keystrokes. In addition, two of the macros can be activated via the mouse. Write has a search-and-replace feature that cannot only search and replace text strings, but also functions on text formatting codes such as bold, italic and others.

There is also an integrated spell checker. The spell checker can be run stand-alone to check standard ASCII files, or it can be invoked from within Write to check the document that is being worked on. The spell checker comes with a 90,000-word dictionary, and the user can define his or her own entries and add them to the dictionary for future use. The entire dictionary is loaded into RAM when the program is loaded. Because of this, the program is amazingly fast.

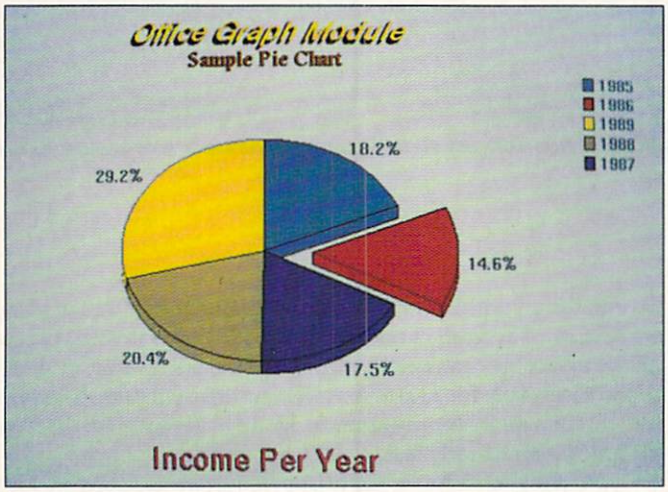
Printing in Write is fairly sophisticated. Options include Auto-Hyphenation, Data Merge for form letters, and Single, Double or Triple spacing. Documents can be printed to disk or to a printer, and there is a very nice screen preview option that allows you to see documents as they will appear when printed. The screen preview option in most other programs is a reduced-size look at the overall format of the page. Write's screen preview is a full-size look at the output with complete scrolling capabilities.

If the full-featured printing functions of Write are not powerful enough for the application that you have in mind, just import the document into the Page formatting module and get typeset-quality output.

Another nice aspect of the Write module is its index-generation capabilities. As you type your document, any phrases or words that you want to index are tagged. When the document is finished, the index is generated as another file.

The Calc module is a full-featured spreadsheet program that can store up to 32,000 rows by 32,000 columns (if you can put enough memory to do that in your Amiga). Besides the standard spreadsheet functions of add, subtract, etc., Calc has as rich a function set as any spreadsheet that I have ever worked with. In addition to the standard business and statistical functions included with the package, the package provides the user with a full set of mathematical functions, trigonometric functions, table lookup, spreadsheet formatting functions and date and time functions. Each cell on the worksheet can be formatted as to color and type style.

At this point, I should mention one of my few complaints about Gold Disk Office. It seems that the programmers implemented the standard system-defined date function to handle all dates within all modules of the package. All dates are stored as the number of days since 01/01/78. This is an efficient method of storing such data, but it is impossible to store a date earlier than this date. So, if you are trying to build a spreadsheet or database that includes dates prior to 1978, it cannot be stored in the system-defined date format. If the dates are not necessary for calculations, it is possible to store them as text strings. But it is impossible to calculate differences between any pre-'78 dates. This is unacceptable in any computer system.



Gold Disk Office

Calc has powerful macro capabilities. Unlike Write's limitation of 10 macros, any number of macros can be recorded. Besides macros, Calc supports an ARexx interface. If you have the ARexx package, you can control the Calc module from ARexx ports.

Calc also has some very nice Preferences options. You can set the number of iterations that are processed each time the spreadsheet is recalculated. This is nice if you have several cells that are interrelated. The spreadsheet can be set to five or six iterations and the needed calculations will be resolved down to an accurate value. Even the cell advance feature can be customized. The user can set the number of cells and the direction to move after cell input is finished and the return key is pressed. Each cell can have a note attached to it. This note can be used to document the origin of the number or can be a general comment about the feature, or even an explanation of the calculation involved in the cell. This is an exceptionally useful feature.

The Graph module is an extension of the Calc module. The two programs employ the same user interface. The major difference between the two programs is that Graph only works with values. Graph does not perform any calculations.

Graph has a full range of built-in chart types. Graph produces line, bar, scatter, high/low, area, column, 3-D column, step, pie, and 3-D pie charts. Each chart type can be customized to the user's specifications. All areas of the charts and all the screen text can be colored as desired, and individual text items can be set to any font available on the system. This feature, combined with the proportional Helvetica and Times Roman fonts from Workbench, can be used to produce very professional-looking charts.

Graph also allows the user to control the final look of the finished chart in other ways. The slices of a pie chart can be individually exploded, or all slices can be exploded at once. Horizontal and vertical grids can be overlaid on the chart to make the graph easier to understand. The maximum and minimum values for the Y-axis can be customized if you wish. Bar and Column charts can be stacked, overlapped or printed side-by-side. The Graph module uses the Workbench screen, a custom screen or a custom interlaced screen. The custom and custom interlaced screens can be opened in either 2, 3 or 4 bitplanes to produce 4-, 8- or 16-color palettes. The color palettes on the custom screens are entirely user-customizable with a standard Amiga color requester.

Graphs produced in the Graph module can be saved as IFF files, in CAD format (Aegis Draw Plus format) or as Professional Draw Clip files for importing into the Page module. Graph supports the standard Amiga print drivers and prints in either of two formats. The regular print is just like any Amiga printout with the standard resolution. The Enhanced print option allows printing with more detail than in a standard print. This method uses more memory, but produces better output.

The File module is a bit of a disappointment. It is strictly a bare-bones, flat-file database with few advanced features. If you need to keep simple lists of names and addresses to merge with your form letters, or just want to keep some simple data in the system to sort and review in one of several ways, this module fills the need. It would be impossible to produce any sophisticated applications utilizing this database. The date problem mentioned above cripples even the simplest of applications in the File module.

The file data interchange options in the accompanying table reveal that File cannot be the destination for data from other modules. It also lacks the capability to import data from ASCII files. With this lack of interface capability, it is impossible to get any data into this database from external systems.

Databases can be maintained in a spreadsheet-like interface, or the user can design custom screens for full-screen input of records. The screen editor that is used to design the full-screen input is very simplistic. There are few tools provided to the user; the editor even lacks tools like cut-and-paste. If a screen is designed with 10 rows of fields and text and the user wants to insert a line in the middle of the screen to add some new fields, it cannot be done. To perform this task, the user must type over all the misplaced lines and start over.

While getting data into a File database is cumbersome, it is easy to create indices that allow the user to view the data in a certain desired order. Indexes can be created on single fields, or combinations of fields, and the user can sort on many fields. Thus, it is possible to sort a file by Last Name, First Name and Middle Initial. In addition to sorting the database in any method desired, it is also possible to assign filters to the data. A filter limits the amount of records that are viewed at once, to show only the desired records for the analysis at hand. In the interactive mode, you can search the database for the next record that meets a specific criteria. After the database is filtered of unwanted records, store the pointers to the desired records as a set for future use. A

(continued on page 45)

Doing your taxes the easy way

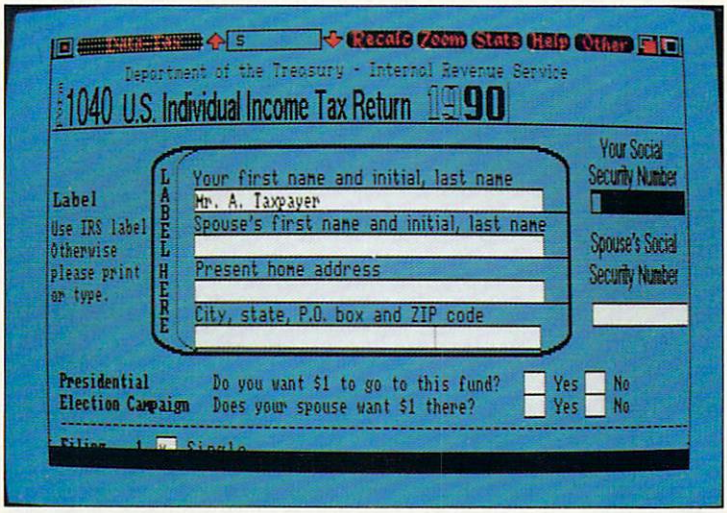
dataTAX

by Daryell Sipper

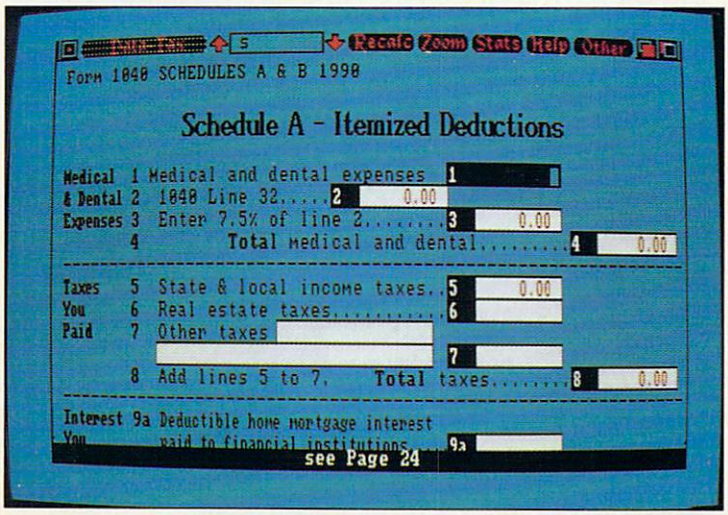
I don't enjoy doing taxes but I don't hate doing them, either. I've maintained my tax records on a spreadsheet for the past few years, a practice which has helped me to understand taxes much better. Using the template as a year-long tax planner, I add or update the necessary information and my spreadsheet shows my tax status.

Last year, however, I decided to take a peek at Tax Break. Naturally, I compared it to my spreadsheet—and found that it compared very favorably. This year, Tax Break has a new name, dataTAX, and some nice new features as well.

dataTAX is written and sold by Datamax Research Corporation. It is packaged with a bootable system disk, a help disk and user manual. By the way, dataTAX also comes in an MS-DOS version. File formats of each version are identical, so swapping your data from one system to another is easy.



dataTAX prints Form 1040 in an easy-to-read text version or as an IRS-approved facsimile.



All forms, schedules, and worksheets are fully integrated.

This review is based on my work with the "Headstart" edition of dataTAX, itself one of the new features offered by Datamax Research to users last fall. Users were not required to purchase this edition, but for $15 (in addition to a $29 upgrade) they were able to start preparing their tax returns in November. By sending in his or her registration card, a user automatically received the final version in mid-January of this year, at no additional cost. That version contains the final IRS forms and instructions, updated help screens and documentation, and another new feature, electronic filing.

dataTAX is a real help to the majority of those considering the purchase of a tax preparation/planning program. It includes Forms 1040 and 1040A, plus Schedules A, B, C, D, E, F, R, and SE. Forms 2106, 2441, 3903, 4562, 4868, 8606, and 8615 are also included. Several worksheets are available, such as those needed to calculate child care expenses, self-employed health insurance, or IRA deductions.

dataTAX requires 512K of RAM and one disk drive. Users with 1MB can copy all of the forms to memory and are encouraged to do so, as this speeds up the program considerably. This program multitasks well. I had it running concurrently with Nag Plus, FreD, DiskMaster, and WordPerfect. Workbench 2.0 is also supported and the program utilizes the new 640 x 480 productivity mode.

I encountered no problems installing the program on my hard drive, though I wish companies would provide automatic installation programs. I don't mind doing

(continued on page 44)

Gold Disk's Desktop Budget

by Chuck Raudonis

One of the first reasons that many people give for buying a home computer is: "I can use it to help organize my home finances and establish an accurate working budget". However, if you were to take a survey of the number of home computer users that actually do their family's budget on their computer, I think you would find that number to be remarkably small.

Why does this gap between intent and execution exist? In a word—software! Until recently, budget software has only sometimes been complete, not necessarily easy to use, and frequently difficult to understand. Unless you had already established a strict working budget "manually" and understood the workings of budgets in general, the probability of wanting to dive right in and start planning a budget on a computer was not very high.

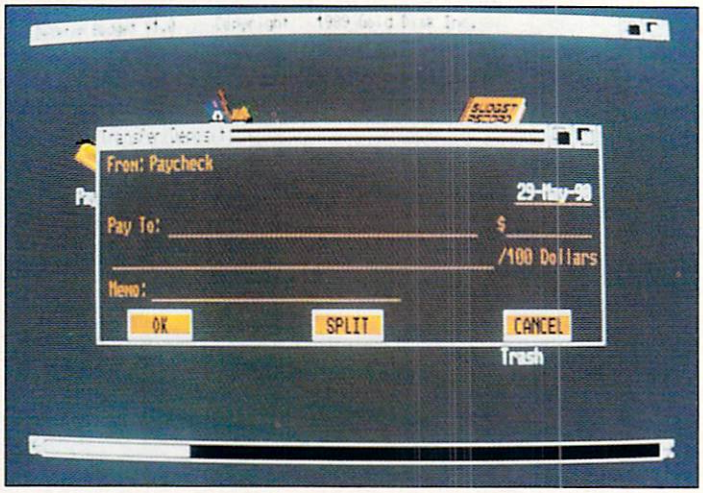
But now, Gold Disk has produced a budgeting program that is as easy to use as the Amiga itself. In fact, the core of the program operates exactly like the Amiga Workbench. If you are comfortable clicking on icons and selecting from the Workbench menu, you already know how to manipulate Desktop Budget. To process a transaction, select the account for the transaction (i.e., where the money is coming from) and double click on its icon. The details of the transaction (date, amount, etc.) are entered into a window that appears upon the double click. When the "OK" gadget is clicked in this window, an icon that represents that transaction appears on the screen. This icon is picked up and placed over the icon for the destination of the funds (i.e., where you spent the money). What could be easier?

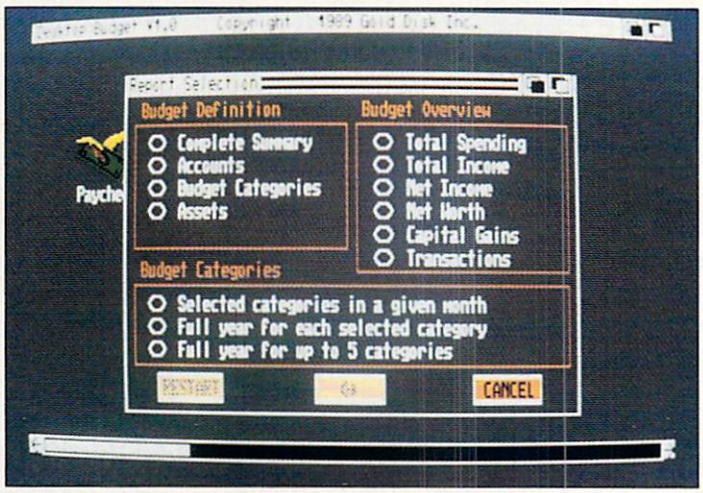
Desktop Budget employs a "virtual" desktop that is somewhat similar to a Workbench window in that it is smaller than necessary to hold all of the icons that are in the drawer. The virtual desktop has a scroll bar at the bottom of the screen which can be scrolled horizontally to open up a more effective work space.

Let's look at a the steps needed to create and maintain a simple budget in Desktop Budget. Our example will have only one source of income (your job), one expense item (food), and one checking account. Obviously, a real-world example will have many expense categories, numerous sources of income (hopefully!), and different accounts for checking, savings, and investments.

The first step is to create the budget files. Like any well-conceived Amiga program, Desktop Budget has a "new" option on the menus. You assign the files names and Desktop Budget creates the necessary files and the first icon for you. This icon represents the entire budget. Whenever you want to perform an action on all of the accounts, use this icon.

When the files are created, Desktop Budget presents you with a "budget definition" window. This window allows you to create any type of object that is needed to run your budget. There are four different types of objects: accounts, budget categories, filters, and, of course, a trashcan. This trashcan functions just like the Workbench trashcan. To discard something, pick it up and





above: *Deposit - window is used to deposit or transfer money between accounts.*
below: *Reports - window shows the available reports.*

"Desktop Budget provides a comprehensive set of reports which allow you to analyze your budget any way you like."

place it over the trashcan and it is gone. Filters allow you to look at any subset of the total number of transactions; we will discuss them when we get to the report section. Accounts can be any of the following sub-types: checking, savings, credit, or cash; budget categories are either income, expense, or asset.

The most handy thing to have around in case of an error is a trashcan, so let's create one of those first. To create any object in Desktop Budget the procedure is the same. Enter the name of the object and select the gadget that defines its type. If the object is an account or a budget category, you must also select its sub-type. We will create four objects in our budget: a checking account called "Checking", an income budget category designated "Paycheck", an expense budget category titled "Food", and our trashcan. This whole process takes no longer than a few minutes.

Icons set Desktop Budget apart from other traditional budgeting programs in terms of ease of use. Each object has an icon assigned to it for use on the virtual desktop. Gold Disk supplies a wide variety of ready-made icons for your use, plus a nice icon editor so you can create your own. For our example, we will use some of the standard icons supplied by Gold Disk. "Checking" will be marked by an icon that looks like a miniature check; "Paycheck", by an icon that looks like a dollar bill with wings; "Food" is assigned an icon that resembles a bag of groceries; and you know what the trashcan will look like!

The beauty of this system is that when you want to write a check against the food account, you click on the check icon, create a check transaction, and then drop it on the bag of groceries! What could be more intuitive?

Once the objects are created, you must actually establish a budget. This is the most difficult part of the whole process, in that you must estimate income and expense levels for an entire year. Once you have estimated the amounts for each object, Desktop Budget is then able to tell you whether you will have any money left over at the end of the year—or whether you need another job! These values can be entered as monthly values or, if it is easier, just enter the total annual figures and Desktop Budget will calculate the monthly values for you. If you need some assistance calculating a value, Desktop Budget provides a software calculator. This calculator is integrated with Desktop Budget via the Amiga clipboard, and can be used to calculate any item. The result can be clicked on and placed directly into the gadget that needs the number.

If you really don't have a good estimate of your monthly and annual spending amounts, do not worry: changing your estimates later is easy.

Once your budget is established, it is time to start sticking to it. As mentioned earlier, to register income in our test budget, double click on the flying dollar bill to make a deposit slip appear. Fill in the details of the deposit, click OK, and a deposit icon that looks just like the icon from which the account came shows up on the workbench. Pick up the icon and drop it on its destination. To write a check, just double click on the check icon. A check appears, and the rest of the transaction is the same. If a transaction is to be split among several accounts, just indicate the amount(s) to be split and Desktop Budget provides multiple icons that you can drop on the various destinations. The system also provides a mechanism that allows you to format repeating payments, such as your mortgage or your car payment. If you wish, these payments can be posted to your budget automatically when they are due.

Desktop Budget provides a comprehensive set of reports which allow you to analyze your budget any way you like. The simplest form of report is the easiest to use. To continue the Workbench analogy, you just point and click. To see a report that contains the transactions for a budget category or categories, select the appropriate icons and press Amiga-R, and a report showing all the transactions for those categories appears. If you have to modify a transaction, just point at it on the report and click on it. The selected transaction is retrieved for editing. In addition to the simple transaction report, Desktop Budget provides a full set of predefined reports to allow you to look at a total overview of your budget, income, and spending.

All of these reports are structured to let you look at the data in various ways. Review the data on a monthly or year-to-date basis and analyze it in raw dollars, or as a percentage against your entire budget. Filters let you narrow or define your selection further, such as to only report on transactions between certain dates or involving certain amounts of money, etc.

The Desktop Budget system has a print spooler built into it. When a report is selected for printing it is sent first to the spooler so the user almost immediately regains control of the system to continue processing. The package also has a series of built-in graphs to allow you to easily visualize the status of your budget. The graphs can be viewed on screen, printed, or saved as in IFF file.

While the system saves graphs in IFF format, it does not do so in a standard image size, so not all packages will accept the files. IFF is supposed to be a standard format. Why Gold Disk would go to the trouble of producing IFF files and not make them standard is beyond me.

(continued on page 60)

(dataTAX, continued from page 41)

installations myself, but many people do mind and shouldn't be forced to do them.

The new manual is improved and much smaller than the previous version; users now have to look elsewhere for any necessary tax-specific information. The manual covers operations of both the Amiga and MS-DOS versions. I would prefer two separate manuals, but the manual is small enough that this represents only a minor inconvenience.

There are no keyboard templates or handy reference cards, but this information is found in an on-line help file. To Datamax's credit, all of the help screens can be printed from within dataTAX. There's a wealth of information in these help files, and I do recommend printing them. By doing so, you will end up with a valuable "supplementary" manual, including a list of all the keyboard shortcuts.

dataTAX takes a few moments to load, even from a hard drive. Floppy drive users require a bit more patience. The program loads in a minimum-system mode, which includes a black-and-white screen. I changed the color to a light blue screen to match the color of the 1040 form. This information is saved with the program's preferences file, so you need not worry about it again.

As with many programs, you really don't appreciate the potential of dataTAX until you spend some time with it. I have become comfortable using dataTAX and I believe all users will quickly adjust to it. You might not expect this from a tax program, but dataTAX is easy-to-use and intuitive.

Numbers are entered easily and calculations are made fairly quickly. The on-line help which is available for many line entries creates a very user-friendly environment. An on-line calculator is included, along with a paste function to simplify any scratch-pad work.

You can prepare two returns simultaneously. It really doesn't matter where you start working as all forms, schedules, and worksheets are fully integrated. You can itemize all line entries, such as listing all the charitable organizations you contributed to. The program automatically recalculates every time you change a cell, and your "bottom line" tax status is always displayed at the bottom of the screen.

Each data file is saved to the "Tax_Returns" drawer; dataTAX automatically looks in this directory for data files. This is another convenient new feature.

The program saves an icon with each data file and you can start dataTAX from these icons. The icon default tool is saved as ":Tax-90/dataTAX". That's because all files and drawers are located in a directory called "Tax-90/" and dataTAX expects to find this directory in the root directory, whether on a floppy or hard drive. While this sounds like a problem for those who set up their hard drives with many subdirectories, it is easily overcome by editing the default tool of the master icon in the "Forms" drawer.

The program provides two ways to print the 1040 form: as an easy-to-read text version, or as an IRS-approved facsimile. All other forms are printed only as text versions, and quickly at that; the facsimile-version 1040 takes a few minutes to print because it's a graphic dump.

Why these distinctions? The IRS accepts only graphics versions of the 1040 form, whereas other forms are acceptable for submission "as is". The 1040 facsimile image is scanned at 120 dots per inch (dpi). The original image is scanned at this "low" resolution so that it works on 9-pin dot matrix printers. The image does look a bit "jaggy", but it is an approved facsimile. Besides, a 300-dpi scanned image would be a huge file and there's only so much room on a floppy disk.

You can normally expect a refund in 6 to 8 weeks when filing your Federal taxes by mail. The new electronic filing feature reduces that time to about 2 to 3 weeks. Electronic filing is a three-step process:

(1) Create the tax return.
(2) Check the return for errors and verify that it qualifies for electronic filing.
(3) Send the return to an IRS-approved service bureau, which typically charges about $15 for processing.

Datamax Research has really gone the extra mile here for Amiga users. Step 2 would normally prevent Amiga users from filing electronically because the checking process is performed by the service bureau and they use MS-DOS software.

Datamax has provided a workaround to this problem. All a dataTAX user has to do is send the tax return to Datamax's BBS. The data file is small and only takes about 30 seconds to upload. Datamax performs the data checking and sends your tax return to an approved service bureau. The best part is that you still pay only $15.

Complaints? Sure, there are a few minor ones. dataTAX includes no state tax forms, so I can complete only half of my tax returns with it. Admittedly, most state tax forms are based upon federal tax forms, so in reality, dataTAX is doing more than half the work. Nevertheless, New York and California forms are planned for next year, and I hope Datamax finds a way to offer other state tax modules in future versions.

There are a few forms that some tax filers will find missing: 2119—Sale of Your Home, 3800—General Business Credit, 4684—Casualties and Thefts, 4797—Sale of Business Property, 4972—Tax on Lump Sum Distributions, 6251—Alternative Minimum Tax, 8283—Noncash Charitable Contributions, 8582—Passive Activity Loss Limitations, and 1040ES—Estimated Tax Worksheet.

Another feature I would like to see added is a tax interview to help users determine which forms to fill out. There should also be some import capabilities from spreadsheet or accounting programs. This would be especially helpful for small business owners.

These are hoped-for enhancements, however, and not deficiencies. I like dataTAX. The Datamax staff is providing a top-notch package and I found them to be most supportive and easy to talk to. Datamax offers voice, BBS, and FAX support, in addition to providing the electronic filing service. They are also very pro-Amiga. I appreciate their attitude and open-mindedness in listening to new suggestions for improvements.

Rather than complain about the lack of mainstream business software for the Amiga, we can challenge this dilemma by supporting the worthy programs that do exist. dataTAX is such a program. It's easy to use, reasonably priced, and an excellent value. It should continue to improve with each subsequent release and I believe that the more we support it, the better it will become. •AC•

dataTAX V5.0
Price: $75.00
System requirements:
512K min., one disk drive;
1MB recommended.
Inquiry #259
Datamax Research Corp.
269 Portage Rd. Box 1147
Lewiston, NY 14092
(416) 250-7424

(Gold Disk Office, continued from page 40)
set can be used as a merge file in the Write module to, for example, select all clients located in a certain zip code and print a form letter with the name and address of each client filled in.

File has a built-in report generator that allows the user to set headers and footers, select the fields to include in a report, set break fields and the fields to be totaled. File also has an ARexx interface.

The last module in Office is the Page module. Gold Disk developers took their Professional Page program, removed a few of the more sophisticated features, and included it in Office. Those features that were removed do not reduce the functionality of the Page module for the average user. The system does not import EPS or Aegis Draw files like Pro Page, but it does import bitmapped IFF files, Professional Draw Clip files from either Pro Draw or the Graph module, plain ASCII text files, Office Write files, WordPerfect, Scribble!, Textcraft and Textcraft Plus files.

Page is a true page layout tool. The user divides pages into columns and areas using boxes. The text or graphics files are inserted into these boxes, which are linked into groups. If a file is too large for one box, it will flow into the next box in the group, even if the next box is not on the same page. Place a graphic anywhere on the page and the text either wraps around it or, if desired, it flows right over it. This feature makes it possible to place a gray-scaled graphic in the background (i.e., a corporate logo under a report). Using Page, it is possible to crop and size a graphic as needed.

Page also has built-in drawing tools. The user can draw lines, rectangles, ellipses (circles) and polygons directly on a page.

Page uses the multitasking capabilities of the Amiga. If Write is running in the background while Page is running, select "Write" from the Edit menu and the text file that is in the current box will load into Write and be prepared for editing. If the user does not have enough memory to load both programs, Page has its own built-in text editor. It is not as full-featured as Write, but it is functional.

Table 1 - Data Interchange Options

Source	Destination				
	Calc	File	Write	Graph	Page
File	X	X	X	X	
Write	X		X		X
Calc	X		X	X	X
Graph				X	X

The best feature of the entire Gold Disk Office package is the output capabilities of Page. Page supports Compugraphic Fonts. These fonts are stored, not as bitmaps like the standard Amiga fonts, but as algorithms that describe the fonts. This means that when printed, the fonts can be adjusted to print at the maximum resolution of the printer chosen. Page uses the standard Amiga printer drivers, but the output created is of a quality not seen before. Even 9-pin dot matrix printers can produce near typeset-quality output. The output from these font sets must be seen to be believed. The package comes with one CG Font. Gold Disk has an entire library of fonts that can be purchased to add to the capability of the system.

With the ability to type a document in Write and quickly drop that file into Page and produce typeset quality output, this package is worth its price even if you are only looking for a word processor. The only weak component of this suite of programs is the File database module—it's just not up to the high standards of the other modules. If you require a full-featured, high-powered database, you must look elsewhere, but if you are like most people and are just looking for a convenient place to maintain a mailing list, this database fills the bill.

The other pieces of the suite are excellent. Gold Disk Office is a convenient, integrated system in which all the pieces work efficiently together. I think you will be pleased with it.

•AC•

Gold Disk Office
Price: $295.00
Inquiry #270
Gold Disk Inc.
5155 Spectrum Way, Unit 5
Mississauga, Ontario
Canada L4W 5AL
(416) 602-4000

BGRAPHICS

A Business Graphics Package

by Chuck Raudonis

With the release of BGraphics by Technical Resource Systems Library, there is a new style tool for the Amiga community. BGraphics is a dedicated business graphics generator which produces Line, Column, Bar and Pie charts. Each chart type has several variations.

Line charts can be produced in XY, XY Area, Scatter and Regression formats. The XY is a standard line chart that maps data as points on a line (Figure 3). The XY Area chart plots the same lines as the XY chart, but the area under the chart is filled in with color (Figure 1). This type of chart more clearly shows the relationship between values as it is easier to see the differences among lines with the added color. Scatter charts are similar to XY Line charts, except that they only plot the points of data and are not joined with a line. Regression charts are identical to Scatter charts, but a regression trend line is added to measure trends of the plotted points. This is useful for tracking trends within a set of widely scattered data points.

Column and Bar charts are available in the same formats. Column charts are vertical charts with the X-axis on the bottom and bars radiating up and down. Bar charts are horizontal charts with the X-axis rising vertically and the bars radiating left to right. Column and Bar charts can be produced in Single, Absolute, Stacked and Overlap formats. The Single format prints charts radiating from the X-axis with positive and negative values all radiating in the same direction. Absolute charts are similar to Single charts, except that negative values radiate in the opposite direction of positive values. Stacked charts, as the name implies, show all the bars stacked on top of one another (Figure 2). Overlap charts are similar to Single charts except that the bars slightly overlap each other. Column charts are also available in one format that Bar charts are not. The Step chart format prints the columns adjacent to each other.

Pie charts can be done as wire frame or filled charts. It is possible to produce Pie charts that compare the values in a single category; or, a proportion of various categories can be made. For example: Given three sets of data (Fixed Costs, Variable Costs and Profits) for the twelve months of a year, it is possible to create a Pie chart that graphs all twelve months of Profits data, or a chart that compares the totals of the costs and profits.

All charts can be produced in 2-D or 3-D. A chart produced in 3-D is drawn in a manner that creates an extruded effect for each charted value. A legend can be produced to identify each data set. BGraphics also provides an option to tag each graph item with the data value that is underlying the graph, which in turn prints the data value over the graph item that represents it. Grids can be placed on both the X and Y axes. The axes can be defined using any method the user chooses. The range of each axis can be defined as desired; major and minor tick marks can be defined and grids can be assigned. All text items on the screens can be customized, and any combination of fonts, colors, styles and sizes can be assigned to the various text items on the screen. This flexibility allows the user to create a very nice looking chart. Free-form text can be placed anywhere on the screen.

BGraphics allows utilization of IFF images in conjunction with the business graphics being produced. Any IFF image can be imported and used as a background for the charts. If the user wants to provide a corporate logo or a presentation theme or title on every slide, the repeating pattern is stored in an IFF file, and the file is imported as the background for all graphics in the presentation. IFF Brushes can also be imported and placed anywhere on the screen. Brushes can be used to import clip art into presentations for impact. In addition, IFF Brushes can be used to actually form the graphs. For example, a brush in the shape of an ear of corn could be used to illustrate the annual production of corn from a factory. BGraphics can create the bars in a bar chart by stacking several copies of the Brush image to produce the height needed to represent the data. Using this feature, your charts become self documenting. One need not include a legend on a graph if the bars look exactly like the item being charted.

The only problem with the implementation of IFF Brushes is in the handling of the Zero or Background color. The standard implementation of the zero color is to render it transparent. This means that any areas in the brush that are of color Zero should show whatever is behind the brush. In BGraphics, the zero color is printed in the Zero color. This causes problems when you want to use large brushes to overlay the graph, or you want to overlay brushes over an IFF Background. This problem can be worked around with some creative chart design. In addition to providing for IFF input, the package has an IFF workbench called the Transfer Slate. Using this Slate, any number of charts and graphical elements can be combined and placed into an IFF image. This image can then be imported into any drawing or paint program and embellished with the tools in the second program.

BGraphics also has several built-in drawing tools, that provide the user with the ability to draw hollow and filled boxes, lines and arrows.

BGraphics always renders its charts in the same order so it is easy to predict the final outcome. The order is as follows: The IFF background is laid down, the graph itself is drawn, any drawn objects are then placed on the chart, and lastly, the movable objects, such as text and IFF Brushes, are rendered. This allows the user to build the chart and know that, based on these rules, all charts will come out the same in the final printing.

The user can let BGraphics size the graph into the active window, or the graph can be sized manually. The ability to size graphs manually is useful for sizing graphs to place several on one page. Since all of the major drawing and overlay items are created as gadgets, it is easy to customize the charts that BGraphics produces. If the location of the text annotation that was just added is not quite right, grab it with the mouse and move it over! It really cannot be made any easier than this.

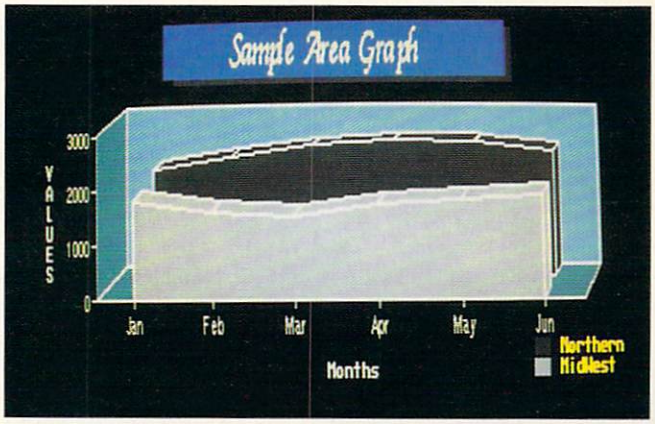
BGraphics can use any Amiga font as well as multiple fonts per chart. Most text items can be defined separately so a different font and size can be utilized for each item if the user wants. The package also provides a simple spreadsheet-like interface to facilitate data entry for the graph values. The interface is not meant to replace a spreadsheet, but it can do simple columnar math and provides a clean method to review data and make minor changes. The system can import any ASCII data file as input for the charts, so interface to any program is easy.

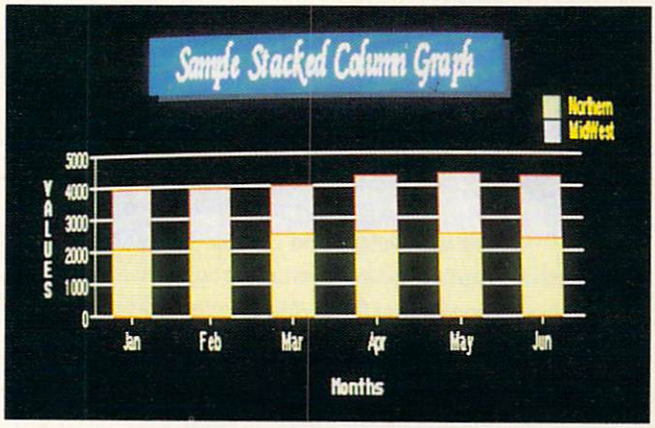
One of the disappointing features of the program is its pattern editor. The user has the ability to define the patterns that are used to fill the bars and pie charts. Given the system's graphics capabilities, one would expect a graphics-based pattern editor with a mouse interface to permit alteration of the pattern using some drawing tools. However, the pattern definition editor produces a window that is full of ones and zeroes. To turn a pixel in the pattern on or off, a one or a zero is inserted into the appropriate position in the window. This is primitive at best, but it is effective. It gets the job done.

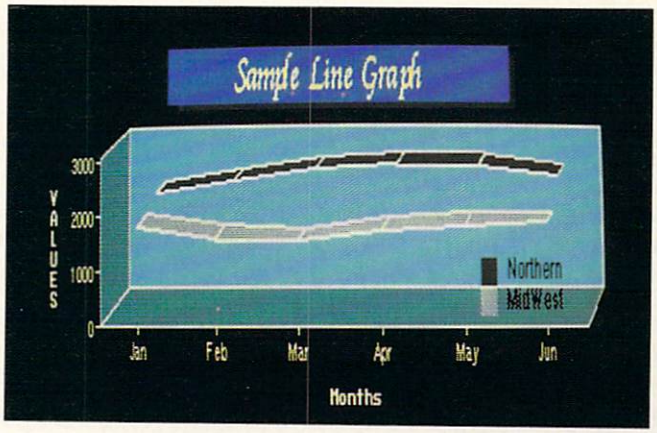
Overall, BGraphics is a handy package to have for your presentations in the business arena. If you are going to make presentations for clients, potential investors, or your boss, this package will provide you with the tools needed to prepare your presentation quickly and efficiently. With the addition of automatic 3-D text and drawing tools to match the 3-D chart effects, this package could produce even better charts. Even without any additions, it is possible to produce professional-looking charts quickly and easily.

•AC•

BGraphics
Price: $295.00
Inquiry #257
Brown-Wagh Publishing, Inc.
16795 Lark Avenue, Suite 210
Los Gatos, CA 95030
(408) 395-3838







top to bottom:
Figure 1, Sample Area Graph
Figure 2, Sample Stacked Column
Figure 3, Sample Line Graph

Sharing Your Amiga Hard Drive With The Bridgeboard

by Gene Rawls

I had come across a great jigsaw puzzle, each piece of the puzzle being a section in a chapter in one of many manuals...

I am not an Amiga Guru. Yet, I am no longer a beginner, either. Recently, I sat down in front of an Amiga 2000HD with an A2286 Bridgeboard still in its box, and set a goal for myself: To become familiar with the system and complete all the necessary hardware and software reconfigurations. To achieve this, I felt it necessary to take the following three-step approach:

1) Learn the basics of Workbench and the CLI.
2) Install the 5-1/4" floppy drive and the A2286 Bridgeboard.
3) Partition the 40MB hard drive to allow access and storage from both Amiga and PC software.

Sound simple? For experienced users it is—especially the first two steps. They were easily accomplished. The *Introduction to the Commodore Amiga 2000* manual is very well written and it takes just a few hours to understand the basics of AmigaDOS, Workbench, and the CLI. The *Amiga A2286/A2088 Bridgeboard User's Guide*, enclosed with the Bridgeboard, also lays out the hardware installation in solid detail. Things were moving along fine as I pressed toward my goal.

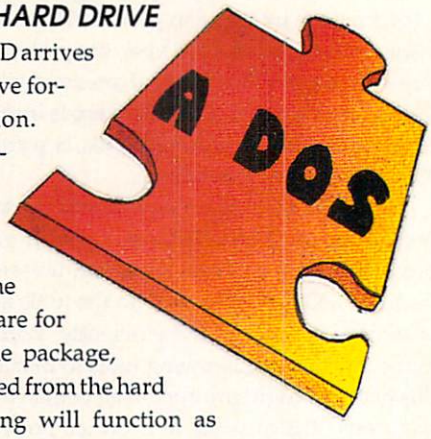
At this point, I had a single Amiga partition on my hard drive. My machine would boot from the hard drive. I could also boot from the PC Bridgeboard's Install diskette, select the PC Icon, select the PCMONO Icon, insert the MS-DOS 3.3 diskette in the 5-1/4" drive, and start a PC MS-DOS session. I felt good about my progress thus far, but one thing still troubled me: In all the reading I had done to that point, I had never seen any mention of reconfiguring the hard drive to be shared between the Amiga and PC operating systems.

To be sure, the Bridgeboard manual refers to the need and possibility, but nowhere is the process laid out in easy-to-follow steps. There is no, "So you want to partition your hard drive for the Bridgeboard?" section in any manual. I checked everywhere and finally realized that the steps were all there, but it was up to me to piece them together. I had come across a great jigsaw puzzle, each piece of the puzzle being a section in a chapter in one of many manuals.

The finished product is very impressive, and well worth the effort. But when all was said and done on my system, I was left asking, "Why is this a secret?" Had I stumbled upon a "cover-up"? After all, my local dealer offered to do all of this for me for a "nominal" fee of $130. Perhaps Commodore has provided its dealers with a top-secret document which lays out this process. I, on the other hand, feel this information should be available to all.

I do not know if this is how the manufacturer intended the process to be completed, but it is effective (i.e., it works). Amiga Gurus probably know of other solutions to this perplexing problem, and I would love to read them. In the meantime, my home-grown hard disk partitioning guide follows.

REPARTITION THE HARD DRIVE



The Amiga 2000HD arrives with the 40MB hard drive formatted in one partition. Contained on this partition is Workbench, Amiga Extras, AmigaBASIC, the printer drivers, and the 2091 Installation Software for hard drives. Out of the package, your Amiga can be booted from the hard drive and all processing will function as documented.

This is fine unless you wish to use the hard drive from both the Amiga and the PC side. The hard drive must be split (partitioned) into at least two parts. These partitions are then viewed by the operating systems as separate drives. A partition can then be allocated (or defined) to either the Amiga or PC systems.

To repartition your hard drive, follow the directions provided in the Partitioning section in the *Amiga 2000HD* manual (p. 36). If you have installed a different hard drive, there should be an

overview on partitioning the drive. In any event, the instructions will be similar. Briefly, they are as follows *[Please note: This procedure will destroy all data on the hard disk]:*

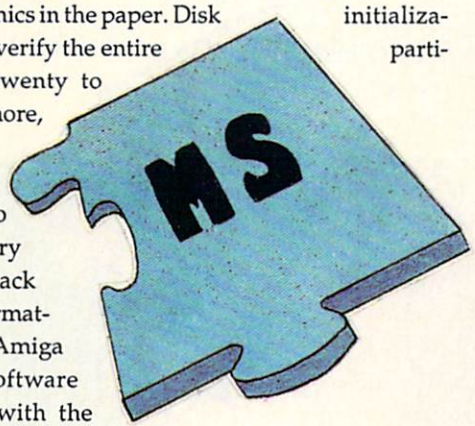
1) Double click HDToolbox.
2) Select "Partition Drive".
3) Drag the pointer to shrink the first partition.
4) Select "New Partition".
5) Click on the remaining partition(s).
6) Name the partitions and make them bootable.
7) Select "OK".
8) On Main Screen, select "Save Changes to Drive".
9) Select "EXIT".

This will leave your hard drive split into two empty partitions. If you wish to keep any data on the hard disk, back it up to diskette before partitioning the drive. The partitioning software will make all of this quite evident to you before allowing you to clear the disk.

REBUILDING THE AMIGA DRIVE ENVIRONMENT

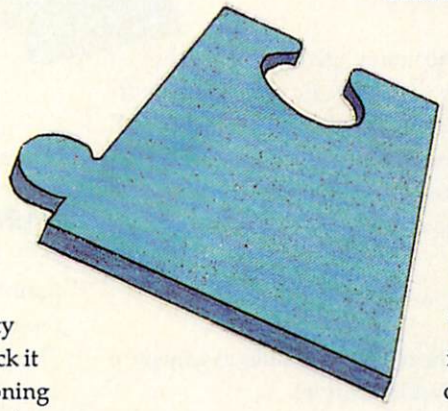
The fact that the drive has been cleared means you must now reboot your Amiga with a copy of the Workbench 3-1/2" diskette in your df0: drive. This will allow you to continue with the task at hand. The next step is to rebuild your Amiga partition so the machine will boot directly from it (i.e., get rid of the need for the floppy Workbench).

This step is very simple; all you must do is "initialize" this hard partition. The simplest way to accomplish this is to "click" on the empty disk's icon (DH0). Then hold down the right mouse button and select Disk Initialization on the Workbench pull-down File menu. You may then want to grab a cup of coffee and check out the comics in the paper. Disk initialization will format and verify the entire partition, which takes twenty to thirty minutes (or more, depending on partition sizes).



The next thing to do is to get all necessary programs and files back onto your newly formatted partition. The Amiga 2091 Installation Software diskette, provided with the 2000HD, makes this very easy.

Insert the diskette in a floppy drive and double click to bring up its icons. Click on the "InstallHD" icon, hold down the SHIFT key and double click on the Workbench icon (the icon remains on the screen from booting). The program then prompts for a copy of the Workbench and Extras diskettes to be placed in a floppy drive and copies all necessary files to your hard drive. This process is laid out in detail in the introduction to the *Amiga 2000HD* manual (p. 19).



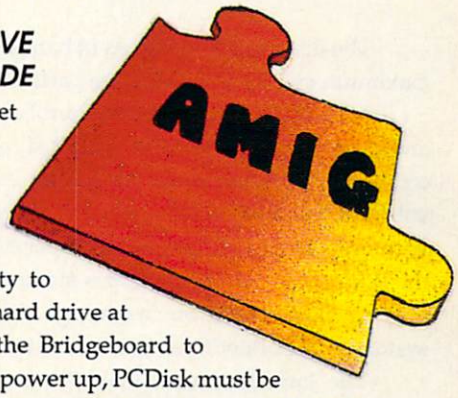
Once completed, reboot your Amiga without a floppy disk inserted. This should bring up the Workbench screen, with three icons—Workbench, RAM disk, and Empty Partition—on the side. From this time on, you may use this partition as a true Amiga hard drive. Files and programs can be written to and deleted from it, with the ease of use expected on the Amiga, with no special considerations.

REBUILDING THE PC ENVIRONMENT

Now you have your hard drive partitioned and your basic Amiga software installed on one partition. In order for the remaining partition to be used by the PC system, several steps must be followed. These steps are detailed in the *Amiga A2286/A2088 Bridgeboard User's Guide* but, unfortunately, they are randomly placed within the manual. Here are the remaining steps, presented first briefly for reference, and then discussed separately in detail:

1) Set up the drive on the Amiga side.
2) Partition and format the drive from the PC.
3) Install the Bridgeboard software on the drive.
4) Install all necessary PC software on the drive.

SET UP THE PC DRIVE ON THE AMIGA SIDE



When properly set up, an Amiga file can be used by the Bridgeboard as if it were a PC hard drive. This includes the ability to boot directly from the hard drive at power up. To enable the Bridgeboard to access the Amiga file at power up, PCDisk must be running on the Amiga. To ensure this, simply add the following command after the BindDrivers command in your startup-sequence file:

```
run >nil: sys:pc/pcdisk
```

Next, the partition must be set up on the Amiga side to allow the Bridgeboard to access it. This is done using the AmigaDOS MAKEAB (MAKE AutoBoot) command. Simply enter the following command from any CLI:

```
makeab <drive>:<directory>/[filename]
```

where <drive> is the device name given when you created the partition, <directory> is a specific drawer name (I chose "PC"), and [filename] is an optional qualifier. MAKEAB then prompts for the number of heads, sectors per track, and cylinders. The formula, as given in the *Amiga A2286/A2088 Bridgeboard User's Guide* (p. 88) is as follows:

```
# Bytes = Heads * Cylinders * Sectors/Track * 512
```

As an example, I selected the following values to emulate a 20MB hard drive (one-half of my 40MB drive).

```
Heads:  4

Sectors/Track:  17

Cylinders:  602
```

These numbers were arrived at quite simply (no thanks to the manual). Four heads and 17 sectors per track are very common for PC hard drives. This left a simple equation to solve to determine the maximum available cylinders:

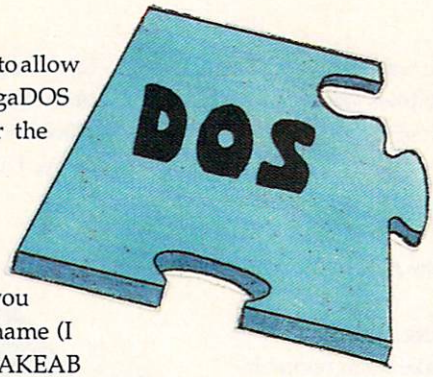
```
4 * 17 * 512 = 34816

20 * 1048576 (1 megabyte) / 34816 = 602
```

The divisor, 34816, comes in handy when determining the maximum cylinders for any size partition.

MAKEAB verifies the total number of bytes to be allocated and prompts you to continue. If all is to your liking, allow the creation to continue, and refill your coffee cup. For large volumes, this takes quite some time. Once this is completed, your partition is allocated in the proper AutoBoot format for the Bridgeboard to access it as a standard PC drive. The only remaining step on the Amiga side is to tell the system to AutoBoot from this drive at power up.

The Janus software looks for a file named ABOOT.CTRL in the SYS:PC/SYSTEM drawer to locate the proper device from which to boot MS-DOS. Create the file SYS:PC/SYSTEM/ABOOT.CTRL and enter the name given to the device in the MAKEAB command (e.g., DH1:PC). Save this file to complete all necessary steps on the Amiga side.



Most of the remaining steps are completed on the PC system. The drive must be set up and formatted to allow the DOS operating system to reside on it. Once the DOS system has been copied onto the drive, the PC automatically boots at power up.

PARTITION AND FORMAT THE DRIVE FROM THE PC

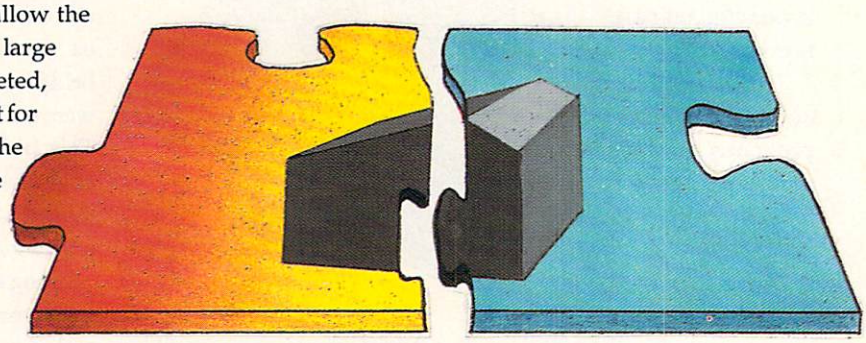
Since you have just defined the drive to the Amiga, the pseudo-PC hard drive is unformatted and does not contain any of the necessary MS-DOS software from which the PC is booted. Therefore, you must boot the PC with the MS-DOS disk number 1 of 3 in the 5-1/4" drive. This enables you to execute the remaining MS-DOS commands needed to configure, format, and set up the PC disk.

Configuring the pseudo disk is accomplished using the Fdisk command. Enter "FDISK" at the MS-DOS prompt. Select option 1 to create one primary DOS partition. If you desire a more complicated disk layout, a detailed discussion of Fdisk is found in the *PC MS-DOS* manual, Appendix D, "Configuring Your Hard Disk" (pp. 285-296). Fdisk is a menu-driven program that is very easy to follow.

Now that the primary DOS partition has been created, it must be formatted before the operating system can be copied to it. This is done using the FORMAT command. Since you want the primary DOS partition to be bootable, you must include the "/s" switch in the command. Enter the following command:

```
format c: /s
```

As you probably expect by now, this will take quite awhile.



INSTALL THE BRIDGEBOARD SOFTWARE ON THE PC DRIVE

Now that the PC disk is formatted, it can be used to store any PC programs or data. You have sucessfully created the desired PC hard drive; however, the Amiga software and MS-DOS operating system software (required to autoboot from this drive) have yet to be installed.

Fortunately, Commodore provides a nice program to copy the necessary Amiga programs to the drive. The PCInstall diskette, included with the Bridgeboard, contains the "BridgeInstall" program ("BridgeInstall512" for those without the 1 meg RAM chip). Insert this diskette in the Amiga 3-1/2" drive and double click this icon. The required programs will be installed on your DOS partition. This is briefly discussed in the *Amiga A2286/A2088 Bridgeboard User's Guide*, in the section "Boot Direct To An Amiga Hard Drive" (p. 50).

INSTALL MS-DOS ON THE PC DRIVE

The final step is to install the MS-DOS operating system programs on the PC drive. This is explained in the *Amiga A2286/A2088 Bridgeboard User's Guide*, section 4.4, "Hard Disk Setup—PC Side" (p. 51). The process consists of issuing three "XCOPY" commands to copy the contents of the three MS-DOS disks onto the hard drive.

Since you booted the PC from the 5-1/4" diskette, it is your default drive. This means your current prompt will be "A:". Enter the following command to copy disk 1 of 3 to the hard drive (drive C:):

```
xcopy a: c: /s
```

The /s is necessary to copy all files and subdirectories to the hard drive. The "XCOPY" program is one of the files copied to the hard drive. Therefore, you can change your working drive to "C" before copying the next two diskettes. This is accomplished by entering the following command:

```
c:
```

Next, remove disk 1 of 3 and insert disk 2 of 3 in the 5-1/4" drive and enter the following command:

```
xcopy a: c: /s
```

Now both disks 1 and 2 are installed on the hard drive. Remove disk 2 of 3 and insert disk 3 of 3 in the 5-1/4" drive and enter the same command again:

```
xcopy a: c: /s
```


When this disk has completed copying, the entire MS-DOS operating system is installed on your hard drive. Since you formatted the partition with the /s option, it is bootable. You can test your work by rebooting the PC (Ctrl-Alt-Del) with nothing in the 5-1/4" drive. You should see the boot take place from the hard drive. Since you told the Amiga software to look for this partition at power up (ABOOT.CTRL), MS-DOS will automatically boot whenever you turn on your Amiga. By the time you have opened the Workbench and opened the PC icons, DOS will be waiting for you.

The PC hard drive can now be used as a standard drive for storing programs and data files. New programs can be run from the 5-1/4" drive or copied from diskette onto the hard drive and run from there. Meanwhile, the other half of the physical drive is formatted for and accessible from the Amiga side.

If you have followed all the steps outlined here, you have brought complete user flexibility to your existing Amiga/PC environment—with a minimal investment in hardware, time, and fees (remember, it saved me $130). But the best part of all is that, by stepping through the necessary details, you have gained a very thorough understanding of how the Bridgeboard really works. This is by far the greatest benefit from doing your own work on your Amiga. •AC•

munications (A-Talk III, Baud Bandit); budgeting (Desktop Budget); accounting (Easy Ledgers, Nimbus); and tax preparation and planning (Tax Break, Tax Plan).

Depending on your needs, also consider programs for drawing, calendar making, automatic phone dialing, DOS conversion, hard drive back-up, maintenance and data recovery, and more.

What's missing from this picture?

Although the Amiga has been around for five years, a number of very useful business applications still have not been developed as stand-alone packages for this platform. What follows is my own wish list of stand-alone, full-featured business software packages for the Amiga, or (where noted) features I would like to see incorporated within existing packages. A number of the applications listed here *are* available to Amiga business users, but only within other word processing and related packages, whereas MS-DOS and Macintosh equivalents are readily available as stand-alone programs.

- Business plan analysis
- Grammar & style checker
- Financial analysis & planning
- OCR (optical character recognition) software
- State tax preparation & planning
- Word processor file conversion
- Automatic table of contents and index generation within desktop publishing program
- Floppy/Hard drive cache software/hardware
- Client time and billing
- Ready made business letter templates
- Ready made business contract templates
- Ready made business form templates
- User/industry-specific spell checking dictionaries
- Organizational chart creator
- Flow chart creator
- Statistical analysis
- Dedicated business presentation graphics
- Legal assistance
- Will creator
- Employee handbook creator
- Employee schedule creator
- Resume creator
- CD-ROM software

Product Information

DataRetrieve
Price: $79.95
Inquiry #213
Professional DataRetrieve
Price: $295.00
Inquiry #214
Abacus Software
5370 52nd Street S.E.
Grand Rapids, MI 49512
(616) 6980-0330

Pen Pal by Softwood Company
Price: $149.95
Inquiry #212
Project Master
Price: $195.00
Inquiry #227
Easy Ledgers
Price: $295.00
Inquiry #232
Brown-Wagh Publishing, Inc.
16795 Lark Avenue, Suite 210
Los Gatos, CA 95030
(408) 395-3838

A2088D Bridgeboard
Price: $699.95
Inquiry #237
Commodore Business Machines
1200 Wilson Drive
West Chester, PA 19380
(215) 431-9100

Ultra-Forms
Vol. I PageStream
Price: $29.95
Inquiry #224
Vol. I Professional Page
Price: $29.95
Inquiry #225
Corwyn International
977 Seminole Trail, Suite 275
Charlottesville, VA 22901
(800) 542-8505

Top Form
Price: $99.00
Inquiry #223
Designing Minds, Inc.
3006 N. Main Street
Logan, UT 84321
(801) 752-2501

Home Office Advantage
Price: $199.95
Inquiry #218
Gold Disk Office
Price: $295.00
Inquiry #219
Professional Page
Price: $395.00
Inquiry #201
Desktop Budget
Price: $69.95
Inquiry #231
Gold Disk, Inc.
5155 Spectrum Way, Unit 5
Mississauga, Ontario
Canada L4W 5A1
(416) 602-4000

Form Action
Price: $69.96
Inquiry #222
Iconoclassic Software, Inc.
P.O. Box 31323
Richmond, VA 23294
(804) 359-4085

excellence! 2.0
Price: $199.95
Inquiry #211
Analyze!
Price: $99.95
Inquiry #217
Micro-Systems Software
12798 Forest Hill Blvd., Ste. 202
West Palm Beach, FL 33414
(407) 790-0772

ProWrite 3.1
Price: $175.00
Inquiry #210
New Horizons Software, Inc.
206 Wild Basin Rd., Suite 109
Austin, TX 78746
(512) 328-6650

That's a formidable list. Now you can see why the Bridgeboard and A-MAX II are worthwhile considerations for Amiga business users. The power and versatility of programs such as Lotus 1-2-3, Excel, Turbo Tax, PageMaker, Ventura Publisher, and WordPerfect (and others) present suitable justifications and strong arguments for investing in IBM and Macintosh emulators.

There's something else to consider. If your business requires you to travel, you'll eventually think about buying and using a laptop computer to maximize the hours spent traveling, and there are no Amiga laptops available. If you will need a laptop, you will also need to invest in MS-DOS software for it. To transfer your work once you return home, your Amiga software will have to be file compatible, or you'll have to run those same MS-DOS packages on your Amiga via your Bridgeboard.

What peripherals may be required to complement your 9-to-5 Amiga? Business needs vary, but other items you might consider are extra disk drives, a dot-matrix color printer, a laser printer, a PostScript cartridge, an optical scanner, printer buffers, more memory (you can *never* have too much), an accelerator board, a math coprocessor, a modem, a tape back-up system, removable media storage, and a flicker eliminator. And don't forget the new Enhanced Chip Set and DOS 2.0.

Conclusion

As one of a growing new breed—the Amiga business user—assess clearly what your *business* needs, what you want, and always track the bottom line—what you can afford. Many choices are available to you and only you can make the often difficult final decisions. The Amiga is a versatile and powerful computer. Once the Unix version is available, it will have the ability to run four different operating systems.

Today, there's little reason *not* to use an Amiga to run your business. Just keep in mind some of the realities associated with your decision to do just that. Given the fact that your clients will probably require MS-DOS or Macintosh compatibility anyway, you'll want to purchase a Bridgeboard or A-MAX II.

That isn't as bad as it sounds, however. To impress potential clients, just tell them you have *three* computer platforms to meet any and all of their potential needs. And how many businesses—small or large—can put three computers to work for their clients?

•AC•

A-Talk III
Price: $99.95
Inquiry #229
Nimbus 1.4
Price: $159.00
Inquiry #233
Tax Break
Price: $79.95
Inquiry #234
OXXI, Inc.
1339 East 28th Street
Long Beach, CA 90806
(213) 427-1227

Superbase Professional 3.0
Price: $349.95
Inquiry #216
Precision Software Inc.
8404 Sterling St., Suite A
Irving, TX 75063
(214) 929-4888

MicroLawyer
Price: $59.95
Inquiry #226
Baud Bandit
Price: $49.95
Inquiry #230
Progressive Peripherals & Software
464 Kalamath Street
Denver, CO 80204
(303) 825-4144

Tax Plan
Price: $34.95
Inquiry #235
Quality Business Systems
P.O. Box 805
Hudson, MA 01749
(800) 225-5800

A-MAX II
Price: $249.95
Inquiry #236
ReadySoft, Inc.
30 Wertheim Court, Unit 2
Richmond Hill, Ontario
Canada L4B 1B9
(416) 731-4175

Saxon Publisher
Price: $450.00
Inquiry #221
Saxon Industries
14 Rockcress Gardens
Nepean, Ontario
Canada K2G 5A8
(613) 228-8043

PageStream 2.0
Price: $299.00
Inquiry #220
Soft Logik Corporation
11131 S. Towne Sq., Suite F
St. Louis, MO 63123
(314) 894-8608

Microfiche Filer Plus
Price: $179.00
Inquiry #215
Software Visions, Inc.
12625 La Tortola
San Diego, CA 92129-3069
(619) 538-6263

Who! What! When! Where!
Price: $79.95
Inquiry #228
The Blue Ribbon SoundWorks, Ltd.
1293 Briardale NE
Atlanta, GA 30306
(404) 377-1514

WordPerfect 4.1
Price: $250.00
Inquiry #208
WordPerfect Library
Price: $129.00
Inquiry #209
WordPerfect Corporation
1555 N. Technology Way
Orem, UT 84057
(801) 225-5000

Diversions . . .

Red Storm Rising

by Rob Hays

Red Storm Rising, based on the best-selling novel by Tom Clancy and Larry Bond, is another in a line of military simulations from MicroProse. If you haven't read the book, the premise is that an oil refinery disaster has forced the Russians to attack Western Europe. Their plan: to destroy the NATO forces there quickly, and then proceed to the Middle East unopposed. The book was written well before the outbreak of democracy in Eastern Europe and the current situation in the Middle East. MicroProse has taken the submarine warfare situations from the book and given you control of some of the high-tech weapons systems used by the United States.

To begin the game you choose one of four time periods, ranging from 1984 to 1996. This determines the size of the Russian fleet you will face, as well as the type and efficiency of available weapons systems. Next, you are presented with a picture of a Russian vessel. If you fail to match it with one in the manual, you are initially restricted to the training scenarios. Once you match the picture, choose the class of submarine you wish to command, and one of four levels of difficulty. For your first taste of warfare, choose from one of two training missions, eight battle simulations, or the full-blown Red Storm Rising campaign.

Games reviewed this month:

Red Storm Rising
Ishido: The Way of Stones
Dragon Lord
Neuromancer
Berlin 1948
A-10 Tank Killer
Star Control

In the full campaign, you must navigate your sub through the Norwegian Sea area, avoiding Russian patrol planes and spy satellites which report your position to the enemy. Sophisticated NATO patrol planes and satellites report the Russians' current position to you. Occasionally, you are even able to receive news broadcasts detailing the progress of the war in Europe, and if NATO is losing, the map display shows the creeping Red Tide from the East.

Once you locate an enemy force, or if you have chosen one of the battle simulations, the screen changes to a tactical display. The main display is divided into a large central area, with two smaller areas to the left. The top one of these shows your current speed, depth, and course. The lower area provides information on enemy contacts, torpedoes, your weapons status, and other data, depending on which function you've selected. The central area is your main tactical display, allowing you to keep track of your targets and the threats to your survival. When not watching for enemy torpedoes or ships, this area can also display water conditions, sonar information, and an on-line database of Russian ships.

The modern submarine skipper has a multitude of weapons and sensors at his disposal, including wire-guided torpedoes, cruise missiles, sonar, and radar. Of course, many choices also means many different control keys to use. A keyboard overlay and quick reference guide help in finding the correct key to press in the heat of battle. If you are stuck with no idea of what to do, touch the Help key and a screen of hints for your current situation will appear.

Animated sequences mark such events as the launching of your own weapons and the arrival of both side's weapons at their respective targets. These animations are well done, though definitely not state-of-the-art. They accurately reflect the actions taking place, such as a cruise missile breaking the surface of the sea, then the rocket motor igniting to speed it off. No matter how realistic sequences like this are, after twenty or thirty times they become annoying. Thankfully, you can cancel them by pushing any key.

Red Storm Rising is supplied on two non-copy protected disks and comes with a four-color map of the Norwegian Sea Theater of Operations, in addition to the keyboard overlay and reference guide mentioned earlier. The excellent 100-page manual is divided into three sections, the first detailing game play, the second providing background information on strategy and tactics, and the third being a reference section of information on U.S. and Russian ships and weapons. You are given the opportunity to save a game in progress whenever you encounter an enemy force. Even though each saved game takes only 500 bytes of room, you are limited to a maximum of five saved games on any one disk.

The game loads intelligently into your computer. Depending on how much free memory you have, it loads some

or all of the pictures and animations needed. If you have more than a megabyte free it will play entirely from RAM, eliminating disk accesses.

MicroProse furnishes a script covering installation of the game onto your hard disk, and therein lies the only problem I encountered with Red Storm Rising. The script asks for the name of the drive (or partition) you wish to install the game on, then proceeds to create a directory and copy the needed files. Unfortunately, when copying the third file, the script tries to create the directory on the source disk and copy the file to there, rather than to the destination. If you have write-protected the source, you get an error requester. If you have not write-protect it, you get an extra directory on the disk with one file in it, and all of the rest of the files where they belong. Of course, the game won't run without that file, and calls forth the Guru when you try. The ReadMe file included on the disk details which files have to be copied to run the game from the hard disk successfully, so it is a relatively simple matter to remedy the problem. Perhaps someone more familiar with scripts may be able to diagnose the problem better than I.

Red Storm Rising multitasks well, with two stipulations. The first pertains to memory: the game requires approximately 240 kilobytes of Chip RAM, and takes up a little over one megabyte total RAM if you have it available. The second stipulation is not mentioned in the documentation, but you must start Red Storm Rising second before you can get back to the Workbench via "Left Amiga N". You must at least have a CLI open before starting the game if you want to multitask.

Red Storm Rising continues the recent MicroProse trend toward enhanced games brought to the Amiga from other computer platforms. The graphics and sound are much improved over the IBM version of this game, and they have added a new option for the Amiga. You can now accelerate the passage of time; for instance, when closing the range to a target. If you are interested in modern submarine warfare strategy and tactics, Red Storm Rising is an excellent choice.

Ishido: The Way of Stones

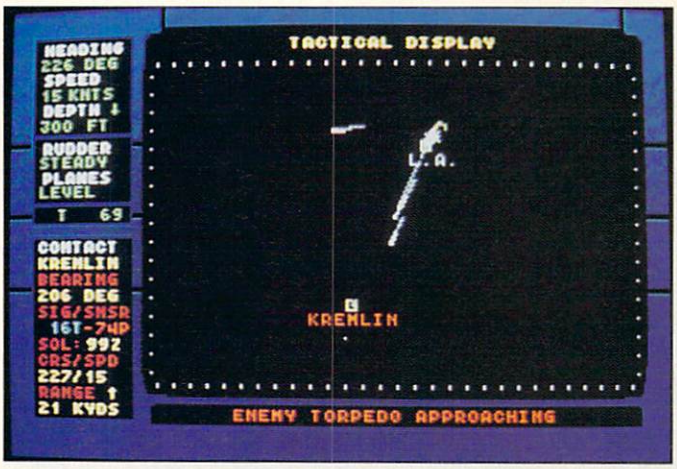
by Lawrence S. Lichtmann

Cribbage enjoyed considerable popularity in the U.S. Navy in years gone by because it could be played in ten- or fifteen-minute sessions, squeezed in-between other activities. I'm always looking for my own "computer cribbages"—strategy games with simple rules and formations which can be played in short sessions without requiring one to spend an hour to get reacquainted with a complex scenario or intermediate position. The classic Shanghai and the more recent Tower of Babel are two of the best Amiga "cribbages" I know of. Now I've found a third—Ishido: The Way of Stones, from Accolade.

Ishido consists of a single disk, a manual, a magic code wheel, and a background/atmosphere booklet, and comes in a box sturdy enough to give you a secure feeling about the safety of your code wheel. As you have surely divined, the code wheel is a copy protection mechanism. Fortunately, it is the only one. The Ishido disk can be copied in the normal manner, and the publishers have thoughtfully provided instructions for installing the game on a hard disk.

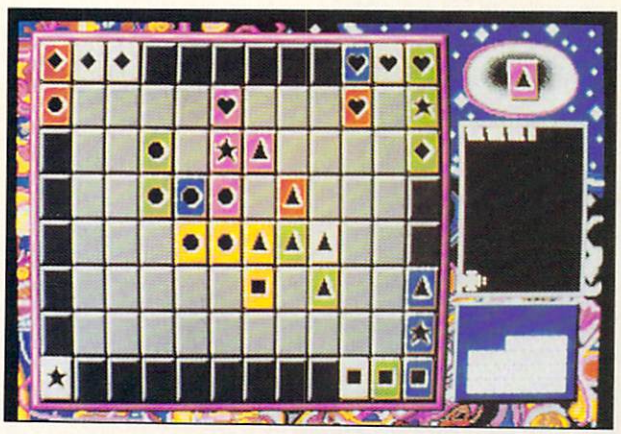
Ishido is played on an eight-by-twelve board, using a set of seventy-two tiles or "stones". There are six suits of stones, with two stones of each of six colors in every suit. The object of the game is to put all the stones on the board, following Ishido's placement rules.

The computer-generated setup for a game places one stone in each of the corners of the board, plus two stones in the upper left and lower right of the four central squares of the board. There is one stone of each color and one stone of each suit in the initial set of six. Subsequent stones are drawn randomly from the remaining 66 and are placed one at a time on the board according to the following rules:



Red Storm Rising

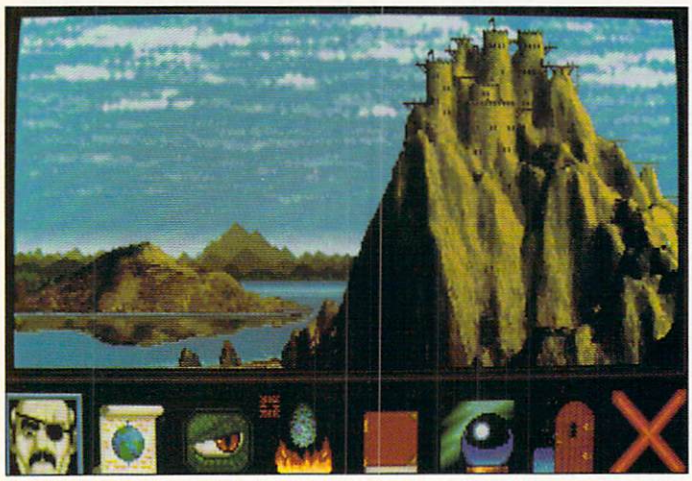
Ishido: The Way of Stones



(1) A stone may be placed on the board only next to an existing stone or stones.
(2) To place a stone next to one existing stone for a 1-way match, the new stone must match the old in either color or suit, or both.
(3) To place a stone next to two existing stones for a 2-way match, the new stone must match the color of one of the old stones, and the suit of the other.

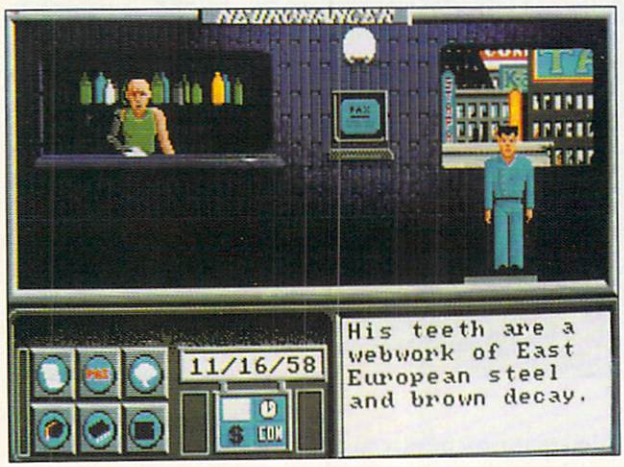
(4) To place a stone next to three stones for a 3-way match, the suit of two and the color of the third must match, or the color of two and the suit of the third must match.
(5) To place a stone next to four stones for a 4-way match, the suit of two and the color of the other two must match.

Ishido can be played using either "ancient" or "modern" scoring, with the modern system being much more complex and challenging. In ancient scoring, the object is simply to play all the stones, with as many 4-way matches as possible. In modern scoring, the object is to accumulate as many points as possible. One point is awarded for a 1-way match, 2 for a 2-way, 4 for a 3-way, and 8 for a 4-way, for stones placed in the central six-by-ten region of the board (that is, no points are awarded for stones placed around the rim of the board). Each successive 4-way match doubles the point values. Thus, after the third 4-way match has been made, subsequent 1-ways are worth 8 points, 2-ways tally 16 points, and so on. Furthermore, 1000 points are awarded if all the stones can be placed on the board, 500 points if all but one can be placed, and 100 points if all but two can be placed. Ishido maintains both a log of each day's high scores (for both scoring methods) and an overall log.



Dragon Lord

Neuromancer



Numerous playing modes are provided. Ishido can be played solitaire, or against one other person, with players alternating turns in the placing of stones. This may be done competitively, with each player's actions scored separately, or cooperatively, with the two trying to achieve the highest possible single score. There is also a Tournament Mode, in which any number of people may play the same complete game to achieve the highest score. Computer opponents are provided for all the modes. It is even possible to have the computer play a game against itself.

Despite Ishido being a simple strategy game, tremendous effort has been invested in making it attractive. Eight different sets of beautifully-designed stones are provided to set the atmosphere; these range from Norse runes to gemstones. Each set has a distinctive matching board which may be used with its native stone set or any of the other sets. If this doesn't provide enough visual variety, Ishido supplies a simple, specialized paint program which allows the creation of new stone sets.

On-line help is available for those who desire it. The program can be asked to display the possible legal placements for the tile just drawn. It is also possible to cheat by looking ahead to see how the stones will be drawn from those remaining. However, taking either of these actions costs you any chance for immortality on the high-scores list!

Ishido's integration with the Amiga is very good. Game play and stone-set editing are performed strictly with the mouse, and all options are selected via standard Intuition menus.

Because of the doubling of point values by 4-way matches, the importance of getting an early four-way in modern scoring cannot be overemphasized. The best way to achieve this is to work from the stones which appear at the center of the board in the setup.

When setting up four-way matches, try to avoid committing to the need for one specific stone too early. Early 4-ways are most easily achieved by working so that any of a particular color can be used around one side of the central square, and any of a particular suit around the other. Also, don't forget to keep track of what stones have been played. It's useless (and highly frustrating) to set up a 4-way requiring a particular color and suit, only to discover that both stones of that type have already been placed elsewhere.

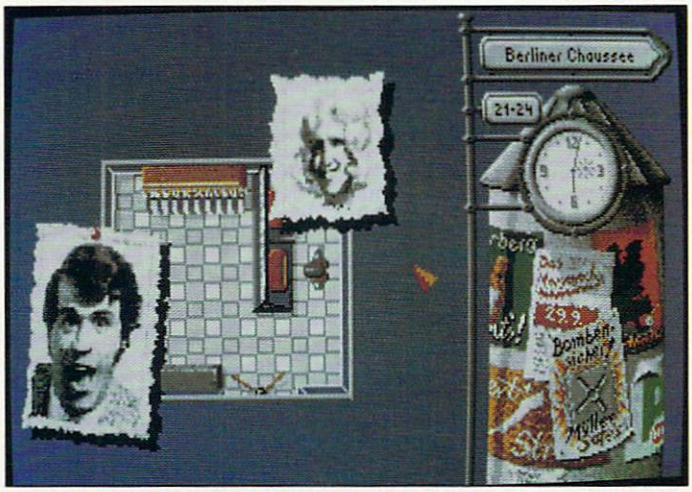
Ishido is a splendid little game. Simple to learn and to play, it is nevertheless absorbing and challenging because of the twin necessities of coping with the random draw and using space on the board efficiently. Every effort has been made to keep it from quickly going stale by providing varied playing options and making the game visually entertaining. If you're looking for a cribbage-type game for the Amiga, you won't do better than Ishido.

Dragon Lord

by Miguel Mulet

Legends of dragons have been passed along from generation to generation for years, but most stories deal with how dragons terrorize the countryside of their own free will. In "Dragon Lord", however, you get the opportunity to control these great beasts of yore. You assume the role of one of three great Dragonmasters, all of whom are searching for the secret to immortality. This secret is revealed if you can find the three magic Talismans that allow you to enter Dwarf Mountain, where the secret is kept.

You begin the game with one dragon at your disposal; you can send the beast off to conquer the surrounding villages in search of a Talisman. Conquering these villages adds to your wealth, which you need lots of in order to buy precious ingredients for the concocting of magical spells. These spells can be cast on dragons to heal them or make them stronger, or on villages to make them more (or less) prosperous. Spells are most important, however, when cast upon your dragon eggs.



Berlin 1948

Remember, you need at least three dragons to find the three Talismans, and you are given only one "live" dragon to start. Other dragons must be hatched from eggs. You can influence the eggs to make the dragon stronger, smarter, wiser, or to hasten their hatching. If you try to hatch dragons without using magic, in fact, there is a good chance your opponents will beat you to the goal.

"Dragon Lord" is primarily a strategy game, with some arcade action thrown in for good measure. Up to three people can play at once, although they must take turns at the keyboard. During each move, a player can cast spells, buy ingredients, or send dragons out on missions. If you don't want to control the dragon, the computer will do this for you. It's important to start hatching eggs right away, or you won't have enough muscle to compete with the opposing Dragon Lords later on.

The game is easy to play but difficult to win, because although you know the general characteristics of the ingredients you use for spells, you have to learn exactly how to cast the spells you want. A basic spell book starts you out, but the rest you discover on your own. Once you start mastering spells, then you have to decide what's the best way to find and defend the Talismans. If you decide to fly a dragon yourself, you'll get to wreak havoc on the poor villagers below.

This game from Spotlight, a division of Cinemaware, features excellent use of Amiga graphics and sound. The interface is completely icon-driven, via joystick or mouse. The documentation is well done, although I would have appreciated a little more help with the spells. The game moves somewhat slowly, especially with three human players, as there is plenty for each person to do during each move. Overall, "Dragon Lord" is a highly original strategy game which you probably won't master quickly, but will have fun playing.

Neuromancer

by John Iovine

Neuromancer is a role-playing game based on the best-selling novel of the same title by William Gibson. While reading this excellent book will not give you any specific clues to playing the game, it will give you some idea as to how things work.

You play a "cowboy", which is a code name for a computer hacker. The game takes place in the future—the year 2058, to be exact. Computer technology has advanced far beyond the rudimentary capabilities of today. In this future setting, you attach electrodes to the temporal area of your head, flip a switch on your cyberdeck, and jack into cyberspace.

Cyberspace is a virtual reality of networks and information. The electronic data is given a three-dimensional form by your cyberdeck. In other words, databases which are pure electronic information are given the appearance of buildings. These buildings (or information) are protected by ICE (Intrusion Countermeasure Electronics) and AIs (Artificial Intelligence entities). These two security systems have the ability to fight back and possibly kill you.

Your role in life is to find out who's killing all the cowboys, by "flatlining" their brains in cyberspace. Flatlining is an insidious means of killing, achieved through delivery of a neural shock to the brains of victims. The idea behind it is to keep victims brain dead long enough for their physical body to also cease functioning.

You start the game off in Chiba City with little money and no cyberdeck. As you progress into the game, you acquire a cyberdeck, skill chips, software, and a ROM construct. The ROM construct is the memory trace patterns of a deceased cowboy. His role is to help you get past security systems and AIs in cyberspace without being killed.

You'll need to access various BBSes throughout the game and read the mail to find link codes and passwords, and also to download better software.

To help you get started, go first to Shin's and pick up your UBX deck. Then go to Gentleman's Loser and jack into the Cheap Hotel's database. Edit your bill so you don't owe them any money, then order the caviar from room service. Edit the bill again to pay for the caviar.

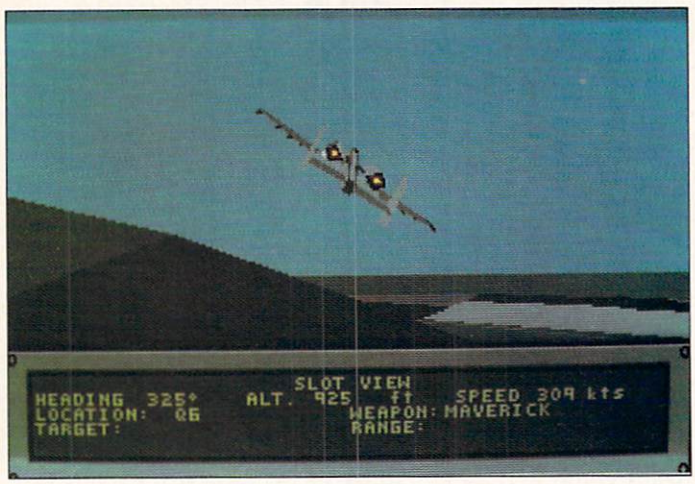
Ask the girl Shiva in Gentleman's about a chip and she'll give you a skill chip, which you then install. Then ask her about a pass, and be sure to take the one she offers.

Pick up the caviar order at the Cheap Hotel and then go to Crazy Edo's. He'll trade Comlink 2.0 communication software for the caviar. You'll find more Comlinks around the BBS's.

Go to Finn at Metro and ask about a joystick. Buy the joystick and bring it to the monks at the House of Pong; in return, they'll give you two more skill chips.

To further help you along the way, here are some link codes and passwords:

Link Code	Database	Password
Cheapo	Cheap Hotel	Cockroach
Regfellow	Regular Fellows	Vistor
Chaos	Panther Moderns	Mainline
Soften	SEA	Permafrost
Fuji	Fuji Electric	Uchikatsu
Loser	Gentleman Loser	Loser
Keisatsu	Tactical Police	Supertac



top: A-10 Tank Killer
bottom: Star Control

Berlin 1948

by Miguel Mulet

The premise behind "Berlin 1948" derives from a heretofore unknown event of purely historical fiction that took place right after the end of World War II. As you might remember from your history lessons, 1948 was the year that the Soviet Union put up the Berlin Wall, effectively isolating West Berlin from the rest of the free world.

The event? In response to the Berlin Wall, the United States moves several atomic bombs into England, one of which is stolen by the Soviets to give them an upper hand during the crisis. In order to prevent World War III, the CIA sends in its best agent—Sam Porter—in order to retrieve the atomic weapon and prevent an international incident.

"Berlin 1948" starts with your arrival to the divided city. Your only clue is a note directing you to a local bookstore in search of more information. You view Sam from overhead, moving him by pointing to where you want to go and clicking. Interaction with other characters takes place by pointing and clicking on those characters. From there, you assemble your questions and statements by choosing the appropriate icons. Although the interface is completely icon driven and no typing is required, it does take a little getting used to.

Game graphics are only fair, but the most notable omission is the lack of sound support. Cars "honk" on the screen, but not a peep comes from the speakers. Even the introduction lacks true Amiga sound; instead, a cassette tape provides the soundtrack (incidentally, I found the tape difficult to synchronize with the introduction presented on the screen, despite numerous attempts). The other problem I find with the game is the frequent and annoyingly slow disk accesses. I played the game on a stock Amiga 1000 with 2 floppies, and found gameplay to be very slow. Perhaps the game performs better when played on an Amiga 3000 with a hard drive.

The plot of Berlin 1948 is interesting, and I did like the game interface once I got used to it. If you are looking for action, however, you won't find a lot of it here. Try this one before you buy.

A-10 Tank Killer

by Miguel Mulet

If you have ever seen a "Warthog" on the ground, you no doubt understand how these planes got their nickname—they are ugly! Once they take flight, though, you'd be amazed at how highly maneuverable and quick A-10s can be. Specializing in destroying ground targets (i.e., tanks) and in providing air support for troops, these planes are actually spectacular in their own way.

"A-10 Tank Killer" gives you the opportunity to pilot a "Warthog", first on a training mission and then on through several different combat missions. These missions include taking out bridges deep in enemy territory, or providing cover for ground troops. You select your armaments prior to flight, and then choose the best way to accomplish the objectives set

for you by your commanding officer. Although these planes can fly low, you still have to worry about Surface to Air Missiles (SAMs) and enemy aircraft which are trying to blow you out of the sky. Lucky for you, the A-10 is a sturdy bird, able to fly on one engine—or with just one wing (really!).

Unfortunately, "A-10 Tank Killer" appears to be a port of the IBM version. The screen shots on the back of the box are from the IBM VGA version, not the Amiga version. Although the Amiga graphics are adequate (they look like most of the other 3-D flight simulators out there), they are not spectacular. The digitized flight panel lacks a great deal of detail on the Amiga—I think the programmers would have been better off just drawing it out by hand. Sound effects are also adequate, but nothing to write home about.

Despite these shortcomings, I find A-10 Tank Killer to be fun and challenging to fly. Since you're dealing with ground targets most of the time, you have to learn to fly at low altitudes and speeds—easier said than done. The missions are quite different from those included with most other jet simulators, and thus keep me interested in continuing game play. This game is for those of you who like to fly, but hope to master a different type of fighting aircraft.

Star Control

by Miguel Mulet

Our last stop this month is in the year 2612, where mankind suddenly finds itself thrust into intergalactic conflict. It seems that although Earthlings never realized it, life indeed always existed on other planets. Unfortunately, these beings were engaged in a struggle for their existence against the Ur-Quan Empire—a race which enslaves the planets it conquers. The Alliance of Free Stars has approached Earth, hoping to enlist our aid in defeating the Ur-Quans. Earth has agreed to help, and now all are fighting for freedom throughout the galaxy.

"Star Control" is an action/arcade game and a strategy game rolled into one, and you can choose to play it as either or as both. In the arcade sequences, you have your choice of several ships with which to fight the enemy. Each ship has its own characteristics—primarily different weapons and propulsion systems. You must choose carefully, as the enemy ships vary in their capabilities and may or may not be defeated with the ship you choose. The actual battles take place on a two-dimensional star field, complete with a gravity generating planet in the center. Slug it out with the enemy here, and the winner gains control of that particular sector of space. Game play during this sequence is reminiscent of the old arcade "Space Wars" game, although the Amiga's excellent sound and graphics make it more entertaining and exciting.

Strategically, "Star Control" allows you to participate in several different scenarios in which your goal is to explore space, find minerals to gain monetary strength, and build spacecraft in order to defeat the enemy. Of course, the Ur-Quans are trying to do the same thing. The field of play for the strategy portion is represented as a rotating, 3-D star field which can take a little getting used to. When two opposing ships try to occupy the same sector of space, the game reverts to the arcade sequence. You can play the scenarios provided with the game, or devise your own with the included scenario editor.

"Star Control" features excellent sound and graphics, as well as numerous interesting features. Two players can compete against each other, or you can watch the computer play itself in order to learn strategy. The inclusion of the scenario editor allows you to make up your own game, if you wish. If you're not good at strategy, there is even a special "Pystron" mode in which you fight all the battles, but the computer makes all the strategic decisions. The "Cyborg" mode is just the opposite, allowing you to provide the brains, while the computer provides the brawn. There's even a keyboard editor, which allows you to assign vital functions to the keys YOU want to use.

All in all, "Star Control" is a good game which should keep you busy for hours.

•AC•

Product Information

Red Storm Rising
Price: $54.95
Inquiry #260
MicroProse Software, Inc.
180 Lakefront Drive
Hunt Valley, MD 21030
(301) 771-1151

Ishido: The Way of Stones
Price: $54.95
Inquiry #262
Accolade
550 S. Winchester Blvd
Suite 200
San Jose, CA 95128
(408) 985-1700

A-10 Tank Killer
Price: $49.95
Inquiry #265
Sierra On-Line
P.O. Box 485
Coarsegold, CA 93614
(800) 344-7448 orders
(209) 683-4468

Star Control
Price: $49.95
Inquiry #266
Accolade
550 S. Winchester Blvd.
Suite 200
San Jose, CA 95128
(408) 985-1700

Neuromancer
Price: $44.95
Inquiry #261
Interplay Productions
3710 S. Susan, Suite 100
Santa Ana, CA 92704
(714) 549-9001

Dragon Lord
Price: $49.95
Inquiry #263
Cinemaware Corporation
4165 Thousand Oaks Blvd.
Westlake Village, CA 91362
(805) 495-6515

Berlin 1948
Price: $39.95
Inquiry #264
Electronic Zoo
3431-A Benson Ave.
Baltimore, MD 21227
(301) 646-5031

(Desktop Budget, continued from page 43)

Reconciling your bank statements to your budget couldn't be made any easier than this system makes it. When the reconcile option is selected, you are presented with a running list of the transactions that have not been cleared yet. Those that have cleared and are present on your bank statement are tagged "cleared" by selecting that gadget for the transaction. When you are finished clearing the transactions listed on your bank statement, Desktop Budget presents you with a trial balance to compare with the bank's balance.

Desktop Budget also lets you mark the progress of other assets, tracking original purchase prices, initial asset equities and current market values. If you make an effort to keep the current market value fields up to date, Desktop Budget is able to provide you with a net worth statement and a capital gains report. I wouldn't want to maintain a multistock portfolio with the options on this system, but then, that is not the true purpose of this feature. Its value lies in providing you with a quick look at your major assets.

Desktop Budget's memory requirements are quite substantial if you want to utilize its graphing features. The box indicates that a minimum 512K Amiga is needed to run it, but the manual indicates that a 1 megabyte Amiga is required. The latter is true if you want to utilize the graphics; otherwise, a 512K Amiga will run the package, minus its graphics capabilities. Also note, if you wish to use the graphics features of Desktop Budget on an Amiga with a hard drive, you will actually need *more* than 1MB of memory, since the buffers that are allocated for the hard drive reduce the amount of available memory, to the point where Desktop Budget (again) cannot activate the graphing functions. If you have a hard drive, boot off of the Desktop Budget diskette and you will then have full functionality with just 1MB of memory. This is possible due to the fact that when you boot from the diskette your hard drive partitions are not mounted, and the buffer space is not allocated.

While budgeting can be an involved and sometimes difficult process, it is something that nearly everyone should try on a regular basis. Keeping the required records manually just adds to the complexity of this already daunting task. A well-planned and executed computer system eases the record-keeping and analysis portions of budgeting. If you finally decide to take the big step and organize your finances, take a look at Desktop Budget, it contains all the features that you need to get started and is really easy to use. •AC•

Desktop Budget
Price: $69.95
Inquiry #272
Gold Disk
5155 Spectrum Way, Unit 5
Mississauga, Ontario
Canada L4W 5A1
(416) 602-4000

Corrections!!!

The column "And furthermore..." appearing on page 96 of AC's December, 1990 issue ("The Need for a National Amiga Users Association") was written by Mike Halvorson, President of Impulse, Inc., and Chairman of the Amiga Developers Association. We thank Mr. Halvorson both for his fine contribution to that issue and for his tireless work leading toward the establishment of a National Amiga Users Association. AC fully supports Mr. Halvorson in this effort.

Please note the following three changes to the article which begins on page 26 of the January 1991 issue, entitled "Electronic Color Splitter" by Greg Epley.

Under the subtitle VIDEO STANDARDS, TERMINOLOGY, AND RESULTS, carrying over to near the bottom of the first column on page 27, substitute the following passage for that starting with the next-to-last sentence ("Those 262.5 lines are what your video digitizer sees") there:

The vertical resolution your video digitizer sees depends on the vertical resolution your video source provides. For example, my 4-head VCR doesn't give me quite a full frame (525 lines) in freeze-frame mode; if I step forward a frame using frame advance I get portions of the frame I was not getting in the previous frame. I estimate I'm getting about 350 lines of vertical resolution in freeze-frame on my 4-head VCR. Some video sources may offer more depending on how the freeze-frame works, which determines how many lines of complete picture information you're sending to your digitizer. Now you can begin to see why images captured with the Panasonic camera (600 lines) look so much better than the images captured off a VCR (about 350 lines). Certainly there are other factors which can affect resolution and final image quality, but those are beyond the scope of this article.

Under the subtitle GREAT OUTPUT on page 28, the entire passage should read:

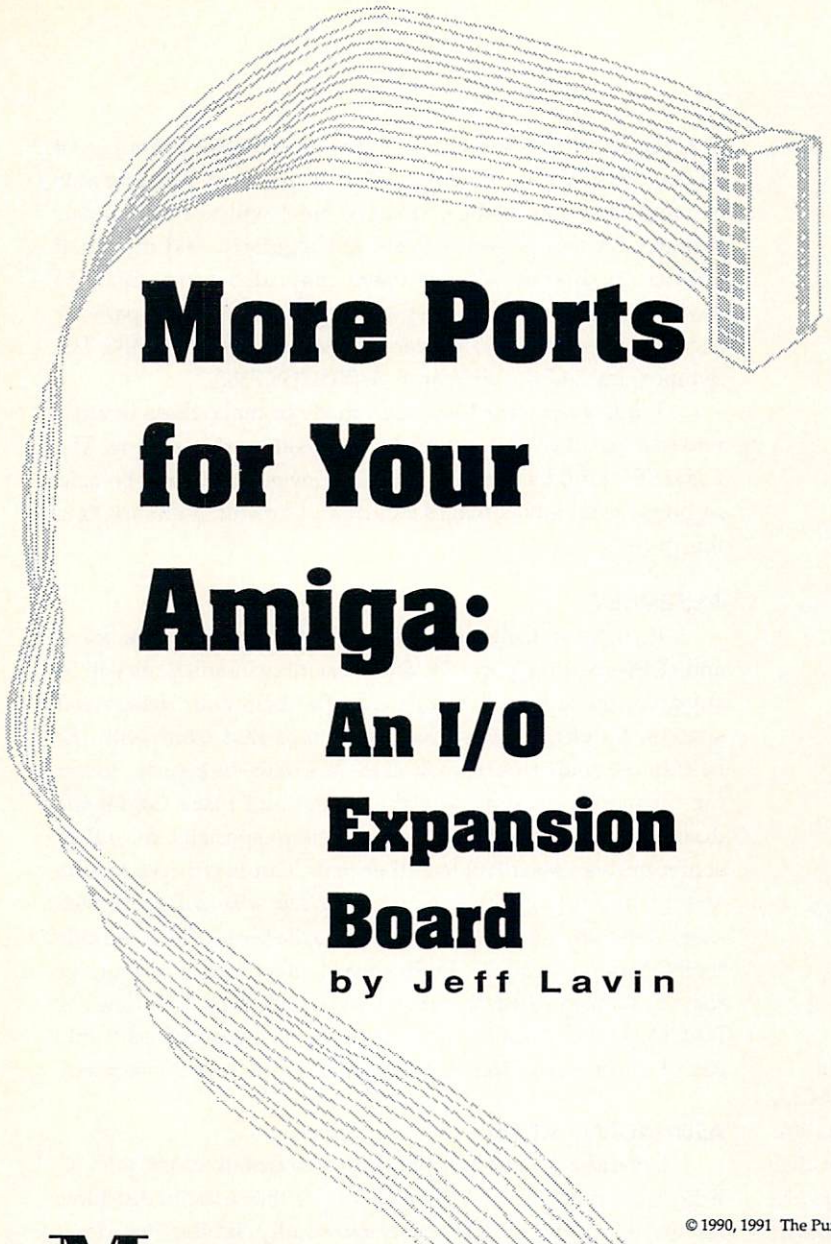
Using the Digi-View digitizer, I noticed a horizontal band of interference about 12—15 pixels high across the top of images digitized in overscan modes with the capture mode set to "Slow/Color Camera". This capture mode produces the best pictures on average. The band doesn't seem to appear in non-overscan modes and I didn't notice this band with the capture mode set to "Normal Scan", even on overscan images. Since this band doesn't appear when displaying these images with software that properly handles overscan, it's not a serious problem. I bypassed the Splitter and found no changes. Obviously this unusual quirk is somehow related to the way the "Slow/Color Camera" capture mode in Digi-View operates in combination with a live video source. The Digi-View digitizer wasn't originally designed for this kind of source anyway.

Finally, under the subtitle SOME HINTS FOR DIGI-VIEW OWNERS, carrying over to page 29, the passage beginning midway through the eleventh line down in the first column on that page ("... 704 x 480 color image from my VCR due to the 5 minute time limit. ...") should instead read:

... 704 X 480 color image from my VCR due to the 5 minute time limit. You should use the "Slow/Color Camera" capture mode for your final images. "Normal Scan" rarely produces an acceptable image; however, some video modes such as hi-res only allow "Normal Scan" as your best option. Additionally, it's difficult to set the "Position" and "Tracking" controls properly if you switch from one capture mode to another. Vertical "Position" adjustments seem to have no effect in "Slow/Color Camera" capture mode; they do work in "Normal Scan" capture mode. Horizontal "Position" adjustments seem to work equally in both capture modes. If you notice a fuzzy vertical area in your image when making your red pass, you can use the "Tracking" slider to get rid of it; experience seems to be the best teacher. Make sure that you have any tracking controls on your video source properly adjusted before playing with the "Tracking" or "Position" controls for the digitizer.

Also in January we stated on pages 34 and 35 that the new PC/AT emulator was created by the California-based company Talon Technology, Inc., but Talon only distributes the product in the United States. The company that actually manufactures the PC/AT emulator is Vortex Computer Systeme and their address is Vortex Computer Systeme, Salterstrasse 51-53, D-7101 Slein Bei Heilbornn, Germany 071-31-59-720.

We apologize for these errors and hope that they did not cause any major inconveniences.—*Ed.*



More Ports for Your Amiga:

An I/O Expansion Board

by Jeff Lavin

Many in the Amiga community have built Brad Fowles' excellent "LUCAS" accelerator board, which introduced the idea of "Public Domain Hardware". In this article I will present another public domain hardware project for the Amiga which will enable one to add two parallel ports and two serial ports to the Amiga 500, 1000 or 2000 for $70.00. Furthermore, it will be possible to easily and inexpensively upgrade to four parallel ports and/or four serial ports at any time.

The hardware consists of a small printed circuit board with a 40-pin cable and DIP jumper that plugs into the socket occupied by CIA B, and a small pcb that contains the serial interface (see Photo 1, p. 63). CIA B is physically moved onto the I/O Expansion board.

RAISON D'ETRE

As a hardware hacker of long standing, I own a number of small computers and have equipped them with all sorts of hardware, from extra ports to EPROM programmers; I have longed to do the same with the Amiga. Since the Amiga uses a pair of 8520's (actually 6526's) for its I/O, I figured it would be a piece of cake to add more 65/68XX family peripheral chips and be up and running. The only problem was that, because there is no obvious chip select decoding, I could never figure out how the 8520's were addressed. One day a friend came by and we were able to figure out that the I/O chips are "automatically" selected when certain addresses are generated by logic hidden in the PALS. Now that the final piece of the puzzle was in place, I wasted no time and had a prototype in my Amiga in two weeks.

HOW IT WORKS

This hardware hack is possible because of two things the designers of the Amiga did for us:

1.) The address space where the CIAs "live" is incompletely decoded. This means the 16 CIA registers are echoed repeatedly over a large range.
2.) The locations where software is supposed to address the CIA registers is completely specified over a much smaller range.

These two facts make it possible for us to take the chip select from one CIA, and divide it into four parts. The addresses in the upper part are routed to the CIA normally, and we "steal" the addresses from the remainder of the space for our own use (see Diagram 1, p. 67). Because the "hard" part (most of the address decoding and the bus timing) has been done for us, we can get away with nothing more complicated than an additional address decoder to split off our address space.

Unfortunately, this hack is not possible on the A3000 for the same reason that it is possible on earlier Amigas. The address decoding on the A3000 is complete; there are no "extra" incompletely decoded addresses to "steal".

As you will note from Table 1 (p. 69), the VIA and ACIA registers are still echoed over a pretty wide address range. We have specified where to address them for the same reason that Commodore has specified addresses for the CIAs: To ensure software compatibility (see Table 2, p. 69). We would very much like to see enough people build these boards to create an installed software base. So programmers, please use these addresses when you are writing all those neat multiline BBS programs and multiuser applications, as well as process control programs, robotics demos, etc.

THE DISCLAIMER

This is a simple hack, and if you get the bare boards, or a parts kit, you should have no trouble putting it together and having it running on your Amiga in short order. You do not need to understand how this board works to enjoy using it, but it will help if you have to fix it. While not hard to build, this project is designed for the technically inclined. If you have no experience soldering or handling electronic components, don't try this project as your first one! Please understand that conducting this project will void your warranty and, if you damage your Amiga, or have other problems, you are solely responsible.

Because the RF shield is modified in order to install this board (on an Amiga 1000), it's your responsibility to comply with FCC regulations concerning RFI. If your neighbors complain of RFI on their TV sets, you must solve the problem. I may be able to offer advice for some problems, but I will not be a repair resource for this project. I check BIX regularly, and my email address is jblavin. Usenet users may also send email to jlavin@cie.uoregon.edu, and please check your return path for accuracy. Alternatively, you can leave a message on my BBS, The Symposium, 24 hrs, 2400 baud, at (503) 935-7883.

While every effort has been made to make these instructions as accurate and complete as possible, this author, The Puzzle Factory, Inc. and/or *Amazing Computing* cannot be held responsible for any damages incurred as a result of undertaking this project.

ASSEMBLY

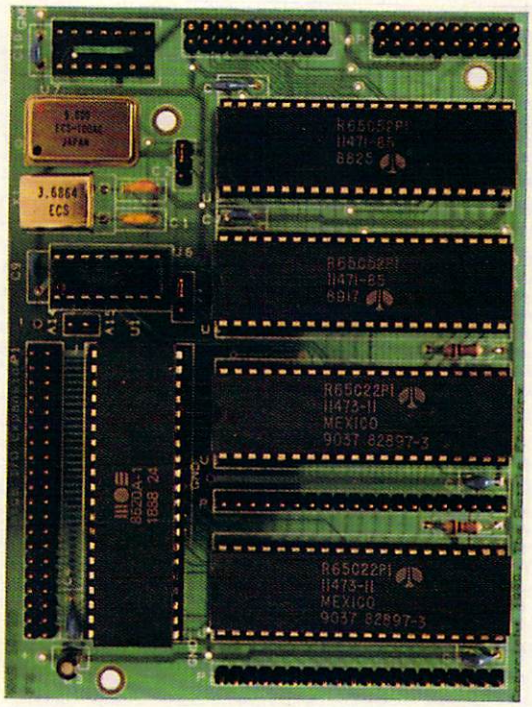
If you're still with me, the first step is to get the bare board and all the required parts. Detailed assembly instructions will be supplied, on disk, with your order. See below for details and sources. Carefully follow the instructions that come with the boards and solder sockets for all the ICs onto the boards. Solder the capacitors, resistors, and the crystal into place. Solder the dual-row and single-row headers, being especially careful of solder bridges. Install all the other parts. Cut two pieces of wire about 8 inches long (28-30 gauge stranded wire will work well here), and solder one end of each wire to the posts of J3. Assemble the DIP adapter cable. Place the board on a piece of conductive foam or some foil. Install the ICs. One or both of the VIAs and/or DACIAs may be installed at this time. If you choose to install only one of either chip at this point, install it in the socket indicated.

A500 INSTALLATION

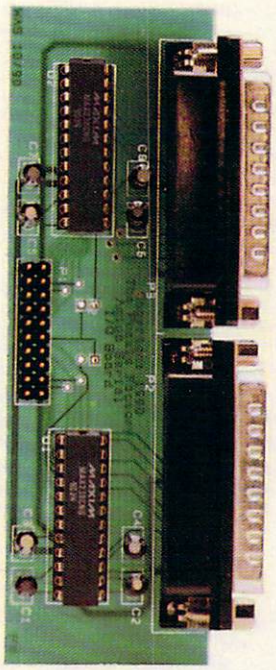
We did not have an opportunity to install or test the I/O Expansion Board in an Amiga 500 before the editorial deadline. As the A500 and A2000 are electronically similar, we don't anticipate any problems. We do plan to include A500 installation instructions in the assembly manual that will be included with all I/O board orders.

A1000 INSTALLATION

Remove power from the Amiga. Remove the plastic cover from the Amiga base unit. Admire all the names. Remove the RF shield and set it aside. You needn't remove the disk drive, but it will help if you unplug its cable from the motherboard and fold it out of the way. Just in back of the internal drive are the two CIAs. Gently pry CIA B (that's the one closest to the daughterboard) out of its socket, and install it on the I/O Expansion Board at U1. Be careful to orient it correctly. Remove the conductive material from the board and place it on the left side of the Amiga, near and to the rear of the three custom chips. Carefully insert the 40-pin DIP jumper on the end of cable, CA1, into the CIA B socket, ensuring that all 40 pins line up correctly. Then connect the 20x2 socket on the other end of the cable onto the header at P1 on the I/O Expansion Board. As long as you are careful and don't use



I/O Expansion Board



Serial Interface Board

Photo 1

excessive force, you should have no problems with this part of the installation.

Now we'll connect the two wires we attached to J3 earlier. These wires bring A14 and A15 into the address decoder. These signals are not available from the CIA socket, so we must look elsewhere. A good place to pick up these signals is from the back of the daughterboard. A15 is located at U2L, pin 10, and A14 is located at U2K, pin 13 (see Diagram 2, p. 69). Solder the wire from the pad marked "A15" on the I/O Expansion Board to U2L, pin 10, and solder the wire from the pad marked "A14" on the I/O Board to U2K, pin 13. This just about completes the electronic installation.

A2000 INSTALLATION

Note: The following installation was done on a Rev 4.2 motherboard; other motherboards may be somewhat different. Remove power from the Amiga. Five screws hold the case together, 4 on the sides and 1 at the back. Unscrew them and slide off the top part of the case. Make a sketch indicating the orientation of all cables connecting the drive bay and the motherboard and/or other cards (such as hard drive controller cards), then unplug them. Remove the power supply/drive bay by unscrewing 2 screws in front and 4 in the back. At this point the motherboard should be completely exposed.

Underneath where the power supply was, before you removed it, are the two CIAs. Gently pry CIA B (labeled U301) out of its socket, and install it on the I/O Expansion Board at U1. Be careful to orient it correctly.

One of the most difficult decisions you will have is where to mount the I/O Board. The location you choose will depend on how crowded your 2000 is, whether you have a board in the CPU slot, etc., so it's not possible to give definite instructions. Note that this decision will affect how you'll want to assemble the 40-pin DIP jumper, so hold off the construction of this cable until you have resolved the board's final location. One idea is especially attractive: Mount the I/O Board on a bare Zorro card, or maybe even a real Zorro card (a HD controller with unused space reserved for a hard disk would be ideal). This will give it sufficient mechanical sturdiness, and make it extremely easy to obtain A14 and A15 as well as additional power and ground lines.

After you have determined where the I/O Board is to be installed, remove the conductive material from the board and install it. Assemble the 40-pin DIP jumper cable, CA1, and carefully insert the DIP plug into the CIA B socket, ensuring that all 40 pins line up correctly. Then connect the 20x2 socket on the other end of the cable onto the header at P1 on the I/O Expansion Board. As long as you are careful and don't use excessive force, you should have no problems with this part of the installation.

→

AC's TECH Dealers

AC's TECH For The Commodore Amiga is available now at the following Amazing Dealers. If your local Amiga dealer is not on this list – tell them they should be! If you are an Amiga dealer and would like to carry *AC's TECH* at your location, or you can't find *AC's TECH* in your area, call us toll free at: **1-800-345-3360**

Best Electronics
Anchorage, AK

Alabama Computers Etc.
Huntsville, AL

The Computer Image
Birmingham, AL

Commodore Connection
North Little Rock, AR

Computer Concepts
Gosnell, AR

Capri Products Company
Burlingame, CA

Commodore Land
Alhambra, CA

Computer Nook
San Bernadino, CA

Dataphile
Watsonville, CA

Harding Way News
Stockton, CA

KJ Computers
Granada Hills, CA

Micro Galaxy
Santa Rosa, CA

Amazing Computers of Denver Inc.
Denver, CO

Computer Discount
Denver, CO

Infotronics
S. Woodbury, CT

Amazing Computers
Tampa, FL

Amicomp Computer Center
Oviedo, FL

Commodore Country
Pinellas Park, FL

Computer Image
Miami, FL

Computers Plus
Daytona Beach, FL

Software South Inc.
Savannah, GA

Techno World
St. Mary's, GA

The Musician
Macon, GA

The 64 Store
Atlanta, GA

ABI Computer & Video
Nampa, ID

The Creative Edge
East Ketchum, ID

D Software & CADDs
Bloomingdale, IL

Franco Computers
Peoria, IL

Megabyte Computer Works
Springfield, IL

Micro Tek
Bradley, IL

Micro Ed Enterprises
Chicago, IL

Ring Software
Geneva, IL

Software Plus
Wheeling, IL

Software Plus Chicago
Chicago, IL

Software Plus West
Hanover Park, IL

Computer People
Michigan City, IN

Computer Products Unlimited
Ft. Wayne, IN

CPU Inc.
Indianapolis, IN

Digital Arts
Bloomington, IN

Xerox Computer Center
Indianapolis, IN

Von's Computers
West Lafayette, IN

Mr. Horan's Computer Lab
Louisville, KY

Computer Works
Middleton, MA

HCS Computer Center
Pembroke, MA

LCA Video & Computer Center
Norwood, MA

The Memory Location
Wellsley, MA

Tycom Inc.
Pittsfield, MA

Buried Treasure
Rockville, MD

Capital Classics
Silver Springs, MD

New Age Computers
College Park, MD

Professional Micro Systems
Baltimore, MD

Software Advantage
Rockville, MD

Skylight Software
Belfast, ME

Better Mousetrap Computers
Fllint, MI

Book Nook
Allen Park, MI

Book Center of East Detroit
East Detroit, MI

Direct Access
Novi, MI

Michigan Software
Novi, MI

Norman Business Control Systems
Grand Rapids, MI

Rite Way Computers
Warren, MI

Slip Disk
Madison Heights, MI

Slipped Disk
New Baltimore, MI

Softwarehouse
Kalamazoo, MI

Ye Olde Computer Shoppe
Ypsilanti, MI

JMH Software
Maple Grove, MN

Miller Computer Service
St. Paul, MN

Specialists In
Hopkins, MN

Valiant Inc.
Stillwater, MN

National Computer Center
Ocean Spring, MS

Computers R Us
Lincoln, NE

Double E Computer System
Omaha, NE

Digital Connection Computers
Dover, NH

System Eyes
Nashua, NH

Garden State News
Cliffside Park, NJ

Manta Inc. Software Concepts
Eatontown, NJ

Village Computer Center
Cedar Knolls, NJ

Page One Newstand
Albuquerque, NM

Computer World
Las Vegas, NV

Computer House
Sparks, NV

M.A.S.T.
Sparks, NV

Amagination
New York, NY

Global Software
New Hyde Park, NY

Leigh's Computers
New York, NY

McAleavy's Newstand
Somerville, NY

Peavy's Enterprises
Latham, NY

Ray Supply
Plattsburg, NY

The Microworks
Buffalo, NY

The Computer Cellar
Albany, NY

Video Computer Center
Rome, NY

Video Computer Inc.
Rome, NY

World Wide News
Rochester, NY

Fairborn Home Computer
Fairborn, OH

Infinity Computing
Columbus, OH

Merical Computers
Centerville, OH

North Coast Programming
Willoughby, OH

Second Hand Software
Oklahoma City, OK

Comm Shack
Salem, OR

Computer U.S.E.R.S.
Springfield, OR

ATD Software
Sayre, PA

Circle Computer
Ephrata, PA

Computer Basics
Hermitage, PA

Electronic Connection
Reading, PA

Lauer Todd Computer Solutions
Newtown, PA

North Digital System
Danville, PA

Pittsburgh Computer Store
Pittsburgh, PA

Software Hut
Philadelphia, PA

Some Hole in the Wall
Philadelphia, PA

Micro Limits
Warwick, RI

Software Connections
Warwick, RI

The Computer Place
Woonsocket, RI

AVCOM International
West Columbia, SC

A&E Software
Groves, TX

Lee Kaplan Metropolitan Computer
Richardson, TX

Software Library
Wichita Falls, TX

The Computer Experience
San Antonio, TX

Discovery
Fairfax, VA

University Bookstore
Blacksburg, VA

Virginia Micro Systems
Woodbridge, VA

Nibbles & Bytes
Tacoma, WA

Omni International
Seattle, WA

Tech Star
Kent, WA

Computer Software Center
Milwaukee, WI

Fox Valley Personal Computers
Oshkosh, WI

TMW Computer Center
Wausau, WI

SDA Computers
Hurricane, WV

AC's TECH For The Commodore AMIGA

Technically Speaking, It's the First.

Check out the premiere issue, on sale now:

- ✔ *All Amiga!*
- ✔ *All technical!*
- ✔ *All original!*
- ✔ *All programs included on disk!*

Contents

January, 1991 *Vol. 1 No. 1*

✔ Be sure to get your copy today ... before they're ALL GONE!

Get the Premiere January 1991 Issue for $14.95.
Charter One-year Subscription – Four Issues – only **$39.95!**
(limited time only)

AC's TECH – from the Amiga technical information publishing leader – P.i.M. Publications, Inc.

Now we'll connect the two wires we attached to J3 earlier. These wires bring A14 and A15 into the address decoder. These signals are not available from the CIA socket, so we must look elsewhere. There are only a few sources of A14 and A15 in the 2000. The unbuffered signals are available at the 68000/68010, the ROM, and Agnus. The use of the unbuffered address lines is not recommended. Instead, grab A14 and A15 from U601 (an 74LS245) or one of the 100-pin "Zorro II" slots, as follows:

U601
A14 - pin 12
A15 - pin 11

"Zorro II" slot
A14 - pin 41
A15 - pin 43

This just about completes the electronic installation.

MECHANICAL INSTALLATION

(Note: As the following section was written primarily for an A1000, only some portions will be applicable to other Amigas. We encourage you to read this section even if you own an A2000.)

Most of the remainder of the work is of a mechanical nature. At this point you must make some decisions. First of all, decide exactly where and how you want to secure the I/O Expansion Board in place. In my own A1000, I set one end of the board on top of the power harness, and supported the other end with plastic standoffs.

Where do you want to mount the connectors for the serial ports? You will find that the four D-subminiature connectors will fit handily over the existing row of connectors on the Amiga's rear apron (see Illustration 1, p. 70). Each serial interface board connects to the I/O Expansion Board with a 20-pin ribbon cable and header sockets. The first two ports, Port 1 and Port 2, are connected to P4 on the I/O Expansion Board, while Port 3 and Port 4 are connected to P5.

What kind of connectors do you want to use for the parallel ports? You could use D-subminiature connectors for the parallel ports if you can find a way to tell them apart from the serial ports. Centronics-type connectors are another option for the parallel ports. After deciding what type of connectors to use, either solder or crimp ribbon cable to them, as appropriate, and install them temporarily. Experiment with different wire routings until you are satisfied with the arrangement. Now attach the other end of the ribbon cable to the I/O Board connectors, making sure to attach grounds to the two ground pads provided near pin 1 of P2 and P3.

Whatever connectors you do end up using will have to be installed somewhere. You will need to make cutouts for the connectors, and also cutouts in the RF shield. One option may be to just leave the shield off entirely, but remember that you are responsible for any RFI that results from your modifications. This completes the installation.

DEBUGGING

(Note: The following section was written primarily for an A1000. With the exception of references to Kickstart, most of the remainder will be applicable to other Amigas.)

Before you start permanently attaching things to your Amiga, you will want to try things out. For simplicity, you may apply power to the I/O Expansion Board without having the Interface Board(s) connected. If you power up, and nothing at all happens (i.e., the screen doesn't change color, the power LED does not come on, etc.), turn the power off immediately, as you probably have a short circuit. Visually inspect the board and, if you find nothing wrong, remove all the chips, except for the CIA at U1, and temporarily insert a jumper from U6, pin 1 to U6, pin 7. This will have the effect of making the CIA look electrically to the Amiga as if the I/O Board wasn't there at all. Try powering up again. If you get the Kickstart disk icon this time, you can pretty well suspect a bad IC, or a missing signal (or ground). One other thing you may try at this time is to solder a 10K resistor between the reset pin of any of the chips U2-U5 and +5V. On some Amigas the built-in pull-up resistor may be insufficient. If none of these remedies get you running, it's hardware debugging time, and I wish you luck.

If the Amiga does all or any of the following:

1.) Refuses to accept the Kickstart disk
2.) The disk drive chatters and buzzes
3.) Refuses to read the Workbench disk
4.) Reads Workbench properly, but the access light goes on and off, drive double-steps, etc.

it is possible that you may be experiencing some noise problems, depending on when your Amiga was made. The first thing to suspect in this case is the PALs on the daughterboard. Run additional ground and +5V busses to all 4 PALs and both tower sockets. If this doesn't do the trick, run an extra ground lead directly to the I/O Expansion Board at the pad marked "-"

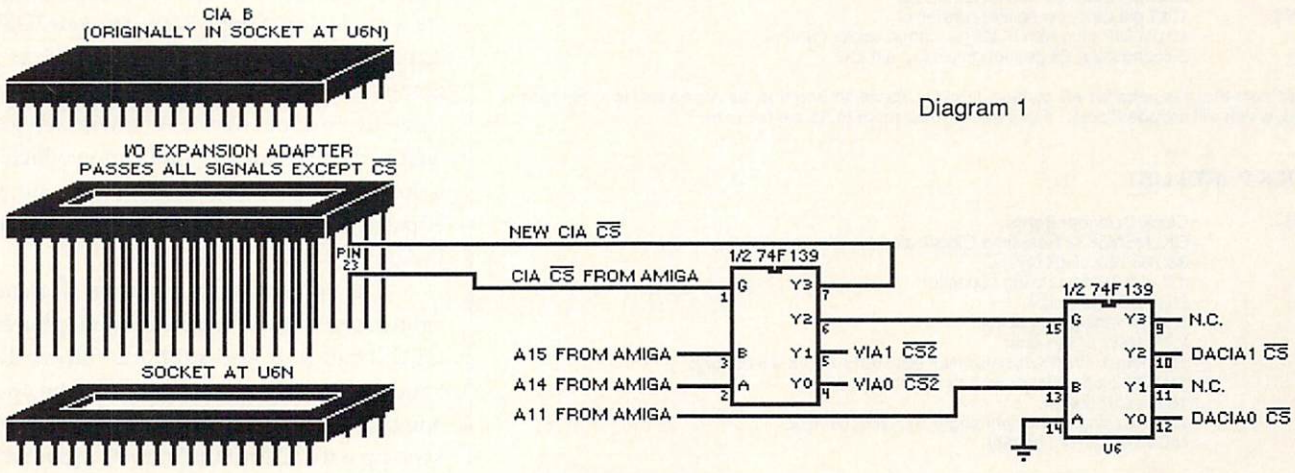


Diagram 1

Parts List

I/O EXPANSION BOARD PARTS LIST

PCB1	I/O Expansion Board circuit board
U1	8520 integrated circuit (CIA B from Amiga)
U2, U3	R65C22P1 VIA integrated circuit
U4, U5	R65C52P1 DACIA integrated circuit
U6	4F139 integrated circuit
U7	74LS90 integrated circuit (optional for MIDI)
X1	3.6864 Mhz crystal
OSC1	5.0 Mhz TTL clock oscillator (optional for MIDI)
R1, R2	1K 1/4W 5% resistor
C1, C2	18 pf capacitor
C3	22 uf 6.3V decoupling capacitor
C4-C10	.01 uf decoupling capacitor
P1	20x2 pin dual-row header
P2, P3	20x1 pin single-row male header
P4, P5	10x2 pin dual-row header
J1, J2	3x1 pin single-row header
J3	2x1 pin single-row header
S1, S2	Shorting jumpers, gold inlay
SO1-SO5	40 pin DIP socket
SO6	16 pin DIP socket
SO7	14 pin DIP socket (Optional for MIDI)

This parts list is for building a 4/4 port board. Depending on which set of parts you order, and whether you are building 2 or 4 ports, you may receive fewer parts than this.

INTERFACE BOARD PARTS LIST

PCB2	Serial Interface Board
U1, U2	MAX238CNG
R1, R2	1K 1/4W 5% resistor (Optional)
C1, C5	4.7 uf 25V Capacitor, charge pump
C2, C6	4.7 uf 25V Capacitor, charge pump
C3, C7	10 uf 25V Capacitor, charge pump
C4, C8	10 uf 25V Capacitor, charge pump
P1	10x2 pin dual-row header
P2, P3	25 pin right-angle pcb male D-sub connector
SO1,SO2	24 pin DIP socket on .300" centers

Please note that this parts list will build 1 Interface Board, which will provide 2 ports. For 4 serial ports, 2 Interface Boards are required.

CABLE PARTS LIST

N1	20x2 pin dual-row socket connector
N2, N3	10x2 pin dual-row socket connector
CA1	40 pin DIP plug with 9" 28 ga. ribbon cable, rainbow
CA2	20 conductor, 28 ga. ribbon cable, rainbow

Please note that this parts list will connect the I/O Expansion Board to the Amiga and to 1 Interface Board, which will provide 2 ports. For 4 serial ports, more parts are required.

CLOCK PARTS LIST

PCB3	Clock/Calendar Board
U1	OKI MSM5832 Real-time Clock/calendar integrated circuit
X1	32.768 Khz clock crystal
C1	4.7 uf 6.3V decoupling capacitor
C2	20 pf disc capacitor
C3	5-35 pf variable capacitor
R1	2.7K 1/4W 5% resistor
R2	100 ohm 1/4W 5% resistor (Not required with lithium battery)
D1	1N4000 diode (Not required with lithium battery)
SO1	18 pin DIP socket
P1	20x1 pin single-row right-angle socket connector
B1	NiCad or Lithium battery

Please note that the above clock parts are readily available, but not from us, except for the printed circuit board, PCB3.

adjacent to P1, pin 1. A +5 power lead may also be connected to the pad marked "+" adjacent to P1, pin 39, but should not normally be necessary. This should solve the problem. The only other possibility is to try a new 8520 (or 6526, which is considerably cheaper). A bad CIA is possible in this case, because the signals may be too weak to overcome the extra capacitive loading of the cable. If the CIA worked fine before it was installed in the I/O Board, but will not work correctly in the board, try swapping it with the other CIA before buying a new one.

SOFTWARE

Of course, hardware is next to useless without software to drive it. This section describes the software available for the I/O Expansion Board. Please note that, although every effort has been made to ensure completeness and compatibility, this article is being written in the middle of December for general release in February. All of the software is not yet written or finalized, although the device drivers are nearing completion. I have made the decision to go ahead with publication, and believe that the software will be ready by the time you read this. Please contact us if you find any major incompatibilities or bugs.

THE SERIAL DRIVER

Almost all programs written for the Amiga that use the serial port (with the notable exception of some MIDI software) access it indirectly via a standard software module called "serial.device". As a result, most existing software will work fine with the I/O Board given a suitable driver, and we supply one, named "newser.device". Simply copy it to your "DEVS:" directory and you're in business. Most programs will permit you to change the device name (from serial.device to newser.device) as well as the unit number (indicating which port is to be used), or you may use the supplied IOpatch utility, described below (see "Support Programs").

The newser.device supports 15 standard baud rates, from 50 to 38,400 baud, plus MIDI (31,250 baud). It also supports full hardware handshaking. Up to four units may be open at one time, although the cpu may not be able to keep up with all four units running above 2400 baud.

A more technical discussion of the serial driver is beyond the scope of this article. However, it is worth noting that, as with all other programs relating to the I/O Board, we supply complete assembly language source code of the driver. If you encounter a problem—and all else fails—it's possible to fix it yourself. (Please be sure to send the author, Dan Babcock, a copy of the fixed version!) Technical questions, comments, praise, and criticism regarding the serial driver should be directed to Mr. Babcock at the following address:

Dan Babcock
P. O. Box 1532
Southgate, MI 48193
PeopleLink: DANBABCOCK
Internet: dxb132@psuvm.psu.edu

THE PARALLEL DRIVER

The four parallel ports on the I/O Expansion Board are controlled by the eightbit.device. There are no known differences between this device and the V1.3 parallel.device. Applications should not experience any problems communicating with the eightbit.device on the device level.

Full assembly language source code of the driver is supplied with the I/O Expansion board. (If you find and fix any bugs, please be sure to send the author, Paul Coward, a copy of the fixed version!) Any questions, comments, praise, etc. pertaining to the parallel driver may be directed to Mr. Coward at the following address:

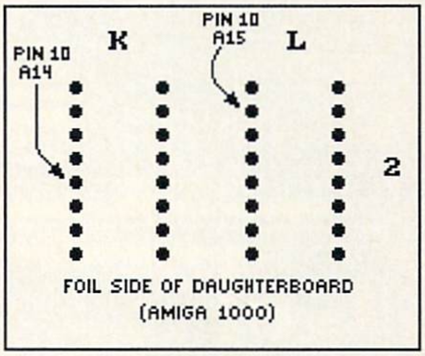
Paul Coward
12 Dinmore St., Moorooka
Brisbane, Queensland 4105, Australia
(Mail may also be forwarded to Paul through The Puzzle Factory.)

DOS-LEVEL SUPPORT

"DOS-level support" refers to the ability to get and send data via the serial and parallel ports with standard AmigaDOS commands, such as TYPE or LIST, or with any program that does serial or parallel I/O via AmigaDOS, rather than directly via the Exec-level "newser.device" or "eightbit.device". Although this sort of capability is not frequently used, it is useful from time to time.

In a perfect world, DOS-level support would mean nothing more than an appropriate MountList entry, specifying a driver name of "newser.device" or "eightbit.device", and some unit

Diagram 2



number of your choosing, corresponding to a DOS name such as "SER1:" or "PAR2:". Unfortunately, Commodore supplied a version of the Port-Handler and Aux-Handler with Workbench V1.3 that doesn't permit this; rather, they're hard-coded to use either "serial.device" or "parallel.device". The printer.device suffers from a similar limitation. At the time of this writing, we don't have a solution, other than using IOpatch. However, we expect to have replacement handlers ready by the time you read this. In addition, the handlers in Workbench V2.0 have the capability to use any device and unit, so this whole problem is non-existent if you have V2.0.

Table 1

NOTE: The boxed area describes the bits that are needed to address CIA B. The bits identified by an 'R are used for register selection. All the other bits are 'Don't Care', but it is suggested that the following conventions are used in order to satisfy Commodore-Amiga's guidelines for addressing the CIAs, as well as making program exchange possible for use of the VIAs and ACIAs.

1 0 1	1	1 1 1 1	0 0	0 1	R R R R	0 0	0 0	=	$BF1R00	=	VIA 0
1 0 1	1	1 1 1 1	0 1	0 1	R R R R	0 0	0 0	=	$BF5R00	=	VIA 1
1 0 1	1	1 1 1 1	1 0	0 1	0 0 R R	0 0	0 0	=	$BF9R00	=	DACIA 0
1 0 1	1	1 1 1 1	1 0	0 1	1 0 R R	0 0	0 0	=	$BF9R00	=	DACIA 1
1 0 1	1	1 1 1 1	1 1	0 1	R R R R	0 0	0 0	=	$BFDR00	=	CIA B

Table 2

REGISTER SUMMARY

VIA 0 BASE ADDRESS	=	$BF1000
VIA 1 BASE ADDRESS	=	$BF5000
ACIA 0 BASE ADDRESS	=	$BF9000
ACIA 1 BASE ADDRESS	=	$BF9800

DACIA OFFSETS

IER1	ISR1	=	$0000
CR1/FR1	CSR1	=	$0100
CDR1/ACR1	--	=	$0200
TDR1	RDR1	=	$0300
IER2	ISR2	=	$0400
CR2/FR2	CSR2	=	$0500
CDR2/ACR2	--	=	$0600
TDR2	RDR2	=	$0700

VIA OFFSETS

ORA	=	$0000	T2CL	=	$0800
ORB	=	$0100	T2CH	=	$0900
DDRA	=	$0200	SHR	=	$0A00
DDRB	=	$0300	ACR	=	$0B00
T1CL	=	$0400	PCR	=	$0C00
T1CH	=	$0500	IFR	=	$0D00
T1LL	=	$0600	IER	=	$0E00
T1LH	=	$0700	FRA	=	$0F00

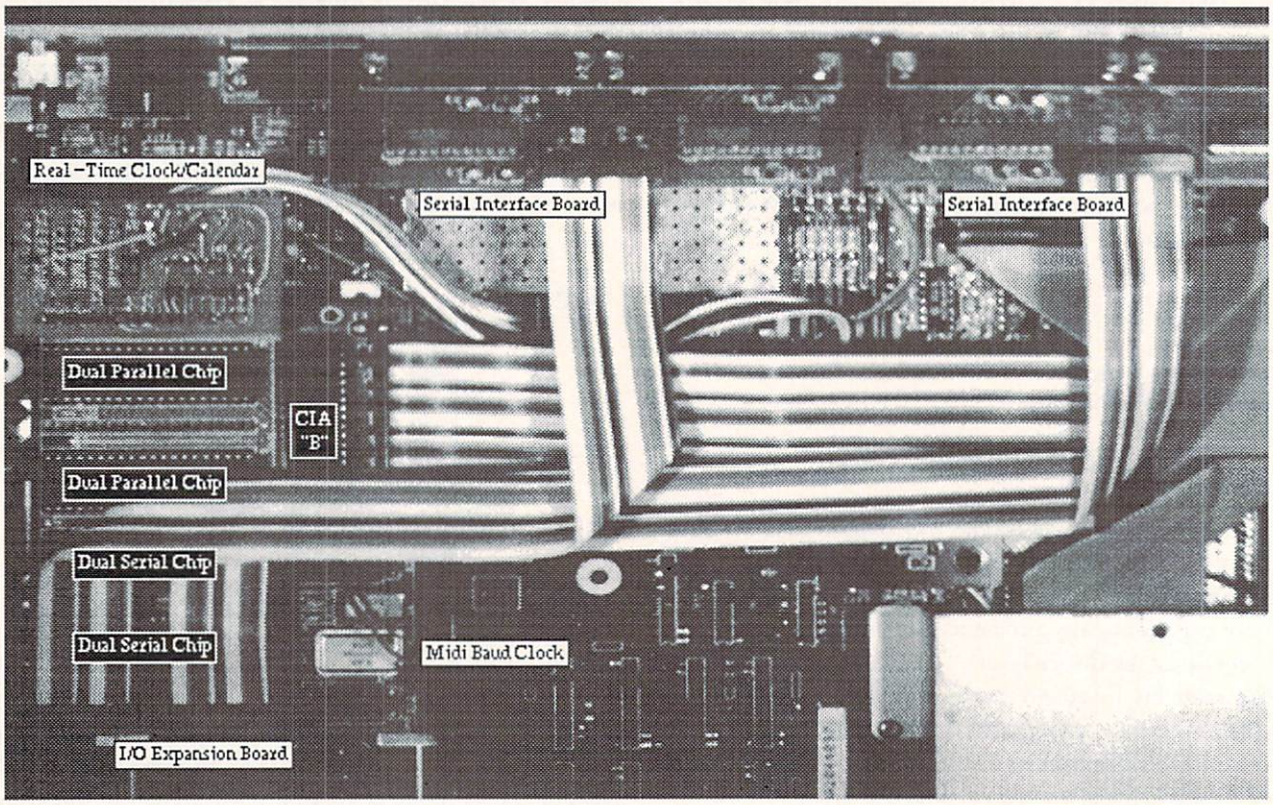


Illustration 1

SUPPORT PROGRAMS

Several programs are available for use with the I/O Expansion Board. SERprefs functions much the same as the serial section of Preferences, but allows you to set and save parameters for all four units of the newser.device. These are saved in "S:Serial-Preferences".

Many programs allow you to specify the device name and unit number, so that using an alternate device driver is no problem. For those applications that insist on using a particular device, we have written a nice little hack called IOpatch. This program SetFunction()s the exec OpenDevice call. The user puts this program in his startup-sequence, or otherwise invokes it, before running his application program. This patch will make a small window appear, whenever OpenDevice() is called, with a choice of units, 0-4. Unit 0 will select the internal serial or parallel port, and units 1-4 will select one of the newser.device or eightbit.device units. Please note that the names of both drivers have been selected to be the same length as the names of the original devices. This has been done to facilitate file-zapping as a last resort. Of course, software that names the newser.device or eightbit.device specifically may be written .

A suite of simple test programs to check the I/O Expansion Board hardware can save you hours of hardware debugging time. Chip selects, as well as read and write signals, are generated for all chips. One program simulates a very simple character-oriented terminal program for checking an ACIA.

A nice little program to drive a real-time clock-calendar is also available. The clock hardware, based on the OKI MSM5832, is capable of generating interrupts at 1024 hz, once per second, once per minute, or hourly. Software to take advantage of this feature is left as an exercise for the student. See the Sources section for availability of a bare board for this clock.

CREDITS

I would like to thank Dan Babcock for the many hours he put in writing and debugging the serial device driver. This was surely one of the most difficult parts of this project. Paul Coward, of DigiSoft, provided us with the parallel device driver, no small achievement either. Jim Cooper, of The Software Distillery, made many helpful suggestions concerning software issues, especially in the area of DOS compatibility, and helped us get up to speed. Bill Seymour provided invaluable help in layout and preproduc-

Where do I get the kit?

Bare boards and other hard-to-find parts may be obtained from The Puzzle Factory. Detailed assembly instructions will be supplied, on disk, with kits 1, 1A, 2, 2A and 3. In particular, the CMOS serial and parallel chips, as well as the Maxim chips may be difficult to find in single quantities. Other parts may be found at the mail order electronic supply firms listed below, or any good parts house. The Puzzle Factory will make only the following items available for an indefinite period of time. Please do not request custom kits:

- **BAREBOARDS (1)**
  1 PCB1 I/O Expansion Board
  1 PCB2 Serial Interface Board $20.00

- **ALMOSTBARE (2)**
  Everything in BAREBOARDS, and the following ICs:
  1 each: R65C22P1, R65C52P1, MAX238CNG $45.00

- **FOUR_PORTS (3)**
  Everything in ALMOSTBARE, and enough parts to build a complete I/O System with 2 serial and 2 parallel ports.
  (U7, OSC1, SO7 not included.) $70.00

- **MIDI_UP (5)**
  1 each: U7, OSC1, SO7 $ 6.00

- **BAREBOARDS2 (1A)**
  1 PCB1 I/O Expansion Board
  2 PCB2 Serial Interface Board $25.00

- **ALMOSTBARE2 (2A)**
  Everything in BAREBOARDS2, and the following ICs:
  2 each: R65C22P1, R65C52P1
  4 each: MAX238CNG $70.00

- **FOUR_MORE (4)**
  All parts necessary to add 2 serial and 2 parallel ports to FOUR_PORTS.
  (U7, OSC1, SO7 not included.) $40.00

- **CLOCKBOARD (6)**
  1 PCB3 Clock/Calendar Board suitable for building a real-time clock/calendar based on he OKI MSM5832. Instructions for assembling the clock are included on disk. (Parts are readily available, but not from us.) $ 6.50

Shipping
Prices for up to 1 lb. If shipping several kits, call for pricing.

North America		Overseas	
UPS Ground	$ 3.00		
UPS Blue Label, or Small Packet Air	$ 5.00	Small Packet Air only	$ 8.00
Federal Express Overnite	$CALL	Federal Express Overnite	$CALL

Prices are subject to change without notice. Please call for prices and availability before ordering. All prices are in U.S. dollars. Visa, MasterCard and Money Orders are preferred. No CODs will be accepted.

tion of the PCBs, and also provided design help. Finally, this task was made easier by the help and encouragment of Doug Sears and Grace Lavin.

CONCLUSION

I think this is a pretty neat little hack. I also feel that it is simple enough that if I hadn't come up with it, someone else would have. It provides some much-needed additional I/O for the Amiga 500, 1000 or 2000 at a rock-bottom price. If enough software becomes available to warrant it, I will try to set up some sort of software clearing house for use with this board. Keep an eye on BIX or my BBS, The Symposium, for any news. Meanwhile, I hope you enjoy using this board. And don't let the blue smoke out!

•AC•

Suppliers

The Puzzle Factory, Inc.
P.O. Box 986
Veneta, OR 97486
(503) 935-3709

Mouser Electronics
2401 Hwy 287 North
Mansfield,TX 76063
(800) 346-6873

Digi-Key, Corporation
701 Brooks Ave. South
P.O. Box 677
Thief River Falls, NM 56701-0677
(800) 344-4539

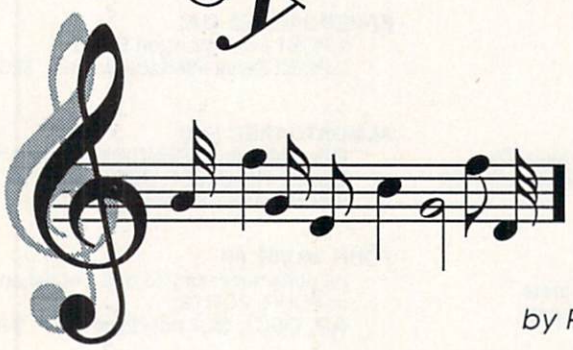
Mouser Electronics
12 Emory Ave.
Randolph, NJ 07869
(800) 346-6873

Mouser Electronics
11433 Woodside Ave.
Santee, CA 92071
(800) 346-6873

Jameco Electronics
1355 Shoreway Road
Belmont, CA 94002
(415) 592-809

JDR Microdevices
2233 Branham Lane
San Jose, CA 95124
(800) 538-5000

Medley



by Phil Saunders

WE DEBUTED THIS COLUMN in January with a discussion of MIDI interfaces and synthesizers. This month, we'll get into the software of Amiga music. The right software can turn your Amiga into a great music machine. With that in mind, I'll describe the various kinds of software presently available and discuss what each kind does. This should give you a good feel for what's available.

The right software can turn your Amiga into a great music machine...

Sequencers are the most important MIDI software. Essentially, a sequencer records a performance from a MIDI keyboard, stores it in the Amiga, and then replays it through the Amiga's MIDI interface. Most sequencers allow some degree of editing to remove mistakes and to combine different performances. A sequencer records MIDI note data, not the actual sounds produced by the keyboard. Once the data is stored, it can be sent to the Amiga's internal voices, to another MIDI keyboard, or back to the original keyboard. This allows you to experiment with different sounds after a recording is finished.

There are a number of different factors to consider when choosing a sequencer, including timing resolution, editing capabilities, and the ability to synchronize with other hardware. By far the most important consideration is how comfortable you are with the sequencer's user interface. There are numerous MIDI sequencers available for the Amiga; among the best are Microillusions' Music-X, Dr. T's Keyboard Controlled Sequencer, The Blue Ribbon SoundWorks' Bars&Pipes, and Passport Design's Master Tracks Pro. Demo versions are available for all four of these sequencers, and it is well worth your time to try all four before deciding on one. Many users end up with more than one sequencer as each offers unique features.

Sequence editors provide specialized editing for MIDI sequences. One such editor, Dr. T's Tiger Cub, allows real-time graphic editing of MIDI sequences as well as graphic editing of continuous controller information. While Tiger Cub links directly with Dr. T's Keyboard Controlled Sequencer, it can also be used to edit files generated by other sequencers and then imported as MIDI files. In practice, many musicians find that no one sequencer fulfills all their editing needs, so they often record sequences in one sequencer and then transfer them to another for editing. The Amiga's multitasking operating system, and the fact that most Amiga sequencers support standard MIDI files, facilitates moving sequences from one program to another.

Sound editors allow you to record and modify sounds and play them back on the Amiga. Most audio digitizers come with software to record and edit sounds, but stand-alone software like Aegis AudioMaster III has additional features, and is easier to use. AudioMaster allows for the sampling of sounds at higher sampling rates, thereby improving sound quality. Graphic editing of sounds also makes it much easier to create IFF instruments for use in other programs. Another noteworthy program in this category is Synthia II, which generates sounds on the Amiga by computer algorithms. Synthia is basically a software-based

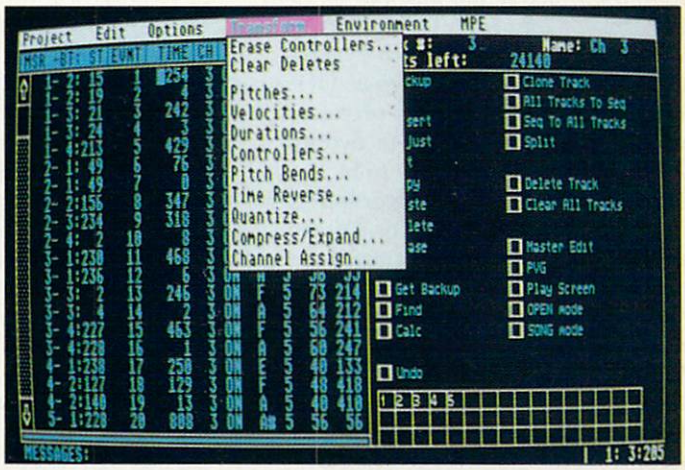
synthesizer which creates IFF instruments. It can also be used to edit and process digitized sounds. Some sound editors can also create special effects like echo and pitch bending in real time. These can be amusing, although not always musically useful.

Note editors allow you to hand enter scores using traditional music notation, and play them back using the computer's voices and MIDI. The score can usually be saved as a SMUS file and used in other Amiga programs. Instead of playing the part into the computer, you use the mouse and/or Amiga keyboard to enter each note. A music editor allows people with limited performance skills to enter complex music. The chief drawback is that it takes a long time to enter a score by hand and the music is likely to be more precise and "sterile" sounding, without the emotion of a human performance. There are editing tricks to add dynamics and "human" touches to scores entered by hand, but these can be tedious. Deluxe Music Construction Set and Aegis Sonix are two of the better-known note editors; MED is a public domain equivalent.

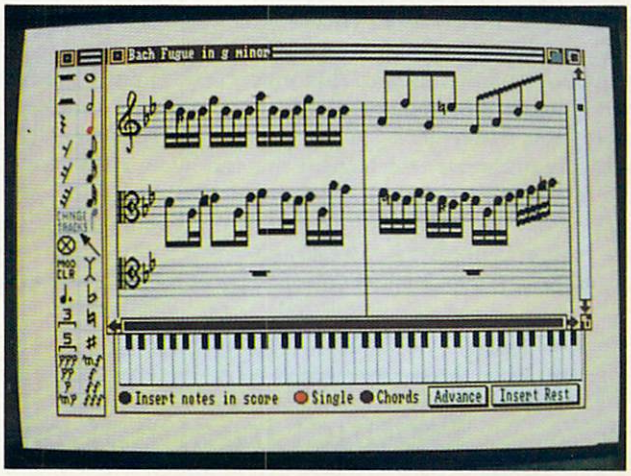
Patch editors allow you to edit patches on a MIDI synthesizer. A patch editor usually provides graphic editing of all the parameters that control the sound of a synthesizer. It is generally much easier to modify sounds on the computer than by using the synthesizer's controls. In fact, some MIDI modules, like the Roland MT-32 and the EMU Proteus, only allow patch editing via computer. Dr. T's and Sound Quest each make a wide variety of patch editors for many MIDI synthesizers. There are also "generic" patch editors available which support many different synthesizers; however, generic programs may lack graphic editing and may not support all the features of a particular synthesizer. Some sequencers (like Music-X) also have provisions for patch editing built in.

Patch librarians store patches for MIDI synthesizers. The idea is simple: Instead of the number of patches being limited by the synthesizer's memory, the computer stores banks of patches on disk and shuffles them to and from the synthesizer via MIDI. Most patch editors are also patch librarians; however, it is also possible to buy programs just to store and organize patches. Generic patch librarians are more successful than generic patch editors because they don't need to support graphic editing and special features.

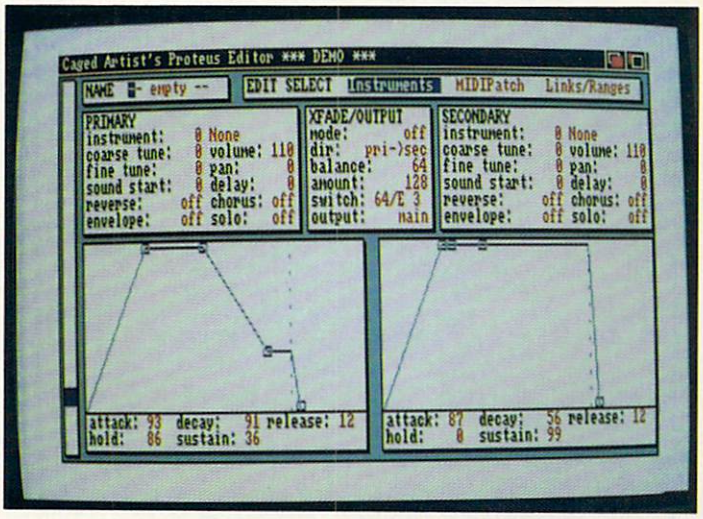
Sample editors are a combination of sound editors and patch editors. They create



Dr. T's Keyboard Controlled Sequencer records MIDI performances.



Electronic Arts' Deluxe Music Construction Set allows users to type in scores.



Patch editors modify synthesizer sounds using a graphic interface.

and edit sounds on professional MIDI samplers. A real sampler can create as many as thirty-two 16-bit, 44 kilohertz samples, which sound much better than the Amiga's four 8-bit, 14 kilohertz voices. MIDI Sample Wrench V1.3 by dissidents and Synthia Professional by The Other Guys are the two premier sample editors for the Amiga. Synthia Professional can also create 16-bit sounds from its software algorithms.

Algorithmic composition software creates music from preprogrammed rules. This class of software includes a wide variety of programs, ranging from those that modify user sequences to those that create music from graphics files. Dr. T's M creates MIDI sequences based on user-edited algorithms. The user can modify a number of parameters, and the program then creates music based on the user's choices. Dr. T's Level II sequencer records a MIDI sequence, and then creates rhythmic and melodic variations based on modifiable parameters. There are also software programs which create musical sequences from fractals, IFF graphics, and even DNA sequences! Finally there are programs like Music Mouse and Instant Music which allow you to "play" music using the mouse while the Amiga joins in an accompaniment derived from artificial intelligence techniques.

Music-scoring software produces printed musical notation from music files. This kind of software either converts a MIDI sequence to music notation (like Dr. T's Copyist) or requires the user to type in the score by hand. Dr. T's makes several versions of the Copyist, which produces good-quality output. Deluxe Music Construction Set also has decent score-printing capabilities. This is one category where the Amiga could use more competition. While the Copyist is a capable program, other computers have more sophisticated score-printing software available.

While this list covers the basic categories of music software available for the Amiga, it is not by any means complete. There are a number of niche products that fulfill specific musical needs. Check *AC's Guide To The Commodore Amiga* for a complete list of music software. The amount of music software available for the Amiga has grown tremendously over the past year. The only categories now missing are film-scoring software and MIDI drum machine editing. I would also like to see a program that allows for the editing of MIDI sequences using conventional music notation (Bars&Pipes Professional, it is promised, will include music notation editing).

What does a beginner need? It depends on what he or she wants to do. If you want to type in songs and play them back, either Aegis Sonix by Oxxi/Aegis or Deluxe Music Construction Set by Electronic Arts are suitable. Both can create SMUS files appropriate for use in DeluxeVideo and other multimedia applications. If you want to get started in MIDI sequencing, Dr. T's Tiger Cub looks like a great choice. It combines a MIDI sequencer, graphic editor, and score printer in one package for under a hundred dollars. That's a great deal! Files created by Tiger Cub are also compatible with any of the more advanced sequencers if or when you outgrow its capabilities. If you are a serious musician, try one or all of the professional sequencers mentioned earlier. The demo versions will give you a good idea of each sequencer's capabilities and interface. Work with the demos and select the sequencer you're most comfortable with. •AC•

Product Information

MIDI Sample Wrench V1.3
Price: $279.00
Inquiry #248
dissidents
730 Dawes Avenue
Utica, NY 13502
(315) 797-0343

Music Mouse
Price: $79.00
Inquiry #251
Opcode Systems
1024 Hamilton Court
Menlo Park, CA 94025
(415) 321-8977

Deluxe Music Construction Set
Price: $99.95
Inquiry #245
Instant Music
Price: $19.95
Inquiry #252
dist. by Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
(800) 345-4525

Music-X
Price: $299.95
Inquiry #238
Microillusions
P.O. Box 3475
Granada Hills, CA 91394
(818) 785-7345

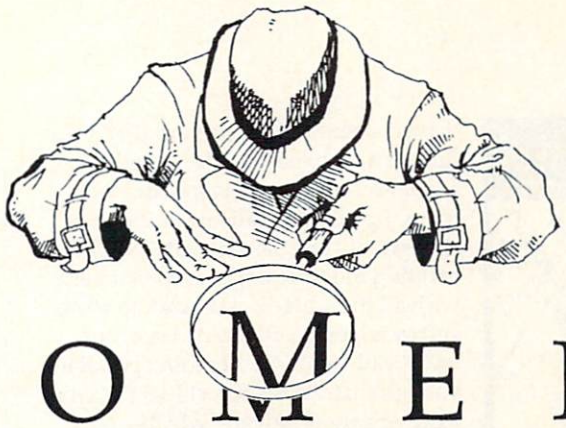
Bars&Pipes
Price: $249.95
Inquiry #240
The Blue Ribbon SoundWorks, Ltd.
1293 Briardale NE
Atlanta, GA 30306
(404) 377-1514

Master Tracks Pro
Price: $395.00
Inquiry #241
Passport Designs, Inc.
625 Miramontes Street
Half Moon Bay, CA 94019
(415) 726-0280

Keyboard Controlled Sequencer V1.6
Price: $249.00
Inquiry #239
Level II
Price: $349.00
Inquiry #250
Tiger Cub
Price: $99.00
Inquiry #242
M
Price: $199.00
Inquiry #249
Copyist Apprentice
Price: $99.00
Inquiry #253
Copyist DTP
Price: $339.00
Inquiry #254
Copyist Level I
Price: $99.00
Inquiry #255
Copyist Professional
Price: $275.00
Inquiry #256
Dr. T's Music Software, Inc.
220 Boylston St. #306
Boston, MA 02167
(617) 244-6954

Synthia II
Price: $124.95
Inquiry #244
Synthia Professional
Price: $395.00
Inquiry #247
The Other Guys
55 N. Main, Suite 301D
P.O. Box H
Logan, UT 84321
(801) 753-7620

Aegis AudioMaster III
Price: $99.95
Inquiry #243
Aegis Sonix
Price: $79.95
Inquiry #246
Oxxi/Aegis Development
1339 E. 28th Street
Long Beach, CA 90806
(213) 427-1227



ROOMERS

by The Bandito

[The statements and projections presented in "Roomers" are rumors in the purest sense. The bits of information are gathered by a third-party source from whispers inside the industry. At press time, they remain unconfirmed and are printed for entertainment value only. Accordingly, the staff and associates of Amazing Computing™ cannot be held responsible for the reports made in this column.]

THE NEWS FROM COMDEX: Atari is still trying to get people to buy STs. The company's latest attempt to do that has produced the Mega STE series—or perhaps it's "Son of the Revenge of the Bride of Atari". The Mega STE series stuffs their STE into a TT-style box; that's basically an ST with Atari's rather anemic blitter chip (which no software bothers to support) added in. Oh, and they have yet another version of their dumb laser printer, too, that relies on the Atari for all of its intelligence. Sounds like a wise decision, doesn't it? Looks like Atari has another smash seller in the grand tradition of the ST series. All the ST needs is OS/2 and it's ready to conquer the world. The Bandito believes that Atari can sell somewhere in the double digits, if they try hard.

NEWTEK'S VIDEO TOASTER was a hit at COMDEX. Those staid IBM types had never seen real video at a real price. Oh, sure, last year IBM showed some poorly digitized video at slow frame rates running from an unreleased multikilobuck add-in card, but that looked like a Victrola next to the Toaster. The Bandito hears that both IBM and Apple waved big wads of money at NewTek. Apple begged and pleaded with NewTek to put the Video Toaster on a Macintosh, but the Topeka Gang refused. Even IBM got down on its knees and whined for a PS/Toaster. No dice. Aside from the fact that NewTek would essentially have to put an Amiga on a card to make it work, they have no interest in supporting those other computers. So there.

The Bandito has heard that the Video Toaster will be displayed at one of the big Macintosh-only shows. No, not because NewTek is planning to bring it out for the Macintosh, but to show all those Mac fans what they're missing. Kind of a poke in the eye for Apple and all those Mac people who are touting "multimedia" with super-expensive video kludge cards that merely succeed in putting grainy, slow video on the desktop. So what good is that? The Bandito can get a Watchman TV and put it on top of the monitor for a lot less. Anyway, it just seems like a great way to waste time, rather than a way to do business. Helocar, anyone?

ALSO, WORD HAS IT that new Video Toaster hardware add-ons, providing some of the most-requested features, are due in 1991. The Bandito's informant collapsed during questioning, but it seems certain that more video effects will be added. Also look for a software upgrade to add features, particularly new digital video effects. User-defined video effects are possible, with full x-y rotation of real-time video. And according to The Bandito's inside information, the Video Toaster is fully D2-compatible (that's the high-end digital video standard for production video). All the Toaster needs is the proper interface, which is in development. No word yet on one other most-requested feature: PAL video support. The Bandito will seek more data on this later.

Early reviews from Toaster users are positive. One of the more famous Toasterites is musician Todd Rundgren, who is using the Video Toaster and several Amigas to produce his latest music video. Amiga 3-D superstar Allen Hastings is working with Rundgren to provide one of his amazing animations to be used in the video. Apparently, Rundgren has been converted from a Macintosh *fan* into a Toaster *fanatic*. And he won't likely be the last one, either.

MANY OF THE BANDITO'S loyal data customers have been wondering about Commodore's ability to bring out products when they say they're going to. After all, Workbench 2.0 and CDTV were both supposed to be out this past fall. Neither one made it under the deadline. What happened?

Well, Workbench 2.0 was delayed to ensure compatibility with popular applications. It seems some of the larger developers let out wicked screams when their pet money-making software refused to run under the new operating system. So Commodore has obliged them by making changes, and also by giving the developers time to revise their software. Everybody's happy but the customers, who have to wait even longer.

And CDTV is now scheduled for a grand spring introduction. The Bandito, referencing his handy pocket marketing calendar, translates this to mean fall in the standard Gregorian calendar used

by human beings (marketing types are, by most definitions, not quite human). The Bandito was disappointed—but not terribly surprised—to not find one under the Christmas tree as originally promised. These things take time, you know. And Commodore wisely decided that it would be a good idea to have some software ready for the device first. A later introduction allows more time for the software to be readied. And it also gives Commodore a chance to improve the player, possibly finding a way to offer full-motion video and compact disc-quality audio.

So how is Commodore doing at lining up software support for CDTV? Just OK, since they're not offering a great deal of help. Sure, they'll master the disc for you, but the development tools are still mostly nonexistent. Money? You want money? Ha! Those that are developing for CDTV are doing it only because they see the potential for a future market, not necessarily for CDTV, but certainly for technology like it. So what titles are lined up for CDTV? The Bandito has heard about BattleChess, It Came From the Desert, Jack Nicklaus Golf, and others.

The dream for developers is a world full of CD-ROM-based systems (whether CD-I, CDTV, or even PCs with CD-ROM players) where there can be one disc that supports all those different standards. After all, there is plenty of room on a CD-ROM for the software drivers necessary to support all of those different systems, and the sound and graphics could be the same for all of them. Developers salivate at the mere thought of "one SKU fits all". No more printing multiple boxes and manuals, with all the added costs. And no more software piracy, either. At least, not until read/write CDs become popular enough that the discs cost less than the price of game software, which—according to The Bandito's crystal ball—is quite a ways off.

Commodore stock has zoomed back up recently, heading over the 10 mark. Not bad for a stock that was hovering around 4 and 5 not too long ago. Looks like analysts are starting to believe in the product lineup, and the prospects for CDTV. The Bandito expects it to climb even further, especially now that the Video Toaster is having an impact. How high is up? The Bandito remembers when Commodore stock hit 65 back in the heyday of the C64. But will we see that again?

THE BANDITO ALWAYS keeps a data channel open to the Pacific Northwest, where the Microsoft Empire plots to take over all of cyberspace. The latest plan in their nefarious scheme is based on the enormous success of Windows 3.0. This GUI (Graphic User Interface) has been taking the IBM world by storm, since those poor schlubs have never seen one before. Of course, Windows 3.0 is still fairly sad, and the installation procedure makes preparing a space shuttle for lift-off look as easy as filling up your car at the gas station.

But now the Microsofties are plotting to put Windows on every computer by creating a 680x0-based version of their popular new OS. Their main target is to take over the Macintosh, but they may try to run on the Amiga as well. You may recoil in horror at the thought, but Commodore is all for the idea. Heck, West Chester is pushing for the idea, salivating (their turn now) at the thought of being able to run all of that IBM software. Or maybe it's the thought of finally being able to sell the Amiga in large quantities to corporate America. In any case, it won't happen until 1992 if it happens at all. So don't hold your breath.

Microsoft just had a big multimedia conference, which, of course, touted their attempts to turn miserable DOS machines into Amigas. The Bandito was particularly amused when Microsoft outlined their concept of a multimedia machine: an 80286, a CD-ROM, a sound board (with maybe three voices), and 640 x 480 x 16 color graphics, with 2 megabytes of RAM and a hard drive for about $2500. Of course, you could put together an Amiga system that would blow that away for the same price—or less. Try CDTV, for instance. And then the Microsofties had the effrontery to claim that this would be the first multimedia PC. They expect several manufacturers to produce such a beast by 1992. No word on when customers would materialize...perhaps by 1995?

IT'S A REAL PARADOX, sez The Bandito that, while many of the best action games for the Amiga come from Europe, many of the worst Amiga versions of games originated on other computers are also done in Europe. Ultima V, for instance, is not something to boast about, and it was done by a European group. Seems the Eurofolk expect a 512K machine with only one disk drive. That's fine, but you'd think when a game needs a lot of disk swapping it would at least be designed to recognize a second disk drive. Or maybe if you have a megabyte of memory or more, the game could be loaded into RAM so you don't have to swap disks. Get a clue, would you? The Bandito is tired of swapping disks.

But this does point up a threat to the Amiga. The Amiga, for all of its amazing powers, has not improved its graphics or sound capabilities in 5 years. That's a long time in the computer business, and the rest of the pack is finally starting to catch up.

The new Macintosh LC, for instance, can simultaneously display 32,000 colors on a 512 x 384 screen with no tricks, like shifting the palette every line. Commodore should seriously consider taking something like the DCTV technology and building it right into every Amiga, so that all Amigas can boast 24-bit style graphics. It'd be even better if you could do that with real-time animation. Maybe some of the

video wizards out there could do something like that. Any geniuses for hire?

THE A500 HAS FINALLY broken the $500 barrier, as The Bandito predicted. Will the sales be there, as the retailers are hoping? The returns aren't all in yet, but The Bandito is still checking. Commodore has been putting out some great TV commercials, though. The Bandito caught one where they showed a "flight simulator" on a videogame, and then showed Wings and Falcon on the Amiga 500. The clincher was: If you want your kid to not only fly an airplane, but design one, draw one, and write about one, get an Amiga instead of a videogame. Sounds good to The Bandito. But are the parents buying it?

A THIRD-PARTY developer is reportedly working on an affordable alternative to the Bridgeboard. Specs include a 16 MHz 80386 and 1 meg of RAM, which can be used by the Amiga. It's designed specifically for the A2000 series, of course, though it will also fit into the A3000. The software would work like the Janus stuff from Commodore, allowing you to run PC software in a window on the Workbench. Marketing plans aren't final, and there's still more engineering to be done. Keep your eyes open for a fall introduction, though. This might be a big seller for those business buyers.

The market for Amiga CAD software is really heating up nicely these days. The Bandito is pleased to see several high-powered programs on the market. Now, if Commodore can take that 1200 x 800 pixel monitor out of the labs and bring it to market, we'd really see some drafting action.

AMIGA GRAPHICS whiz Dan Silva has been working on a 3-D animation project for Autodesk. It's part of a software package called 3-D Studio which provides 3-D object creation, animation, and rendering for MS-DOS machines.

The Amiga '90 show in Germany attracted more than 60,000 people, the largest Amiga show ever. The crowd was jammed in staring at the latest wonders of the Amiga line, including the new A3000UX. This baby is designed for the UNIX market, and it's very impressive for those of you who like that sort of thing. Personally, The Bandito prefers the Workbench.

THE INTRODUCTION of Dynamic Hi-Res mode and Sliced HAM modes opened the speculation on when we'd see a paint program that could work in these new modes. At the World Of Amiga show in Chicago, Lake Forest Logic introduced a program called Macro Paint that allows this. Does this mean a new battle in the paint wars? Could be. The Bandito hears that Digi-Paint 4 will offer this capability as well, along with a fistful of new paint tools that give you much of the power of DeluxePaint (such as Fills and Grid). When will we see this? Look for it when the leaves begin to turn green, sez The Bandito.

What about the venerable DeluxePaint? Don't expect anything more than a maintenance upgrade to support Workbench 2.0. It's possible that this beloved program may get as much support in the future as DeluxeMusic. Now that would really be a crime...

THERE ARE SOME interesting video developments for the Amiga coming from down under. A young Aussie hacker has created a video paintbox system for the Amiga which he claims outperforms the Quantel Paintbox, which is the video industry standard. The hardware is just a small box that plugs into the Amiga's RGB port. The software generates 16 million colors at 768 x 580 pixel resolution. And all this for under a thousand dollars retail. The product name is Colorburst.

Is this competition for the ToasterPaint package included with the Video Toaster? Maybe. ToasterPaint has you work in HAM mode and the images are then rendered in 24 bits, whereas Colorburst images are done directly in 24 bits. However, this direct process is currently the subject of lawsuits by the folks at Quantel, who claim a patent on certain processes relating to real-time, 24-bit painting for video systems. They're suing other paintbox manufacturers in some closely watched litigation. If they win, ToasterPaint is safe, but Colorburst may not be so lucky. If Quantel loses, ToasterPaint may get some real-time features. The Bandito supposes that Quantel is just a dinosaur fighting to stay alive while all of these feisty little mammals are clawing their way up the food chain. They'd better wake up soon, though. The traditional video business is being turned upside down, and those who don't adapt will die.

•AC•

A third-party developer is reportedly working on an affordable alternative to the Bridgeboard. Specs include a 16 MHz 80386 and 1 meg of RAM...

PD Serendipity

Insight into the World of Public Domain Software for the Amiga

UPDATES

Liner V2.00

Use Liner to create outlines for your notes. Load a previously made outline or create a new one. Liner makes editing simple with the arrow keys. Characters as well as lines can be highlighted when more than one change is needed.

Some of Linear's options include the common Cut, Copy, and Paste, and Search/Replace. The Print option allows you to choose between sending your outline to the printer or saving it to a disk (as an ASCII file).

New features to version 2.00 include the ability to have a "continuation" line. If you type to the end of a line and need more room, you can hit Shift-Return to bring the cursor to the next line. This "continuation" will not have a new line number, making it a continuation from the previous line. Another new feature is the inclusion of a 2-way ARexx port.

Liner V2.00 is an upgrade to V1.32 on Fred Fish disk #285 and can be found on Fred Fish disk #394. Liner can be executed from the CLI or Workbench.
Author: Dave Schreiber

Road Route V1.6

Road Route helps in planning the best way of getting from one place to another. Two main files are used in planning your trip, Cities and Routes. Both can be updated if a city, road or highway is missing from the file. There is no limit as to how many roads or cities can be entered. Road segments show mileage and driving time to help you plan your trip more efficiently. Road Route will read the files and then determine the best way to get to your destination.

Road Route V1.6 is an update to V1.5 on Fred Fish disk #358 and can be found on disk #396. Author: Jim Butterfield

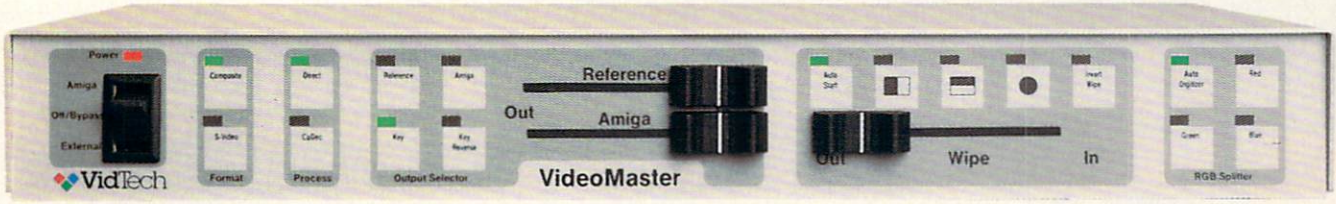
DClock V1.29

DClock is a simple clock utility that displays the date and time in the Workbench title bar. When the correct files are loaded, type DClock at the CLI prompt to run.

(continued on page 82)

by Aimée B. Abren

VideoMaster
The Integrated Desktop Video System For Amiga Computers



VideoMaster integrates in a single system all the functions necessary to transform the Amiga computer into a fully featured multimedia workstation without using the video slot. VideoMaster performs the following functions:

- Genlocks the Amiga graphics to incoming composite (PAL or NTSC) or S-Video source (S-VHS, Hi8 or ED-BETA).
- The genlocked video production is available in composite and S-Video formats as well as RGB for optimum graphics.
- A built-in RGB splitter provides for direct connection to a digitizer including a compatible interface to Digi-View Gold 4.0.
- A special effects generator produces horizontal, vertical, circle and inverted wipes–automatically timed or manually controlled.

Two Models
NTSC (RS-170A) and S-Video
PAL and S-Video 625

The S-Video, Y/C signal is processed independently in, through and out.

"Glitch Free" Switches
Cut to any Amiga/Reference video combination in the next frame of your recording with no flicker or artifacts.

Dissolve Control Bars
Dissolve to any Amiga/Reference Video combination. Also dissolve to black.

Wipe Switches and Control Bar
Vertical, horizontal and circle wipes timed by VideoMaster or controlled manually. Inverted or combined multiple wipes for special and unusual effects.

Digitize External Images
Connect your Digi-View Gold 4.0 digitizer, set RGB splitter to Auto and VideoMaster will synchronize the digitizer to R, G and B signals. Under manual control, select RGB sequence and interface to most commercially available digitizers-no B & W camera with color-wheel required.

The S-VIDEO GENLOCK for all Amigas
A-500/A-1000/A-2000/A-2500/A-3000

RGB Processor
VideoMaster generates RGB video and graphics for direct connection to an RGB monitor or projector. The standard Amiga monitor can display reference video and Amiga graphics optimally in RGB mode.

Transcoding
Create composite productions from S-Video reference source. Create S-Video productions from composite reference video. VideoMaster output is continuously available in all three formats. (Composite, S-Video, and RGB).

Record with No Reference Video In
No problem! VideoMaster generates internal sync to allow the Amiga artist to record his animation in either composite or S-Video.

Amiga RGB Session
No recabling! Set VideoMaster to Off/Bypass and develop RGB graphics for your next production.

Key Out
Compatible with the video mixer in your studio ensemble.

Leave your Amiga Video Slot Open
For use with other video add-on cards that add sizzle to your productions.

External Power Supply
Required for A-500. Optional for all other Amigas.

Dealer Demonstration Program
Video dealers should contact VidTech for details.

Warranty and Support
VideoMaster comes with a full year warranty and 800 number for customer service and support.

Call or write us today:

VidTech International, Inc.
2822 NW 79th Avenue
Miami, Florida 33122
800-727-2261 or 305-477-2228
Fax 305-591-1651

Price: $1295
Dealer inquiries invited.

U.S. Distribution by
Micro-Pace, Inc., Champaign, Ill.

VidTech

List Of Advertisers

Please use a Reader Service card to contact those advertisers who have sparked your interest. Advertisers want to hear from you. This is the best way they have of determining the Amiga community's interests and needs. Take a moment now to contact the companies with products you want to learn more about. And, if you decide to contact an advertiser directly, please tell them you saw their advertisement in ***Amazing Computing For The Commodore Amiga!***

SMASH HIT
RETURN ENGAGEMENT

THE SECOND ANNUAL

WORLD OF AMIGA IN NEW YORK CITY

★ STARRING ★

THE AMAZING AMIGA

★ FEATURING ★

AMIGA HARDWARE • AMIGA SOFTWARE
AMIGA ACCESSORIES • SEMINARS • BARGAINS

Pier 90, New York Passenger Ship Terminal, New York NY

APRIL 5-7, 1991

Friday, Saturday & Sunday, 10 am - 5 pm

PRE-REGISTRATION (Deadline March 15):
$10 per single day, $25 for all 3 days
REGISTRATION AT THE SHOW:
$15 per single day, $30 for all 3 days
Admission includes exhibits and seminars.
World of Amiga in New York City is restricted to persons 12 years of age and older.

WORLD OF *AMIGA*
IN NEW YORK CITY

Produced by The Hunter Group. For more information call (416) 595-5906 or fax (416) 595-5093.

SAVE WITH PRE-REGISTRATION

World of Amiga in New York City, April 5-7, 1991

Please register me for World of Amiga at the Special Pre-registration Rate
☐ $10 for a single day ☐ $20 for 2 days ☐ $25 for all 3 days

NAME _____

COMPANY (if applicable) _____

ADDRESS _____ STATE _____ ZIP _____

CITY _____

Make Check or Money Order payable to
The Hunter Group, 3380 Sheridan Drive, Suite 120, Amherst, NY 14226

Circle 111 on Reader Service card.

(PD Serendipity, continued from page 78)

DClock comes complete with an alarm option, a speech option that tells you the time using the Amiga's voice, plus the capability to change the colors. There is also an option to set DClock to beep when a specific hour has been reached. DClock also supports some hot keys.

A small bug has been fixed in the speech/rexx server. In addition, the beep sound is different.

DClock V1.29 is an update to V1.27 on Fred Fish disk #388 and can be found on Fred Fish disk #398. Author: Olaf Barthel.

GMC V9.6

GMC is a console handler complete with command-line editing, function-key support, iconify function, local and global configuration, and much more. Function keys can be assigned in four levels (alone, Shift, Ctrl, or Alt key) and they can be turned on or off. There is also on-line help for function of the handler.

Changes to GMC V9.6 include one which activates the Workbench window when the right mouse button is pressed; further, an error in the output of the history list has been removed.

GMC V9.6 is an update to V9.2 on Fred Fish disk #387 and can be found on Fred Fish disk #397. Author: Olaf Barthel.

KeyMacro V1.6

KeyMacro is a keyboard macro handler that supports hot keys. Each key can have up to eight functions. KeyMacro uses script files, and needs the arp.library and Null-Handler to run. Edit the script where key combinations are defined and then KeyMacro updates the macro list.

The Return key now works where it didn't in version 1.4. Also, the mxm.library has been removed and key names are no longer abbreviated.

KeyMacro V1.6 is an update to V1.4 on Fred Fish disk #354 and can be found on Fred Fish disk #398. Author: Olaf Barthel.

DMouse V1.24

DMouse is a mouse-intuition input handler enhancer. This program has several interesting features. After a set amount of seconds, DMouse blanks the screen like a screen saver if the mouse and/or keyboard are idle. When the mouse pointer is moved over a window, the window automatically becomes active.

Other features include a mouse accelerator and one that gives you the ability to bring windows to front/back by clicking on the window with the mouse. All features included with DMouse can be turned on and off.

DMouse V1.24 is an update to V1.20 on Fred Fish disk #258 and can be found on Fred Fish disk #407. Author: Matt Dillon.

DirWork V1.12

DirWork is a small utility to help you get around directories quickly and easily. It can display IFF pictures at the click of a mouse button. If you use the show utility built-in, it loads the next picture in memory while you are still looking at the first.

The left mouse button acts as the selector/deselector to a file or directory. The right mouse button recognizes the selected file and types the file to screen if it is a text file, or shows the file if it is a picture.

DirWork can be "put to sleep" until needed. Simply hit the correct key combination to return its window to the screen. You can also put DirWork in your startup-sequence to have it readily available.

DirWork is shareware, so if you try this program and decide you like it, please send the author a donation for a job well done.

DirWork V1.12 is an update to the version found on Fred Fish disk #328 and can be found on Fred Fish disk #406. Shareware. Author: Chris Hames.

FixDisk V1.2

FixDisk is a recoverable disk program. Use FixDisk to scan an entire disk or a single directory. Use the Check Files - Deleted Checks to see if some deleted files are non-deletable.

Other features let you check file integrity, recover unreadable tracks, and fix damaged directory pointers.

FixDisk V1.2 is an update to V1.0 on Fred Fish disk #223 and can be found on Fred Fish disk #405. Author: Werner Guenther.

Check4Mem V3

From a batch file, Check4Mem allows you to check for a certain amount of memory. It checks for FAST, CHIP, or contiguous memory.

Check4Mem V3 is an update to the version on Fred Fish disk #242 and can be found on Fred Fish disk #412. Author: Jonathan Potter.

FullView V2.02

FullView is a simple text viewer. This viewer open gadgets at the bottom of the screen so users can work with the full 80 columns on the screen.

FullView can be started with the CLI or Workbench. Once loaded, you will find the expected options, such as Load, Save, Print and Search. Among others is a Scroll option that allows you to select the scrolling speed and an Iconify option, to iconify FullView's window on the Workbench.

Changes to version 2.02 include some bug fixes. The IFF viewer is improved and the slow speed on the scrolling option scrolls at a comfortable speed.

FullView V2.02 is an update to V1.1 on Fred Fish disk #287 and can be found on Fred Fish disk #412. Author: Jonathan Potter.

Image-Ed V2.4

Image-Ed is an image editor that allows you to draw and edit images up

to 150 by 90 in sixteen different colors. Several tools are included with Image-Ed, such as Curve and Polygon Copy, Flood fill and Complement, as well as those for Stretching and Condensing. All tools can be selected with the keyboard using logical keys, or via the mouse with drop-down menus.

Other features include a selection of brush sizes, on-screen selection of colors, and the ability to write the image as AmigaBASIC sprites and BOBs.

Image-Ed V2.4 is an update to V2.2 on Fred Fish disk #242 and can be found on Fred Fish disk #412. This program is shareware. Author: Jonathan Potter.

OSK V1.2

OSK makes it possible to type without a keyboard. When the program is run, a picture of the Amiga 3000/2000/500 keyboard is displayed on screen. Each letter or key is a gadget. To use a key, simply click on its gadget. The Shift, Alt, Caps, and Ctrl keys can be used by clicking once to turn them on, and again to turn them off.

OSK can also change its keyboard to that of an Amiga 1000. Click the gadget to change the keyboard pattern, click it again to change it back. You can specify the keyboard pattern that OSK opens to.

OSK can be iconified—this creates a small icon on the Workbench representing OSK. To activate, double-click on the icon. It can de-iconify from the Workbench as already stated, or through the CLI using OSK-i.

OSK V1.2 is an update to the version on Fred Fish disk #287. This program is shareware. Author: Jonathan Potter.

PrintImage V1.0

PrintImage is an easy way to print IFF ILBM pictures. Once loaded, PrintImage displays a small window containing gadgets, including Load new image, Stop printing, and Exit program. You can load HAM and overscanned pictures.

To run PrintImage you need the req.library.

PrintImage V1.0 can be found on Fred Fish disk #394. This program is shareware. Author: Olaf Barthel.

ColorCatch V1.0

ColorCatch allows you to save the front-most screen colors as an executable file to a disk. Three gadgets are included: Catch color, Save as, and an option to save with or without an icon. Once the screen colors are saved as an executable file, you can install the file by simply typing the file name at the CLI prompt. If you saved the file with an icon, you can load the file from the Workbench by double clicking on the icon.

ColorCatch V1.0 can be found on Fred Fish disk #396. Author: Preben Nielsen.

Formatter V2.7

Formatter was created to make formatting floppy disks faster. A window opens containing gadgets for the command-line parameters Drive, NAME/K, FAST/S, INSTALL/S, VERIFY/S, AUTOSTART/S, and FFS/S. Quick keys are also supported if you want to access the gadget by using the keyboard as a toggle.

Formatter is shareware, so if you intend to use this program, please send the author a donation. This program needs the arp.library to run.

Formatter V2.7 can be found on Fred Fish disk #398. Author: Olaf Barthel.

GIFMachine V2.104

GIFMachine can take a picture stored in CompuServe's GIF format and convert it to IFF SHAM format or 24-bit ILBM. GIFMachines also comes with several options. Use NOBORDER to have GIFMachine remove the border from an image. XFLIP or YFLIP flips the image horizontally or vertically, respectively. Using the DEEP option tells GIFMachine to write a 24-bit ILBM instead of a SHAM file.

GIFMachine V2.104 can be found on Fred Fish disk #405. You need KickStart 2.0 to run GIFMachine. Author: Christopher Wichura.

MadBlanker V2.0

MadBlanker is a screen saver utility. A small box bounces around the screen until there is input from the keyboard or the mouse. There are a few toggle switches that let you change the color of the blank screen or the size of the box. Set the number of seconds you want MadBlanker to wait before appearing.

MadBlanker V2.0 can be found on Fred Fish disk #407. Author: K. Mardam-Bey. Note: MadBlanker takes up lots of memory and CPU time.

DiskPrint V2.3e

DiskPrint is a label-printing program for 3.5" disks designed for public domain disks. The label data files load into memory so labels for Fred Fish disks are available without having to wait for AmigaDOS to read the full directories or type anything in.

DiskPrint can be started through Workbench or the CLI. When loaded, DiskPrint opens a window containing gadgets displaying the disk name and contents. From here you can select if the disk is shareware, a back-up disk or public domain.

DiskPrint V. 2.3e can be found on Fred Fish disk #411. You need the arp.library to run DiskPrint. This program is shareware. Author: Jan Geissler.

PCStatus V1.1

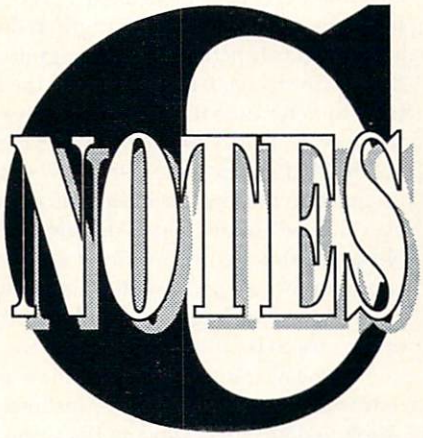
PCStatus is for BridgeBoard owners, providing them the capability to monitor the status of every PC window that is opened. PCStatus opens a status window for every open PC window. Here, it monitors the CAPS, SCROLL, NUM, and INs keys, as well as any changes in the CapsLock key outside the PC window. This allows the PC and the Amiga to have the same Caps-Lock status.

PCStatus V1.1 only works with the A2088 XT and the Z2286 AT boards. It has been designed to work with Workbench 2.0's icons, but it also works with versions 1.2 and 1.3.

PCStatus V1.1 can be found on Fred Fish disk #355. This program is shareware. Author: Alexander Hagen.

These updates and programs can be found in the Fred Fish Collection, disks 391 - 412. As of this writing, Fred Fish is up to disk #420. For a complete listing of Fred Fish disks 1 - 390, please consult ***AC's GUIDE To The Commodore Amiga****. For a listing of the most recent additions to the Fred Fish Collection, please turn to page 92 of this issue of AC.*

Please note: Fred Fish disk #395, containing the game DragonCave, is presently on hold due to copyright questions. •AC•



From the C Group

by Stephen Kemp

WELL, IT'S TIME TO REVIEW THE LATEST issue of *Amazing Computing*. Now that it has arrived, you can sit back, relax, and take your time perusing the pages. Month after month, most readers probably perform the same routine. For those of us behind the scenes, however, it is a slightly different story. Months before readers receive a particular issue, the actual work begins. Along the way are a series of deadlines that the columnists, writers, and magazine editors must remember and work within. Missing one or more of the deadlines can delay when the issue is completed and subsequently when you receive it, so it is important to not miss these dates.

At first, it may be difficult for you to identify with the monthly scenario faced by magazine contributors. If you consider the numerous dates you must make note of during a year, however, perhaps you will better appreciate the situation. There are anniversaries to remember, birthday cards to send, candy to select for that someone special on St. Valentine's Day, not to mention the flowers for Mom on Mother's Day. And, of course, those Christmas cards have to get out early to beat the rush at the Post Office. How many of these dates can you forget without suffering serious retribution? This month, I want to present a program that helps keep me out of the doghouse. REMIND.C is shown in Listing One. This program reads a "reminder" file and looks for messages that need to be displayed promptly. The program also offers the chance to point out a few simple solutions to programming problems.

First, take a look at the sample reminder file, REMIND.DAT, in Listing Two. You will notice that it is a simple ASCII text file and can be created with almost any editor or word processor. The syntax required is fairly flexible and can be shown like this:

```
[ MM/DD/YY/NN ] your message here
```

Of course MM/DD/YY simply represents the month, day, and year upon which you want the message displayed. The program will allow you to substitute hyphens for the date separators if you so prefer. Dates indicated as [4-1-91] or [4/1/91] would both display the appropriate message on April 1, 1991.

The /NN parameter is optional and represents the number of days ahead of the date specified that you want the message to begin appearing. For instance, specifying [2/14/91/5] would indicate that you want the message associated with February 14, 1991, to appear on February 9, 10, 11, 12, and 13 as well. This is an easy way to give yourself plenty of preparation time for a specified event. If the "number of days" parameter is omitted then the message will only display on the date specified.

Of course certain dates, like birthdays and some holidays, occur on the same day each year. Therefore, the program has been designed to handle "wildcard" indicators in any of the date positions. If you substitute any portion of the date with an asterisk (*), it will use the equivalent portion from the current date. For example, [12/1/*] will match December 1 in any year. Likewise, [*/1/*] would match the first day of every month of any year. Using wildcards will probably reduce the number of changes that you have to make each year to the reminder file.

Messages associated with the dates can be a variable number of lines long. A message can begin on the same line as the date and the program will continue printing lines until the next date indicator (or EOF) is found. This will allow you to include all the text required to remind you of the importance of a given date. After 20 lines have printed (if you have that much text) and after all the messages for a given date are displayed, the program will pause to give you a chance to read the messages before continuing. This is useful if you execute the program in a "startup" batch file where subsequent programs might erase some of the information from the display.

Now that you know the basic function of the program, it's time to focus on several other key issues. First, you will notice that, after reading a line from the REMIND.DAT file, a function named exptab is called. This function expands embedded tab characters from the input buffer by substituting spaces in the output buffer.

Some editors use tab compression techniques to reduce the size of files that are saved on disk. Many times this can save quite a bit of space. Program source files, for example, tend to have a lot of "white space" because of indention styles many programmers use. By assuming some "standard" tab stop convention, it is possible to replace several spaces with 1 tab character in the saved information. When the program

loads the text again, the tabs are replaced with spaces using the reverse technique.

Normally, while sending text to the console, you don't have to worry about tab characters, as they are handled automatically. However, when in raw mode (while in some environments), the DOS console will not expand tabs for you. Trying to display the information in the same format as it appears in the reminder file, I have included this function. This program assumes that tabs represent an 8th character stop. Exptab substitutes the proper number of spaces to fill the buffer to the next 8th position. You may not require this function but I sometimes find it useful in the MS-DOS environment.

The remainder of the column will be devoted to the discussion of date handling. Dates are not the simplest item for a program to handle. If you examine the program you will find that the current date is retrieved using a SAS (Lattice) library function, getclk. The date comes back in an 8-byte character array, where each character represents some portion of the date and time.

```
Position  0  =  Day of week
Position  1  =  The year number (minus 1980)
Position  2  =  Number of the month (1-12)
Position  3  =  Day number (1-31)
Position  4  =  Hours (0-23)
Position  5  =  Minutes (0-59)
Position  6  =  Seconds (0-59)
Position  7  =  Hundredths of Seconds (0-99)
```

In this program we are only concerned with positions 1, 2, and 3. Using this format you can easily display a date using the printf functions to turn the digits into characters. The function sprintf is used to change the date into a character string formatted much the same as that expected from the reminder file. Formatting a date, however, is the easy part.

The hard thing to do with dates is math and comparisons—for several reasons. First, consider the comparison of two dates. Using our "eyes" it is relatively easy; instead, think of how you would make a computer do it. To write the code to compare two dates using strings or even the format returned from the getclk function, you would probably start with the years. If the years matched, you would likely check the month next. Finally, the days would have to be compared. It doesn't really matter the order in which you perform the comparisons, because finding a match will always require 3 checks.

So, comparing two dates like this requires a little code, but let's go one step further. Now, how do you decide whether a date falls within a particular range (like the one specified by the number-of-days parameter in our program)? If the day number is 10 and the number of days range is less than 10, it is simply one more compare—does the date fall within the requested day number minus the range? But wait! What if the range for this example was 20 days? This means you would have to go back to the previous month. And remember, different months have a different number of days. Of course, you musn't forget leap years with February 29th. It's getting a little more difficult now, isn't it?

I've found that the easiest way to compare dates and ranges of dates efficiently is to change each date value into an absolute number of days from a given date. The function date2abs, included in this program, does this task. Because I adopted this function from a program that needed to handle dates prior to 1900, it uses 1801 as the base date. A formula is used to determine the number of days that have passed since the base year. The number of years is multiplied by 365. Years are divided by 4 to determine how many leap days have occurred in those years (note: it is important to choose a base year that will allow you to determine the leap years easily). Next, an array named mocum (which stands for "month cumulative") is used to determine how many days have passed since the beginning of the current year. Finally, the day of the month is added to complete the formula.

Using absolute dates makes it very simple to compare dates and ranges of dates. For instance, the date 2/14/91 is an absolute date of 69442 using the formula specified. If you want to know if the date 2/10/91 falls within 5 days of St. Valentine's Day, you would ultimately perform the following calculation:

```
        if ((69442 >= 69438) && (69438 >= (69442-5))) ... A
match.
```

As you can see, this is a much simpler method of date comparison. It also makes it easy to add days to a date or to find out how many days have elapsed between two dates (by simply subtracting). The latter is a useful function when aging accounts for financial applications.

There are several considerations regarding dates that I have intentionally ignored. You will notice that the program only allows a certain range for valid dates. Leap year calculations are a little more complicated than I have lead you to believe. Rather than try to make the "ultimate" date routine, date2abs represents a range that is acceptable to current requirements and handles this range of leap years easily.

Well, that completes this month's column, and I got it done before my deadline (which doesn't always happen—even with my reminder). I hope you find the program as useful as I do. For years I have used a version of this program each day in my startup code at work. You may want to try experimenting by changing your machine date to give the program a test drive. Good luck!

Listing One, REMIND.C

```
/*****************************************************************/
/* REMIND.C                                                      */
/*                                                               */
/*   This program reads REMIND.DAT and looks for messages that need  */
/*   to be displayed today. The program supports "wildcard" portions */
/*   of dates so that important dates can be kept from year to year. */
/*   It also supports displaying the message N number of days in     */
/*   advance of the date required.                                   */
/*   Compiled using SAS (Lattice) C.                                 */
/*   The original version of this particular program was written by  */
/*   my friend Gary Liming. I later added the "wildcard" support and */
/*   rewrote the program for "standard" C.                           */
/*****************************************************************/

#include <STDIO.H>
#include <STRING.H>
#include <STDLIB.H>
#include <DOS.H>
```

```
#define forever for(;;)
#define TRUE 1
#define FALSE 0

int valdate(int month,int day,int year);
long date2abs(char *date);
int clipstr(char *src);
char *aster(char *in);
int match_date(int ndays,char *mdate,char *tdate);
int make_a_date(char *in,char *mdate,char *tdate);
void exptab(int tabcount,char *src,char *dst,int max);

char rules[] = {
"\tReads the file REMIND.DAT, which should be in the format:\n\n" \
"\t[mm/dd/yy{/n}] message\n\t              message\n\n" \
"\tIf you substitute any portion of the date with an asterisk (*), it \n"\
"\twill indicate to use the equivalent portion from the current date.\n" \
"\tFor example: [12/1/*] will match December 1 in any year.\n" \
"\tThe optional number-of-days command (/n) indicates the number\n"  \
"\tof days prior to the date that you want to start receiving the\n"  \
"\tmessage. If the /n switch is not used, the message is only shown\n"\
"\ton the date specified.\n" \
"\tThe message terminates when the next date is encountered.\n\n" };

        /* JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC */
static int momax[]= { 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31 };
static int mocum[]= {  0, 31, 59, 90,120,151,181,212,243,273,304,334 };

main(int argc, char *argv[])
{
    int ndays,lines;
    char message,mdate[20],tdate[20];
    char sbuf[105],buf[105],*p;
    FILE *ifp;
    char today[8];

    printf("\n");                   /* start by printing a line             */

    message = FALSE;                /* No message has been displayed yet    */
    lines = ndays = 0;              /* No lines and no number of days       */

    if (argc > 1) {                 /* look for switches                    */
exit_look:
     printf("REMIND \n");           /* show name of program                 */
     printf(rules);                 /* show the rules of program            */
out:
     if (lines){                    /* if lines printed then pause          */
         printf("Press any key to continue. \t%s",tdate);
         getchar();                 /* wait for a keypress                  */
     }
     exit(1);                       /* exit the program                     */

    }

    if ((ifp = fopen("REMIND.DAT","r")) == NULL) {/* open file             */
    printf("REMIND:Cannot open REMIND.DAT\n");    /* no find               */
    goto exit_look;                               /* exit with rules       */
    }

    getclk(today);                                /* get date/time         */
    sprintf(tdate,"%02d/%02d/%02d",today[2],today[3],today[1]+80);
    sbuf[100] = 0;    /* make sure Null at last position possible          */
    forever {         /* read all lines                                    */
    if (fgets(sbuf,100,ifp) == NULL) {            /* get a line            */
         fclose(ifp);                             /* nothing left          */
         goto out;                                /* wait for key          */
    }
    exptab(8,sbuf,buf,100);                       /* expand tab stops      */
    clipstr(buf);                                 /* clip trailing spaces  */
    if ((p = strchr(buf,'[')) != NULL){           /* beginning indicator   */
         if (strchr(buf,']') != NULL){            /* ending indicator      */
         message = FALSE;                         /* turn off message      */
         ndays = make_a_date(++p,mdate,tdate);    /* make date             */
         if (match_date(ndays,mdate,tdate)){      /* check range           */
         message = TRUE;                          /* do it                 */
         sprintf(sbuf,"%s %s",mdate,(strchr(buf,']')+1));
         }
         }
    }
    if (message){                                 /* a message was begun   */
         printf("%s",buf);                        /* print line            */
         if (++lines >= 20){                      /* pause between pages   */
         lines = 0;                               /* Start next page       */
         printf("Press any key to continue. \t%s",tdate);
         getchar();
         printf("\n");
         }
    }
    }
}
/*-------------------------------------------------------------------------*/
/* This function takes the input date and compares it to today's date      */
/* to determine whether the message should be displayed.                   */
/* If the optional number of days is indicated it is used to check         */
/* whether the date falls within range.                                    */
/*-------------------------------------------------------------------------*/
int match_date(int ndays,char *mdate,char *tdate)
{
    long  tddate,mddate;

    tddate = date2abs(tdate);               /* make an absolute number     */
    mddate = date2abs(mdate);               /* make an absolute number     */

    if (mddate >= tddate){                  /* is a match possible         */
    if (tddate >= (mddate-ndays))           /* if falls within range       */
         return(TRUE);                      /* this is a match             */
    }
    return(FALSE);                          /* no match here               */
}
/*-------------------------------------------------------------------------*/
/* This function checks to see whether the next portion of the date        */
/* string contains a wildcard asterisk.                                    */
/*-------------------------------------------------------------------------*/
char *aster(char *in)
{
    char *p;

    for(;*in == ' ';in++);                  /* skip leading spaces         */

    if ((*in < '0' || *in > '9') && *in != '*')
                                            /* if not a valid item         */
    return(NULL);                           /* nothing to do               */
    p = strpbrk(in,"*/-");                  /* check for wildcards         */
    if (p == NULL || *p != '*')             /* if not an asterisk          */
    return(in);                             /* return pointer              */
    return(p);                              /* return asterisk             */
}
```

```
/*-------------------------------------------------------------------------*/
/* This function take the input buffer and parses out the date for         */
/* comparison.  Wildcards are replaced with the corresponding info         */
/* from todays date string.                                                */
/*-------------------------------------------------------------------------*/
int make_a_date(char *in,char *mdate,char *tdate)
{
    char *p;
    int set;

    setmem(mdate,10,0);                     /* clear out data              */

    p = in;
    for(set = 0;set < 3;){                  /* three items to find         */
    if ((p = aster(p)) == NULL)             /* if invalid character        */
        return(0);                          /* return                      */
    strncpy(mdate,((*p == '*')? tdate:p),2); /* if asterisk copy           */
    mdate++;                                /* go to next position         */
    if (*mdate < '0' || *mdate > '9'){      /* make a two character        */
        *mdate = *(mdate-1);                /* string if only one          */
        *(mdate-1) = '0';                   /* character so far            */
    }
    p = strpbrk(p,"/-]");                   /* look for next position      */
    if (p == NULL || *p == ']')             /* if at end                   */
        return(0);                          /* return                      */
    mdate++;                                /* go to next position         */
    p++;                                    /* increment input             */
    tdate += 3;                             /* adjust position in today    */
    if (++set < 3)                          /* if not done yet             */
        *mdate++ = '/';                     /* insert a slash              */
    }
    return(atoi(p));                        /* return number of days       */
                                            /* if any                      */
}
/*-------------------------------------------------------------------------*/
/* This function expands the tab characters found in the source string     */
/* while copying into the destination string for a maximum length.         */
/* The tab stop position is passed as a parameter. Normally, every 8th     */
/* position is considered a tab stop for most DOS operation.               */
/*-------------------------------------------------------------------------*/
void exptab(int tabcount,char *src,char *dst,int max)
{
    int i,j;
    char c;

    if (tabcount == 0 || max == 0){         /* if no stops or max          */
   strcpy(dst,src);                         /* just copy                   */
   return;                                  /* return                      */
    }

    for (i=j=0; (c = src[i]) != '\0'; ++i) {/* look for Null               */
   if (c == '\t') {                         /* if a tab character          */
       do {                                 /* expand                      */
      dst[j++] = ' ';                       /* put in spaces               */
      if (j == max-1)                       /* as long as room             */
          break;
       } while (j%tabcount != 0);           /* until tabstop reached       */
   } else
       dst[j++] = c;                        /* copy character              */
   if (j == max-1)                          /* if max is reached           */
       break;
    }
    dst[j] = 0;                             /* terminate with Null         */
}
/*-------------------------------------------------------------------------*/
/* Remove trailing spaces from a string and return the resulting length    */
/*-------------------------------------------------------------------------*/
int clipstr(char *src)
{
    char *s;

    s = strchr(src,0);                      /* find end first              */
    for(;s != src;s--){                     /* back off spaces             */
       if (*s == 0) s--;                    /* get off null                */
       if (*s != ' '){                      /* once not a space            */
    s++;                                    /* move back one               */
    break;                                  /* increase length             */
       }
    }
    if (*s == ' ') *s = '\0';               /* if on a space               */
    return(strlen(src));                    /* return length               */
}

/*-------------------------------------------------------------------------*/
/* This function determines whether a particular year is a leap year       */
/*-------------------------------------------------------------------------*/
static leap(int year)
{
    if (year % 4 == 0 && year != 1900)
   return(TRUE);
    return(FALSE);
}
/*-------------------------------------------------------------------------*/
/* This function turns a date string into an absolute number of days       */
/* from a set date. Absolute dates can be used easily in math.             */
/* The number of days since the beginning of the year that have            */
/* passed are retrieved from the mocum array.                              */
/*-------------------------------------------------------------------------*/
long date2abs(char *date)
{

    long    absday;
    int month,day,year;

    absday = 0;                             /* not date yet                */

    month = atoi(date);                     /* convert the month value     */
    day   = atoi(date+3);                   /* convert the day value       */
    year  = atoi(date+6);                   /* convert the year value      */
    if (year < 1800) year += 1900;

    if (valdate(month,day,year)) {          /* check for valid dates       */
   if (month > 2)                           /* if greater than Feb.        */
       absday = leap(year);                 /* is this a leap year         */
   year -= 1801;                            /* normalize the year          */
   absday += ((long)year * 365) + (year >> 2) + mocum[month-1] + day;
   return(absday);                          /*  return formula value       */
    } else
   return(0);
}

/*-------------------------------------------------------------------------*/
/* Validate checks date values to ensure they fall within the range        */
/* supported by the functions.                                             */
/*-------------------------------------------------------------------------*/

int valdate(int month,int day,int year)
{
    if (year < 1801 || year > 2099)
   return(0);
    if (month < 1 || month > 12)
   return(0);
    if (day < 1 || day > (momax[month-1] + ((month == 2)? leap(year):0)))
   return(0);
    return(TRUE);
}
```

Listing Two, REMIND.DAT

```
[*/*/*] Message all wildcards
        This is the next line.

[2/*/*] Month 2, day wild, year wild.

[2/14/*]

     Month 2, day 14, year wild.

     St. Valentine's Day.

[2/29/*] If you see this then it must be a leap year.


[3/17/*] St. Patrick's Day.

[4/1/*] April Fool's Day

[9/13/91]  Watch out! Friday the 13th.
[12/13/91]Uh, Oh! Another Friday the 13th.


[5/12/91/5] Mother's Day on Sunday.
          Better get flowers and send cards.


[12/20/*/20] Christmas is coming - Don't forget to send cards.
             Don't wait to the last minute to start shopping.

[12/25/*] Christmas. What are you doing on this computer?

             You should be with your family.
```

•AC•

AC'S Back Issue Index

❦ Vol. 1 No. 1 Premiere, 1986
Highlights include:
"Super Spheres", An ABasic Graphics Program, by Kelly Kauffman
"Date Virus", by J. Foust
"EZ-Term", An ABasic terminal program, by Kelly Kauffman
"Miga Mania", Programming fixes & mouse care, by P. Kivolowitz
"Inside CLI", A guided insight into AmigaDos, by G. Musser

❦ Vol. 1 No. 2 1986
Highlights include:
"Inside CLI: Part Two", Investigating CLI & ED, by G. Musser
"Online and the CTS Fabite 2424 ADH Modem", by J. Foust
"Superterm V 1.0", A terminal program in Amiga Basic, by K. Kauffman
"A Workbench "More" Program", by Rick Wirch

❦ Vol. 1 No. 3 1986
Highlights include:
"Forth!", A tutorial
"Deluxe Draw!!", An AmigaBASIC art program, by R. Wirch
"AmigaBASIC", A beginner's tutorial
"Inside CLI: Part 3", by George Musser

❦ Vol. 1 No. 4 1986
Highlights include:
"Build Your Own 5 1/4" Drive Connector", by E. Viveiros
"AmigaBASIC Tips", by Rich Wirch
"Scrimper: Part One", A program to print Amiga screen, by P. Kivolowitz

❦ Vol. 1 No. 5 1986
Highlights include:
"The HSI to RGB Conversion Tool", Color manipulation in BASIC, by S. Pietrowicz
"Scrimper: Part Two" by Perry Kivolowitz
"Building Tools", by Daniel Kary

❦ Vol. 1 No. 6 1986
Highlights include:
"Mailing List", A basic mail list program, by Kelly Kauffman
"Pointer Image Editor", by Stephen Pietrowicz
"Scrimper: Part Three", by Perry Kivolowitz
"Optimize Your AmigaBasic Programs For Speed", by Steve Pietrowicz

❦ Vol. 1 No. 7 1986
Highlights include:
"Try 3-D", An introduction to 3-D graphics, by Jim Meadows
"Window Requesters in Amiga Basic", by Steve Michel
"I C What I Think", A few C graphic progs, by R. Peterson
"Your Menu Sir!", Programming AmigaBASIC menus, by B. Catley
"Linking C Programs with Assembler Routines", by G. Hull

❦ Vol. 1 No. 8 1986
Highlights include:
"Computers in the Classroom", by Robert Frizelle
"Using Your Printer With The Amiga"
"Using Fonts from AmigaBASIC", by Tim Jones
"Screen SaVer", Monitor protection program in C, by P. Kivolowitz
"A Tale of Three EMACS", by Steve Poling
".bmap File Reader in AmigaBASIC", by T Jones

❦ Vol. 1 No. 9 1986
Highlights include:
"The Loan Information Program", A BASIC program for your financial options, by Brian Catley
"Starting Your Own Amiga-Related Business", by W. Simpson
"Keep Track of Your Business Usage for Taxes", by J. Kummer
"Using Fonts from AmigaBASIC: Part Two", by Tim Jones
"68000 Macros On The Amiga", by G. Hull

❦ Vol. 2 No. 1, January 1987
Highlights include:
"What Digi-View Is... Or, What Genlock Should Be!", by J. Foust
"AmigaBASIC Titles", by Bryan Catley
"A Public Domain Modula-2 System", by Warren Block
"One Drive Compile", by Douglas Lovell
"A Megabyte Without Megabucks", An internal megabyte upgrade, by Chris Irving

❦ Vol. 2 No. 2, February 1987
Highlights include:
"The Modem", Efforts of a BBS sysop, by Joseph L. Rothman
"The ACO Project....Graphic Teleconferencing on the Amiga", by S. R. Pietrowicz
"Flight Simulator II: A Cross Country Tutorial", by John Rafferty
"A Disk Librarian In AmigaBASIC", by John Kennan
"Creating And Using Amiga Workbench Icons", by C. Hansel
"Build Your Own MIDI Interface", by Richard Rae
"AmigaDOS Operating System Calls and Disk File Management", by D. Haynie
"Working with the Workbench", by Louis A. Mamakos

❦ Vol. 2 No. 3, March 1987
Highlights include:
"An Analysis Of The New Amiga PCs (A2000 & A500)", by J. Foust
"Subscripts and Superscripts in AmigaBASIC", by I. Smith
"AmigaTrix", Amiga shortcuts, by W. Block
"Intuition Gadgets", by Harriet Maybeck Tolly
"Forth!", Put sound in your Forth programs, by Jon Bryan
"Assembly Language on the Amiga", by Chris Martin
"AmigaNotes", No stereo? Y not?, by Rick Rae

❦ Vol. 2 No. 4, April 1987
Highlights include:
"Jim Sachs Interview", by S. Hull
"The Mouse That Got Restored", by Jerry Hull and Bob Rhode
"Household Inventory System in AmigaBASIC", by B. Catley
"Secrets of Screen Dumps", by Natkun Okun
"Amigatrix II", More Amiga shortcuts, by Warren Block

❦ Vol. 2 No. 5, May 1987
Highlights include:
"Writing a SoundScape Module", Programming with MIDI, Amiga and SoundScape in C, by T. Fay
"Programming in 68000 Assembly Language", by C. Martin
"Using FutureSound with AmigaBASIC", Programming utility with real digitized STEREO, by J. Meadows
"Waveform Workshop In AmigaBASIC", by J. Shields
"Intuition Gadgets: Part II", by H. MaybeckTolly

❦ Vol. 2 No. 6, June 1987
Highlights include:
"Modula-2 AmigaDOS Utilities", by S. Faiwiszewski
"Amiga Expansion Peripherals", by J. Foust
"What You Should Know Before Choosing an Amiga 1000 Expansion Device", by S. Grant
"68000 Assembly Language Programming", by Chris Martin

❦ Vol. 2 No. 7, July 1987
Highlights include:
"Video and Your Amiga", by Oran Sands III
"Amigas & Weather Forecasting", by Brenden Larson
"Quality Video from a Quality Computer", by O. Sands
"Is IFF Really a Standard?", by John Foust
"All About Printer Drivers", by Richard Bielak
"68000 Assembly Language", by Chris Martin

❦ Vol. 2 No. 8, August 1987
Highlights include:
"Amiga Entertainment Products"
"Modula-2 Programming"
"Assembly Language"
"Disk-2-Disk", by Matthew Leeds
"Skinny C Programs", by Robert Riemersma, Jr.

❦ Vol. 2 No. 9, September 1987
Highlights include:
"Modula-2 Programming", Raw console dev. events, by S Faiwiszewski
"AmigaBASIC Patterns", by Brian Catley
"Programming with Soundscape", by T. Fay
"Bill Volk, Vice-President Aegis Development", interview by Steve Hull
"Jim Goodnow, Developer of Manx 'C'", interview by Harriet M Tolly

❦ Vol. 2 No. 10, October 1987
Highlights include:
"Max Headroom and the Amiga", by John Foust
"Taking the Perfect Screen Shot", by Keith Conforti
"Amiga Artist: Brian Williams", by John Foust
"All About On-line Conferencing", by Richard Rae
"Amiga BASIC Structures", by Steve Michel
"Quick and Dirty Bobs", by Michael Swinger
"Fast File I/O with Modula-2", by Steve Faiwiszewski
"Window I/O", by Read Predmore

❦ Vol. 2 No. 11, November 1987
Highlights include:
"Jez San Interview", StarGlider author speaks!, by Ed Bercovitz
"Do-it-yourself Improvements To The Amiga Genlock"
"Modula-2 Programming", Devices, I/O, & serial port, by S. Faiwiszewski
"68000 Assembly Language", by Chris Martin
"The AMICUS Network", by John Foust
"C Animation: Part II", by Mike Swinger
"SoundScape Part III", VU Meter and more, by Todor Fay
"Fun with Amiga Numbers", by Alan Barnett
"File Browser", by Bryan Catley

❦ Vol. 2 No. 12, December 1987
Highlights include:
"The Sony Connection", by Stewart Cobb
"CLI Arguments in C", by Paul Castonguay
"MIDI Interface Adaptor", by Barry Massoni
"Modula-2", Command line calculator, by S. Faiwiszewski
"AmigaNotes", Audio changes made in the A500 &A2000, by Rick Rae
"Animation for C Rookies: Part III", by M. Swinger
"The Big Picture", Assembly language programming, by Warren Ring
"Insider/Kwikstart Review", RAM & ROM expansion: Comments & installation tips, by Ernest P. Viveiros, Sr.
"Forth!", DumpRPort utility for your Multi-Forth toolbox, by Jon Bryan

❦ Vol. 3 No. 1, January 1988
Highlights include:
"AmigaNotes", Amiga digital music generation, by Rich Rae
"C Animation: Part IV", by Michael Swinger
"Forth", Sorting out Amiga CHIP and FAST memory, by John Bryan
"The Big Picture", CLI system calls and manipulating disk files, by Warren Ring
"68000 Assembly Language Programming", Create a multi-color screen without using Intuition routines, by Chris Martin
"Modula-2 Programming", by S. Faiwiszewski
"The Ultimate Video Accessory: Part II", by L. White
"FormatMaster: Professional Disk Formatting Engine", by C.Mann
"BSpread", Full featured AmigaBASIC spreadsheet, by Bryan Catley

❦ Vol. 3 No. 2, February 1988
Highlights include:
"Laser Light Shows with the Amiga", by Patrick Murphy
"The Ultimate Video Accessory: Part III", by L. White
"Photo Quality Reproduction with the Amiga and Digi-View", by Stephen Lebans
"Solutions To Linear Algebra Through Matrix Computations", by Robert Ellis
"Modula-2 Programming", Catching up with Calc, by Steve Faiwiszewski
"68000 Assembler Language Programming", by Chris Martin
"AiRT", Icon-based program language, by S. Faiwiszewski

❦ Vol. 3 No. 3, March 1988
Highlights include:
"Desktop Video: Part IV", by Larry White
"The Hidden Power of CLI Batch File Processing", by J. Rothman
"A Conference With Eric Graham", edited by John Foust
"Perry Kivolowitz Interviewed", by Ed Bercovitz
"Jean "Moebius" Giraud Interviewed", by Ed Fadigan
"PAL Help", A1000 expansion reliability, by Perry Kivolowitz
"Boolean Function Minimization", by Steven M. Hart
"Amiga Serial Port and MIDI Compatibility for Your A1000", by L. Ritter and G. Rentz
"Electric Network Solutions the Matrix Way", by Robert Ellis
"Modula-2 Programming", The gameport device and simple sprites in action, by Steve Faiwiszewski
"The Big Picture", Unified Field Theory by Warren Ring

Vol. 3 No. 4, April 1988

Highlights include:
"Writing A SoundScape Patch Librarian", by T. Fay
"Upgrade Your A1000 to A500/2000 Audio Power", by H. Bassen
"Gels in Multi-Forth", by John Bushakra
"Macrobatics", Easing the trauma of Assembly language programming, by Patrick J. Horgan
"The Ultimate Video Accesory: Part V", by Larry White
"The Big Picture, Part II: Unified Field Theory", by W. Ring

Vol. 3 No. 5, May 1988

Highlights include:
"Interactive Startup Sequence", by Udo Pernisz
"AmigaTrix III", by Warren Block
"Proletariat Programming", Public domain compilers, by P Quaid
"The Companion", Amiga's event-handling capability, by P.Gosselin
"The Big Picture, Unified Field Theory: Part III", by W. Ring
"Modula-2", Termination modules for Benchmark and TDI compilers, by Steve Faiwiszewski
"68000 Assembly Language", Peeling away the complication of display routines, by Chris Martin
"The Command Line: The First Installment", by Rich Falconburg

Vol. 3 No. 6, June 1988

Highlights include:
"Reassigning Workbench Disks", by John Kennan
"An IFF Reader in Multi-Forth", by Warren Block
"Basic Directory Service Program", Programming alternative to the GimmeeZeroZero, by Bryan Catley
An Amiga Forum Conference with Jim Mackraz
The Amiga market as seen by the "Stepfather of Intuition."
The Command Line: Exploring the multi-talented LIST command", by Rich Falconburg

Vol. 3 No. 7, July 1988

Highlights include:
"An Interview with 'Anim Man,' Gary Bonham" by B. Larson
"Roll Those Presses!", The dandy, demanding world of desktop publishing, by Barney Schwartz
"Linked Lists in C", by W. E. Gammill
"C Notes from the C Group", The unknown "C" of basic object and data types, by Stephen Kemp

Vol. 3 No. 8, August 1988

Highlights include:
"The Developing Amiga", A gaggle of great programming tools, by Stephen R. Pietrowicz
"Modula-2 Programming", Libraries and the FFP and IEE math routines, by Steve Faiwiszewski
"C Notes from the C Group: Arrays and pointers unmasked", by Stephen Kemp
"TrackMouse", Converting a standard Atari trackball into a peppy Amiga TrackMouse, by Darryl Joyce
"Amiga Interface for Blind Users", by Carl W. Mann
"Tumblin' Tots", Assembly language program, by D. Ashley

Vol. 3 No. 9, September 1988

Highlights include:
"The Kideo Tapes", A Georgia elementary school puts desktop video to work, by John Dandurand
"Speeding Up Your System", Floppy disk caching, by Tony Preston
"Computer-Aided Instruction", Authoring system in AmigaBASIC, by Paul Castonguay
"Gels in Multi-Forth, Part II: Screenplay", by John Bushakra
"AmigaNotes: How IFF sound samples are stored", by Richard Rae
"C Notes from the C Group", Operators, expressions, and statements in C uncovered, by Stephen Kemp

Vol. 3 No. 10, October 1988

Highlights include:
"The Command Line:NEWCLI: A painless way to create a new console window", by Rich Falconburg
"Record Keeping for Freelancers: A Superbase Professional Tutorial", by Marion Deland
"On The Crafting of Programs", Optimization kicks off our series on programming savvy, by David J. Hankins
"Bob and Ray Meet Frankenstein", Create, animate, and metamorphose graphics objects in AmigaBASIC, by R. D'Asto
"Digital Signal Processing in AmigaBASIC", Perform your own digital experiments with Fast Fourier Transforms, by Robert Ellis
"HAM & AmigaBASIC", Pack your AmigaBASIC progs with many of the Amiga's 4096 shades, by Bryan Catley
"CAI—Computer Aided Instruction: Part II", by Paul Castonguay

Vol. 3 No. 11, November 1988

Highlights include:
"Structures in C", by Paul Castonguay
"On The Crafting of Programs", Speed up your progs, by D. Hankins
"Desktop Video VI: Adding the Third Dimension", by L. White
"More Linked Lists in C: Techniques and Applications", Procedures for managing lists, storing diverse data types in the same list, and putting lists to work in your programs, by Forest W. Arnold
"BASIC Linker", Combine individual routines from your program library to create an executable program, by B. Zupke

Vol. 3 No. 12, December 1988

Highlights include:
"The Command Line: What to do when the commands of AmigaDos fail", by Rich Falconburg
"Converting Patch Librarian Files", by Phil Saunders
"The Creation of Don Bluth's Dragon's Lair", by R. Linden
"Easy Menus in JForth", by Phil Burk
"Extending AmigaBasic", The use of library calls from within AmigaBASIC, by John Kennan
"Getting Started In Assembly", by Jeff Glatt
"C Notes From The C Group: Program or function control coding", by Stephen Kemp
"AmigaDos, Assembly Language, And FileNotes", Weapons in the war against file overload; accurate, descriptive file naming, by Dan Huth

Vol. 4 No. 1, January 1989

Highlights include:
"Desktop Video", by Richard Starr
"Industrial Strength Menus", by Robert D'Asto
"Scrolling Through SuperBitMap Windows", by Read Predmore
"Sync Tips: Dot crawl, the Amiga and composite video devices", by Oran J. Sands
"Stop-Motion Animation On The Amiga", by Brian Zupke
"The Command Line: New and Improved Assembly Language Commands", by Rich Falconburg
"Pointers, Function Pointers, and Pointer Declarations in C", by Forest W. Arnold
"Death of a Process", Developing an error-handling module in Modula-2, by Mark Cashman

Vol. 4 No. 2, February 1989

Highlights include:
"Max Morehead Interview", by Richard Rae
"A Common User Interface for the Amiga", by Jim Bayless
"SPY:Programming Intrigue In Modula -2", by Steve Faiwiszewski
"Sync Tips: Getting inside the genlock",by Oran Sands
"On the Crafting of Programs: A common standard for C programming?", by D J. Hankins
"C Notes from the C Group: An introduction to unions", by Steven Kemp
"The Command Line: Your Workbench Screen Editor", by Rich Falconburg
"An Introduction to ARexx programming", by Steve Faiwizewski

Vol. 4 No. 3, March 1989

Highlights include:
"Fractal Fundamentals", by Paul Castonguay
"Image Processing With Photosynthesis", by Gerald Hull
"Benchmark 1: Fully Utilizing The MC68881", Part I: Turbocharging the savage benchmark, by Read Predmore
"Breaking the Bmap Barrier", Streamline AmigaBASIC library access with Quick—Lib, by Robert D'Asto
"Double Play", AmigaBASIC program yields double vision, by Robert D'Asto
"The Video Desk: The Amiga meets Nikon Camera", by Larry White

Vol. 4 No. 4, April 1989

Highlights include:
"AmiEXPO Art and Video Contest Winners", by Steve Jacobs
"Adding the Not-So-Hard Disk", by J P. Twardy
"The Max Hard Drive Kit", A hard drive installation project, using Palomax's Max kit, by Donald W. Morgan
"Sync Tips: A clearer picture of video and computer resolutions", by Oran J. Sands
"Passing Arguments", Step-by-step on how to pass data from the CLI to AmigaBASIC, by Brian Zupke
"Creating a Shared Library", by John Baez

Vol. 4 No. 5, May 1989

Highlights include:
"The Business of Video", by Steve Gillmor
"Building Your Own Stereo Digitizer", by Andre Theberge
"MIDI Out Interface", by Br. Seraphim Winslow
"Digitized Sounds in Modula-2", by Len A. White
"Sync Tips: The secrets hidden beneath the flicker mode", by Oran J. Sands
"Insta Sound in AmigaBASIC", by Greg Stringfellow
"C Notes from the C Group: Formatted output functions", by Stephen Kemp

Vol. 4 No. 6, June 1989

Highlights include:
"Adventures in ARexx", by Steve Gillmor
"At Your Request: Design your own requesters in AmigaBASIC", by John F. Weiderhirn
"Exploring Amiga Disk Structures", by David Martin
"Diskless Compile in C", by Chuck Raudonis
"Programming the '881 Part II", A discussion on how to calculate Mandelbrot & Julia sets, by Read Predmore
"C Notes from the C Group: Ways to avoid problems when passing parameters between functions", by Stephen Kemp

Vol. 4 No. 7, July 1989

Highlights include:
"An Inside look at UltraCard", by Steve Gillmor
"Adapting Analog Joysticks to the Amiga", by David Kinzer
"Using Coordinate Systems: Part II of the Fractals series addresses the basis of computer graphics", by P.Castonguay
Plus—A Look At Amiga Entertainment

Vol. 4 No. 8, August 1989

Highlights include:
"Getting Started in Video", by Richard Starr
"C Notes: Directing programs via the Command Line", by Stephen Kemp
"Executing Batch Files in AmigaBASIC", by Mark Aydellotte
"Building a Better String Gadget", by John Bushakra
"On Your Alert: Using System Alerts from BASIC", by John F. Wiederhirn

Vol. 4 No. 9, September 1989

Highlights include:
"Digitizing Color Slides And Negatives on the Amiga", by Ron Gull
"Improving Your Graphics Programming", by R. Martin
"Cell Animation In Modula-2", by Nicholas Cirasella
"More Requesters In AmigaBASIC", by John R. Wiederhirn
"DeluxePaint III — The Inside Story", EA's Dan Silva tells how DeluxePaint III evolved, by Ben & Jean Means
"Amiga In Desktop Presentation", Presentation techniques to enhance your meetings and seminars, by John Steiner
"Multitasking In Fortran", by Jim Locker
"Gels In Multi-Forth: Part III", by John Bushakra

Vol. 4 No. 10, October 1989

Highlights include:
"Better TrackMouse", A true one-handed trackball mouse, by Robert Katz
"Conference with Will Wright and Brian Conrad of SimCity fame", edited by Richard Rae
"A1000 Rejuvenator, Conference with Gregory Tibbs", edited by Richard Rae
"APL & The Amiga", by Henry Lippert
"Saving 16-color pictures in high-resolution", Part Three of the Fractals Series, by Paul Castonguay
"More requesters in AmigaBASIC", by John Wiederhirn
"Glatt's Gadgets", Adding gadgets in Assembly, by Jeff Glatt
"Function Evaluator in C", by Randy Finch
"Big Machine On Campus", Humboldt State University in Northern California goes Amiga, by Joel Hagen.
"Typing Tutor", by Mike"Chip" Morrison

Vol. 4 No. 11, November 1989

Highlights Include:
"The Amiga Hardware Interface", by John Iovine
"The Command Line: Examine the features in the AmigaDOS 1.3 Enhancer software package", by Rich Falconburg
"C Notes from the C Group: Creating your own libraries in C", by Stephen Kemp
"APL & The Amiga, Part II", by Henry Lippert
"FastPix()", A faster pixel-drawing routine for the Aztec C compiler, by Scott Steinman
"64 Colors In AmigaBASIC", by Bryan Catley
"Fast Fractals ", Generate Madelbrot Fractals at lightning speed, by Hugo M.H. Lyppens
"Multitasking in Fortran", by Jim Locker

Vol. 4 No. 12, December 1989

Highlights Include:
"The MIDI Must Go Thru", by Br. Seraphim Winslow
"View From the Inside: Bars&Pipes", Bars&Pipes designer gives a tour of Blue Ribbon Bakery's music program, by Melissa Jordan Grey
"ARexx Part II", by Steve Gillmor
"A CLI Beginner's Questions Answered", by Mike Morrison
"Trees and Recursion", by Forest W. Arnold
"C Notes from the C Group", A look at two compressing data techniques, by Stephen Kemp
"The Command Line: Exploring commands in AmigaDOS", by Rich Falconburg
"Amiga Circuits", The techniques required to input information via the parallel port, by John Iovine

Vol. 5 No. 1, January 1990

Highlights include:
"The Making Of The 1989 BADGE Killer Demo Contest Winner, The Sentinel", by Bradley W. Schenck
"Animation For Everyone", by Barry Solomon
"Animation With Sculpt-Animate 4D", by Lonnie Watson
"Animation? BASICally!", Using Cell animation in AmigaBASIC, by Mike Morrison

"Menu Builder", Building menus with Intuition, by T. Preston
"Facing the CLI", Disk structures and startup-sequences, by Mike Morrison
"Dual Demo", Programming an arcade game, by Thomas Eshelman
"Scanning The Screen", Part Four in the Fractals Series, by Paul Castonguay
"It's Colder Than You Think", Calculating the wind chill temperature, by Robert Klimaszewski

❦ Vol. 5 No. 2, February 1990

Highlights include:
"A Beginner's Guide to Desktop Publishing On The Amiga", by John Steiner
"A Desktop Publishing Primer", Clearing up some of the mystery surrounding printers.
"Resizing the shell/CLI Window", by William A. Jones
"Call Assembly Language from BASIC", by Martin F. Combs
"You Too Can Have A Dynamic Memory", Flexible string gadget requester using dynamic memory allocation, by Randy Finch
"An Amiga Conundrum", An AmigaBASIC program for a puzzle-like game, by David Senger
"View From The Inside: Scanlab", ASDG's President shares the development of ScanLab, by Perry Kivolowitz
"AMIGANET", by Ernest P. Viveiros, Jr.

❦ Vol. 5 No. 3, March 1990

Highlights include:
"Screen Aid", A quick remedy to prolong the life of your monitor, by Bryan Catley
"An Introduction to MIDI", by R. Shamms Mortier
"The Other Guys' Synthia Professional", review by David Duberman
"Passport's Master Tracks Pro vs. Blue Ribbon Bakery's Bars&Pipes", by Ben Means
"Microillusions' Music-X", review by Rob Bryanton
"Diemer Development's C-ZAR", review by R. Shamms Mortier
"Dr. T's Keyboard Controlled Sequencer", review by Phil Saunders
"MusicTitler", Generating a titler display to accompany the audio on a VCR recording, by Brian Zupke

❦ Vol. 5 No. 4, April 1990

Highlights include:
"Handling MS-DOS Files", Adapting your Amiga to MS-DOS using a 5.25" disk drive, by Jim Locker
"Bridging the 3.5" Chasm", Making Amiga 3.5" drives compatible with IBM 3.5" drives, by Karl D. Belsom
"Bridgeboard Q & A", by Marion Deland
"Handling Gadget & Mouse IntuiEvents", More gadgets in Assembly, by Jeff Glatt
"Ham Bones", Programming in HAM mode in AmigaBASIC, by Robert D'Asto
"Gambling with your video, Amiga-style", Problems with trading genlocks with your friends, by Oran Sands
"Distant Suns", review by Mike Hubbart

❦ Vol. 5 No. 5 May 1990

Highlights include:
"Commodore's Amiga 3000", preview
"Newtek's Video Toaster", preview
"Getting started With Deluxe Video III", tutorial by David Johnson
"Do It By Remote", Building an Amiga-operated remote controller for your home, by Andre Theberge
"Turn Your Amiga 1000 Into A ROM-based Machine", by George Gibeau Jr. & Dwight Blubaugh
"Super Bitmaps In BASIC", Holding a graphics display larger than the monitor screen, by Jason Cahill
"Rounding Off Your Numbers", by Sedgewick Simons Jr.
"Faster BASIC Mouse Input", by Michael S. Fahrion
"Print Utility", by Brian Zupke

❦ Vol. 5 No. 6, June 1990

Highlights include:
"Convergence", Part Five of the Fractal series, by Paul Castonguay
"C++: An introduction to object-oriented Amiga programming", by Scott B. Steinman
"APL and The Amiga: Primitive Functions and Their Execution", by Henry T. Lippert
"Amiga Turtle Graphics", by Dylan McNamee
"Building A Rapid Fire Joystick", by John Iovine
"The AM 512", Upgrade your A500 to a 1 megabyte machine, by James Bentley
"PageStream 1.8", review by John Steiner
"WordPerfect Macros", by Mike Hubbartt
"DigiMate III", review by Frank Mc Mahon

❦ Vol. 5 No. 7, July 1990

Highlights include:
"Commodore announces CDTV"
"Apples, Oranges, and MIPS: 68030-based Accelerators For The Amiga 2000", by Ernest P. Viveiros, Jr.
"Pixound", review by R. Shamms Mortier
"Hyperchord", review by Howard Bassen
"Exceptional Conduct", Quick response to user requests, through efficient program logic, by Mark Cashman
"Poor Man's Spreadsheet", A simple spreadsheet program that demonstrates manipulating arrays, by Gerry L. Penrose
"Tree Traversal and Tree Search", Two methods for traversing trees, by Forest W. Arnold
"Crunchy Frog II", by Jim Fiore
"Getting to the Point: Custom Intuition Pointers In AmigaBASIC", by Robert D'Asto
"Synchronicity: Right & Left Brain Lateralization", by John Iovine
"Snap, Crackle, & POP!", Fixing a monitor bug on Commodore monitors, by Richard Landry

❦ Vol. 5 No. 8, August 1990

Highlights include:
"Mimetics' FrameBuffer", review by Lonnie Watson
"The VidTech Scanlock", review by Oran Sands
"Amigas in Television", The Amiga in a cable television operation, by Frank McMahon
"Desktop Video in a University Setting", The Amiga at work at North Dakota State University, by John Steiner
"Credit Text Scroller", review by Frank McMahon
"Graphic Suggestions", Other ways to use your Amiga in video production, by Bill Burkett
"Title Screens That Shine: Adding light sources with DeluxePaint III", by Frank McMahon
"The Amiga goes to the Andys", by Curt Kass
"Breaking the RAM Barrier", Longer, faster, smoother animations with only one meg of RAM, by Frank McMahon
"Fully Utilizing the 68881 Math Coprocessor: Timings and Turbo_Pixel functions", by Read Predmore
"APL and the Amiga: Part IV", by Henry T. Lippert
"Sound Quest's MidiQuest", review by Hal Belden

❦ Vol. 5 No. 9, September 1990

Highlights include:
"Dr. T's Keyboard Controlled Sequencer 3.0 ", review by Phil Saunders
"Acting On Impulse", A visit to Impulse, by John Steiner
"3-D Professional", review by David Duberman
"Programming In C on a Floppy System", Yes even a stock A500 with a 512K RAM expander, by Paul MIller
"Time Out", Accessing the Amiga's system timer device via Modula-2, by Mark Cashman
"Stock Portfolio", An original program to organize your investments, music library, mailing lists, etc., by G.L. Penrose
"Voice-Controlled Joystick", by John Iovine
"FrameGrabber", review by Lonnie Watson
"KARAfonts", review by R. Shamms Mortier
"Gradient Color Dithering on the Amiga Made Easy", by Francis Gardino
"Sculpt Script", by Christian Aubert
"The Art Department", review by R. Shamms Mortier
"Scene Generator", review by R. Shamms Mortier
"Breaking the Color Limit with PageRender3D", review by R. Shamms Mortier

❦ Vol. 5 No. 10, October 1990

Highlights include:
"Notes on PostScript Printing with Dr. T's Copyist", by Hal Belden
"BioMetal", Make the Amiga flex its first electric muscle, by John Iovine
"Atlanta 1996", Will Atlanta host the 1996 Summer Olympics? Their best salesperson is an Amiga 2500.
"Be A VAR!", With Commodore's new Value Added Resaler program, creating specialized Amiga applications could make you a VAR.
"CAD Overview: X-CAD Designer, X-CAD Professional, IntroCAD Plus, Aegis Draw 2000, UltraDesign", by Douglas Bullard
"Saxon Publisher", review by David Duberman
"AutoPrompt", review by Frank McMahon
"Centaur's World Atlas V2.0", review by Jeff James
"Sound Tools for the Amiga", Sunrize Industries' Perfect Sound and MichTron's Master Sound, reviews by M. Kevelson
"ProMotion", review by Michael Dispezio
"Stripping Layers Off Workbench", Remove unneeded files on your Workbench to make room for other programs, by Keith Cameron
"Audio Illusion", Produce fascinating auditory illusions on your Amiga, by Craig Zupke
"Call Assembly Language From Modula-2", Integrating small, fast machine language programs into BASIC, by Martin Combs
"Koch Flakes", Using the preprocessor to perform selective compilation, by Paul Castonguay
"New Products and Other Neat Stuff", Walt Disney animation comes to the Amiga, Alaska on videodisc, more.
"PD Serendipity", A look at SID V1.06 a directory utility for the Amiga, by Aimée Abren
"Bug Bytes", Upgrades this month include: F-BASIC 3.0, ProWrite 3.1, and shareware program GeoTime 1.2, by John Steiner
"Roomers ", Will those people who bought an Agnus upgrade for their A2000 have to buy it again to get the new Denise chip?, by The Bandito
"C Notes from the C Group", A program that examines an archive file and removes any files that have been extracted, by Stephen Kemp

❦ Vol. 5 No. 11, November 1990

Highlights include:
"Getting A Lot For A Little", A comparison of the available Amiga archive programs, by Greg Epley
"Amiga Vision", review by John Steiner
"Video Expo New York", The Cammp multimedia show and Commodore in Manhattan
"High Density Media Comes to the Amiga", Applied Engineering's AEHD drive, review by John Steiner
"Fixing The Flicker", MicroWay's Advanced Graphics Adaptor 2000, by John Steiner
"The KCS Power PC Board", If you have an Amiga 500, and need IBM PC/XT software compatibility, the KCS Power PC Board can help, by Ernest P. Viveiros, Jr.
"Build An Amiga 2000 Keyboard For The Amiga 1000", Get a better-feeling keyboard for under $7.00, by Phillip R. Combs
"Looking Beyond the Baud Rate", The Baud Bandit 2400 & Baud Bandit MNP/ Level 5 Plus modems, by Ernest P. Viveiros, Jr.
"New Products and Other Neat Stuff", Draw 4D, A-MAX II, and the GVP Series II RH-5500 top this month's list
"Bug Bytes", The Deskjet 500 has been released by Hewlett-Packard, by John Steiner
"PD Serendipity", more updates to the Fred Fish library. Plus, a look at SuperView 3.0, an IFF display program, by Aimeé B. Abren
"C Notes From The C Group", Programming with definitions known as "enumerated" data types, by Stephen Kemp
"SAS/C Compiler", review by Bruce M. Drake
"Mindware's 3D Text Animator", review by Frank McMahon
"A Little Closer to Excellence", Micro-Systems Software's excellence!2.0, review by Kim Schaffer

❦ Vol. 5 No. 12, December 1990

Highlights include:
"Twin Peaks Amiga Show Report", AC traveled to AmiEXPO in Anaheim, CA and World of Amiga in Chicago, IL to report on the newest and brightest Amiga products.
"Information X-Change", Keeping up to date on the latest news via hardware, software, and cable TV, by Rick Broida
"Stepper Motors", Part One of three part series on building a simple stepper motor, by John Lovine
"New Products", Gold Disk Office, Music-X, Jr., and holiday games.
"Bug Bytes", Workbench upgraded to 2.01 and Music-X upgraded to 1.1, by John Steiner
"C Notes From The C Group", A discussion on cryptography, by Stephen Kemp
"PD Serendipity", New CLI utilities and updates to the Fred Fish Collection, by Aimée B. Abren
"Pro Video Post", review by Frank McMahon
"Feeding The Memory Monster", the ICD AdRAM 540 and AdRAM 560D, review by Ernest P. Viveiros, Jr.
"McGee & McGee Visits Katie's Farm", review by Jeff James
"MathVision 2.0", review by R. Shamms Mortier
"Wings", review by Rick Broida
"Making A Name For Yourself", Creating logos on the Amiga, by Frank McMahon
"Hard Disk Primer For Floppy Users", Taking the sting out of the transition from floppies to hard drive, by Rob Hays
"Shotgun Approach To Programming With AmigaBASIC, Bringing the fundamentals of AmigaBASIC programming into perspective, by Mike Morrison

❦ Vol. 6 No. 1, January 1991

Highlights include:
"On The Road", coverage of Germany's Amiga '90, COMDEX in Nevada, and The World of Commodore Amiga in Toronto,Canada
"Electronic Color Splitter", an inexpensive way to grab images off video sources, by Greg Epley
"SketchMaster", review by Ernest P. Viveiros, Jr.
"Professional Draw 2.0", review by R. Shamms Mortier
"Spell-A-Fari", review by Jeff James
"Programming in AmigaBASIC", by Mike Morrison
"ZoomBox", by John Leonard
"New Products And Other Neat Stuff", QuickWriteby New Horizons, PowerMonger by Electronic Arts, and VistaPro by Virtual Reality Laboratories, by John Rezendes
"Medley", AC's music column discusses MIDI, by Phil Saunders
"Bug Bytes", a few problems with PageStream 2.0 and Quarterback Tools is now shipping, by John Steiner
"PD Serendipity", change from PAL to NTSC easily with NTSC-PAL and Fred Fish updates, by Aimee Abren
"C Notes From The C Group", a pop quiz to test your C programming knowledge, by Stephen Kemp
"Roomers", fearless predictions for the new year, by The Bandito
"Snapshot", Electronic Arts' The Immortal, by R. Bradley Andrews
"The Animation Studio", Disney's classic approach in a character animation program, by Frank McMahon
"Forensic Animation", the Amiga helps out in the courtroom, by Andrew Lichtman
"Cartoon Animation", back to the basics, by D. L. Richardson
"Animation Chart", twenty-two animation packages and features
"Memory & Animation", even 512K users can animate!, by Chris Boyce
"Animation Extras", by David Duberman

The Fred Fish Collection

Due to the increasing size of the Fred Fish Collection, only the latest disks are represented here. For a complete list of all AC, AMICUS, and Fred Fish Disks, cataloged and cross-referenced for your convenience, please consult the current *AC's Guide To The Commodore Amiga* available at your local Amazing Dealer.

Fred Fish Disk 389

Kick Another screen hack, specifically for A500/A2000 owners. I don't want to spoil any surprises but reportedly causes some machines to crash. Binary only. Author: Tony Solomon, Paul Fortin

Plot A 3-D function plotting program with provisions for coordinate translation on both axes, parametric equations, and standardized notation of the pow function (x^y—which now works as specified.). This is version 5.1, an update to version 4.1 on disk 175, with some enhancements and bug fixes. Binary only. Author: Terry Gintz

PolySys An extended version of the 0L-system (string rewriting) described in The Science of Fractal Images (edited by Pietgen and Saupe). The basic algorithm has been expanded and modified extensively, and looping commands similiar to those found in other Turtle graphics systems (Logo, etc) have been added. Support for three-dimensional drawing, with perspective, is also included. Version 1.0, binary only. Author: Terry Gintz

Retab Useful command-line "tab-to-space" and "space-to-tab" expansion utility. Several command-line options to specify size/settings and the ability to protect material enclosed by delimiters (quotes, brackets, carats, etc.) from expansion. Version 1.03, binary only. Author: Paul Klink

ZPlot Graphs formulas based on 4-D complex number planes. ZPlot currently supports the Mandelbrot set, Julia sets, and Phoenix curves, with over 500 mapping variations. The math functions supported include sin(z), sinh(z), z^z, e^z, z^n, sqrt(z), cos(z), cosh(z), tan(z), tanh(z), log(z), ln(z) and n^z. Version 1.3d, binary only Author: Terry Gintz

Fred Fish Disk 390

Flip Allows you to quickly and easily switch between various screens. Can close screens, pull them up, and activate windows. Has the unique feature of sorting screens in a way that all title bars are visible at one time. This is version 2.0, binary only. Author: Lars Eggert

ReadmeMaster A nifty little database for finding those programs that you know exist somewhere (???) in the AmigaLibDisk library. Maintains a keyword dictionary of the Contents descriptions that allows searching by disk number, program title, author's name, or some other descriptive word. Currently supports disks 1-360, an update to the version on disk number 163. Binary only. Author: Harold Morash

SetClock A utility to set or read the hardware clock on a Spirit Technology memory expansion board. Works in a manner similar to the SetClock utility which is supplied by Commodore with Amigas that have hardware clocks as standard equipment. Includes source in PCQPascal and assembler. Author: Willi Kusche

SM Small utility to center the display. Recoded version of "ScreenShift" by Anson Mah (Disk 88), only half the size. Includes source. Author: Anson Mah, Lattice V5.04 recoding by Oliver Wagner

Fred Fish Disk 391

Curses A link library containing many of the terminal independant standard "curses" functions. Designed primarily for those interested in porting unix screen based programs to the Amiga. Version 1.10, binary only. Author: Simon John Raybould

Eco An ECHO replacement which allows many escape sequences for colors, text styles, cursor positioning, system variables, and much more. Has PURE bit set and can be made resident. Version 3.40, includes source. Author: Dario de Judicibus

FractalLab Investigate the realm of fractals and allow your imagination to run wild. Virtually an unlimited number of these self- similar curves can be created with FractalLab. Includes several interesting samples. Version 1.0, binary only. Author: Terry Gintz

ListPlot A 2D plotting program built around the PLPLOT plotting library. Its principle advantage is that it supports a variety of graphics devices. By default, output is sent to a window on the Amiga's screen. Through command line options, the graph can be sent to any preferences printer with graphics capability, stored as an IFF file, stored in HPGL format, stored in Aegis Draw format, or stored as an Encapsulated Postscript File. A variety of line styles and colors are available. Includes source. Author: Frederick R. Bartram and Anthony M. Richardson

Fred Fish Disk 392

BTNTape A "Better Than Nothing" SCSI tape device handler. It provides flat file access to a SCSI tape drive from application programs using simple DOS calls to Read() and Write(). It can also be used with the Amiga TAR utility for disk backups. Files may span multiple tape volumes and may start at any tape block. This handler requires a "SCSI-direct" compatible hard disk driver. Version 1.0, includes source. Author: Robert Rethemeyer

CPlot Graphs linear functions in two dimensions, similiar to a Mandelbrot plot. You start with a linear function like 10sin(x**2+y**2) and CPlot treats each point on the screen as an X-Y coordinate, color-scaling it according to its magnitude for a preset range of inputs. Includes some very nice sample creations. Version 1.0, binary only. Author: Terry Gintz

Pmode Very simple command line utility to send escape sequences to the printer to change print styles. Specifically tested a NEC P6 Plus, but it should work with many printers. Included source should make it easy to add/modify escape sequences. Author: Dario de Judicibus

SetNoClick Very simple program to set the NOCLICK flag in the public section of a trackdisk unit. Only works with version 36 and up of trackdisk.device. Includes source. Author: Marc Boucher

Spades Amiga'ized version of the popular card game. This is a single player version, where you play one hand and the computer plays your partner and also your two opponents. Version 1.1, includes source. Author: Greg Stelmack

Fred Fish Disk 393

FileIO The dissidents file requester. This is version 1.9, an update to version 1.6 on disk 348. Binary only. Author: Jeff Glatt, Dissidents Software

FontConvert A printer font conversion program to convert standard Amiga fonts into a form suitable for downloading to a printer that supports user defined printer fonts. Version 1.0, includes source. Author: Olaf 'Olsen' Barthel

FuncLib A program that allows you to add or remove rexx function libraries. Author: Jeff Glatt, Dissidents Software

ILBMLib A shared library (ilbm.library) to read/write IFF files, derived from the EA IFF code, along with various enhancements. Version 0.3, a partial update to version on disk 348. Author: Jeff Glatt, Dissidents Software

LibTool A program that allows you to develop C or assembly code, and then quickly turn it into a shared library. Also generates all support files for your library including Pragma files (both Manx and Lattice), bmap files, include files, C interface glue files. Can be used to make a device, too. Author: Jeff Glatt, Dissidents Software

PrintSpool A small print spooling shared library that provides an easy way to print graphics and text for any application. It can print ascii text of any length or dump any part or all of a rastport. Takes care of opening the printer.device and manages its own resources. Version 0.1, binary only, with source code examples. Author: Jeff Glatt, Dissidents Software

RexxIntuition This is a ARexx function library that allows you to open windows/screens from an ARexx script, attach menus, gadgets, (file) requesters, load and save ILBM picture files, auto-requesters, print text and graphic dumps, and completely interact with the user in an intuition environment. Adds all of those Amiga features that ARexx lacks. Author: Jeff Glatt, Dissidents Software

RexxLib A shared library that can be easily used by any C or assembly programmer to add an ARexx interface to his programs. Handles all of the messy details including message creation/deletion and error handling. Author: Jeff Glatt, Dissidents Software

Fred Fish Disk 394

Aniptrs3 Some more animated pointers to choose from to "liven" up your display environment. Other pointers from Bob are on disks 332 and 364. Binary only. Author: Bob McKain, pointer animation program by Tim Kemp

'Liner A shareware outliner whose function is to create outlines for notes or export to other programs. 'Liner can save an outline as ASCII text, and is clipboard compatible. Enhancements over the previous version include support for ARexx, Workbench, overscanned screens, more than one line of text per outline number, a preferences file, and search/replace. Version 2.00, an upgrade to version 1.32 on disk 285. Includes C source. Author: Dave Schreiber

Pics Some miscellaneous pictures with a "cartoon" theme. Author: Bob McKain

PrintImage A simple program that provides an easy way to print IFF ILBM images. Version 1.0, includes source. Author: Olaf 'Olsen' Barthel

Fred Fish Disk 395

This disk is on hold due to copyright questions

Fred Fish Disk 396

ColorCatch A utility that lets you grab colors from a screen and save them as an executable file. Version 1.0, includes source in assembler. Author: Preben Nielsen

NewLook A program that changes the system gadgets in all the screens and windows. Version 1.0, includes source in assembler. Author: Preben Nielsen

PBar An editor to change the pattern in the windows drag bar and save the pattern as an executable file with an icon looking like the pattern. Version 1.0, includes source in assembler. Author: Preben Nielsen

PCalender A little calender program which lets you look through years and months using the arrow-keys. Version 1.0, includes source in assembler. Author: Preben Nielsen

PClock A little clock program which shows the time and the available CHIP and FAST memory. Version 1.0, includes source in assembler. Author: Preben Nielsen

PFiler A very good and small file requester to link onto your own programs. Version 1.0, includes source in assembler. Author: Preben Nielsen

Resident A resident startup module for Aztec C. Version 1.0, includes source. Author: Olaf 'Olsen' Barthel

RoadRoute Trip planner program to find "best road route" between any two points of travel. Features include the user customization of CITIES and ROADS files to suit travel interests and provision for very large city menus and itineraries. Also includes RoadScan, a checker for RoadRoute files (CITIES and ROADS). Very large files may contain goofs (cities with no roads, the same road entered twice, etc.), or oddities (direct road not as fast as multipoint). These are pointed out, together with areas where users might wish to make economies in the data base. Version 1.6, an update to version 1.5 on disk 358, includes source. Author: Jim Butterfield

TurboTopaz Two Text speed up programs like FastFonts. Allows replacement of the Topaz-80 font from both CLI and WorkBench. Includes a program to measure to speed of Text speed up programs. Version 1.0, includes source in assembler. Author: Preben Nielsen

Fred Fish Disk 397

DKBTrace A complete ray tracer that supports arbitrary quadric surfaces (spheres, ellipsoids, cones, cylinders, planes, etc.), constructive solid geometry, and various shading models (reflection, refraction, marble, wood, and many others). It also has special case code to handle spheres, planes, triangles, and smooth triangles. By using these special primitives, the rendering can be done much more quickly than by using the more general quadrics. This is version 2.0 and includes source in C. Author: David Buck

Fred Fish Disk 398

DClock A "Dumb Clock" utility that displays the date and time in the Workbench screen title bar. Includes an ARexx interface. This is version 1.29, an update to version 1.27 on disk 388. Includes source. Author: Olaf Barthel

Formatter A faster and more user friendly floppy disk formatter that is also an example of how to format Amiga file systems in general and get AmigaDOS to accept them. Formatting without verify takes about 50 seconds, with verify takes about 100 seconds. Version 2.7, includes source. Author: Olaf Barthel

GMC A console handler with command line editing and function key support. GMC provides extended command line editing, function key assignment in four levels, extended command line history, online help for functions in the handler, and an iconify function. Also includes an output buffer (dump to printer and window), filename completer, script function, undo function, prompt beeper, pathname in window title, close gadget for KS 2.0, etc. This is version 9.6, an update to version 9.2 on disk 387. Shareware, binary only. Author: Goetz Mueller

HunkFunk A program to "disassemble" any given AmigaDOS hunk file, which includes executables, linker libraries, linker object files, overlayed files, etc. Written as an exercise by the author to learn a few things about AmigaDOS hunk structures. Includes source. Author: Olaf Barthel

KeyMacro A keyboard macro program, configurable via a text file, that also supports hotkey program execution. You can map up to eight functions to each key, including keys such as cursor keys, the return key, etc. Version 1.6, an update to version 1.4 on disk 354. Includes source. Author: Olaf Barthel

Fred Fish Disk 399

AutoCLI A 'PopCLI' type replacement that works with WorkBench 2.0. Also fixes the problem with PopCLI crashing the machine if used on a PAL Amiga to open a CLI window with a vertical size greater than 200 lines. Other features include an optional Function-key press with the qualifier to execute an S:script file. Version 1.6, binary only. Author: Nic Wilson

CCLib An implementation of the standard C runtime library, with a few extra goodies thrown in. Supports a large number of functions including stream I/O, low-level I/O, string, memory, linked list, sorting, time, process control and more. Version 3.0, includes source and several utility programs. Author: Robert W. Albrecht

PrettyWindows Three different C routines to add various borders inside of windows. Includes source and a demo. Author: Thom Robertson

TrackDisplay A simple program that continuously monitors and displays the current track for each floppy disk. Includes source. Author: Olaf Barthel

Fred Fish Disk 400

DriveWars DriveWars is a Shareware shoot'em up game that pits you, df0: or df1:, against a computer virus that is about to destroy all U.S. records of Iraq's positions during operation Desert Shield. In version 1.0, you must fly df0: through the computers and destroy all contaminated chips and disks. Author: Joe Angell

ParNet The Software Distillery's NET: file system using Matt Dillon's parallel port code. Using a special DB25 cable, two Amigas can be connected via the parallel port. One Amiga can mount the other as a device and read/write the files as if they were local. Version 2.4, binary only. Author: Doug Walker, John Toebes, Matt Dillon

ReqLib A runtime, reentrant library designed to make it easier for programmers to use powerful, easy to use requesters, for communicating with users. Includes such functions as a color requester, file requester, message display requester and many functions to make the creation of gadgets for your own custom requesters easier. Binary only. Author: Colin Fox and Bruce Dawson

SetCPU A program designed to allow the user to detect and modify various parameters related to 32 bit CPUs. Includes commands to enable or disable the text/data caches, switch on or off the '030 burst cache line fill request, use the MMU to run a ROM image from 32-bit memory, and to report various parameters when called from a script. This is version 1.60, an update to version 1.5 on disk 223. Includes source. Author: Dave Haynie

SF2 File search utility. Default searching starts from the root directory of the specified device and descends down into its subdirectories. Searching includes looking into archive files generated by various compression utilities. Archive files ending with a .ARC, .LHZ, .ZIP and .ZOO are currently supported. Lots of command line options. Requires ARP 1.3 (rev. 39.1). Version 2.0, binary only, shareware. Author: Andrea Suatoni

Fred Fish Disk 401

CrcLists Complete CRC check files for disks 001-400 using the brik program. These were made directly from my master disks. This is an update to the lists on disk 293. Author: Fred Fish

HappySong A song created using the freely distributable program MED V.2.10. Player program included. Author: Alex Van Starrex

Fred Fish Disk 402

ADoc A freely redistributable help utility for the Amiga. Allows you to have permanent help on any subject you want. Major feature is automatic searching of the word on which you clicked. Includes a 50 Kb help file (French only) on all Intuition and Dos function calls. This is version 3.10, binary only, French and English versions. Author: Denis GOUNELLE

APrf A freely redistributable printing utility for the Amiga. Major features are full Intuition interface, preview function, page selection, margins setup, line numbering, and more. This is version 2.62, binary only, French and English versions. Author: Denis GOUNELLE.

Pcopy An intuition based disk copier for AmigaDOS disks featuring high speed diskcopy with write verify, data recovery from damaged tracks, full multitasking compatibility, and a user friendly interface. This is version 2.12, an update to version 2.11 on disk 383, with new data recovery routines and some bug fixes. Binary only. Author: Dirk Reisig

PLW Phone-Line-Watcher. For users of Hayes compatible modems. Monitors the serial port and records all incoming calls. Allows a remote user to login, receive and leave a message, and transfer files via Zmodem in either direction. Two level DOS access, disabled DOS requestors and more. This is version 3.0, an update to version 2.8 on disk 372.

New features include the ability to define external programs as menu options that can be executed by the remote user. Shareware, binary only. Author: Christian Fries

PrintStudio Very nice intuition based general purpose print utility that prints text with a variety of options. Prints several graphic formats with yet more options. Print any part of a picture, print screens and windows, save screens and windows as IFF files, modify color palettes, change printing parameters and lots more! This is version 1.25, an update to version 1.2 on disk 366. Shareware, binary only. Author: Andreas Krebs

StdFile A module that can be linked with any Intuition based program to provide a standard file requestor similar to the one in AmigaDOS 2.0. Even if you use the standard requestor under 2.0, it is useful to have one available for use if you need to run on pre-2.0 systems. Includes source. Author: Jeff Lydiatt and Peter da Silva

Fred Fish Disk 403

FixDisk A program to recover as much as possible from a defective disk. It can sometimes recover damaged (unreadable) tracks, check file integrity, check the directory structure, undelete files, copy or show files, fix corrupted directory pointers, etc. Full intuition interface. This is version 1.2, an update to version 1.0 on disk 223. Binary only. Author: Werner Guenther

KawaiEditor A Kawai K4 editor (apparently some kind of midi based music synthesizer). Version 1.0, shareware, binary only. Author: Jan Saucke

NiftyTerm NiftyTerm is an h19/VT102/VT52 emulator for the Amiga. It was originally designed to be used with DNet, but it has been expanded so that it may be used as a normal terminal emulator. Niftyterm was designed to be a good emulation of these terminals, as well as being fairly small and fast. Version 1.0, binary only, source available from authors. Author: Christopher Newman, Todd Williamson

PokerDemo Demo version of some Solitaire card games from UnSane Creations. Includes "Accordion", "Calculation", "Poker Solitaire", and "SeaHaven Towers". Binary only. Author: Steve Francis

RexxHostLib This is a shared library package to simplify the ARexx host creation/management procedure. Rexx-message parsing is also included making it possible to control ARexx from programs such as AmigaBASIC (can you imagine AmigaBASIC controlling AmigaTeX?). This is version 36.14, an update to version 34.12 on disk 355. Differences include a few bug fixes and new functions. Includes source. Author: Ola! Barthel

Fred Fish Disk 404

LHArc An archive program like Arc and Zoo, with a heavy emphasis maximum compression for minimum archive size, using LZHUF compression. This is version 1.30, an update to version 1.21 on disk 383. Binary only. Author: Paolo Zibetti

NGTC Release One of a trivia game based on "Star Trek: The Next Generation" TV series. Contains over 500 questions on Season One of the series with over 50 audio/video clues. This disk contains the game module and part 1 of the Trivia Database. You MUST have disk 405 which contains the rest of the Trivia Database and the required player program. Created with The Director. Binary only. Author: Gregory Epley

Fred Fish Disk 405

GIFMachine A program that will convert CompuServe GIF image files into IFF SHAM and 24bit ILBMs. It offers a number of extra options like dithering, horizontal and vertical flip, as well as automatic border removal. Requires KickStart version 2.0 or greater to run. Version 2.104, includes source. Author: Christopher Wichura

NGTC Release One of a trivia game based on "Star Trek: The Next Generation" TV series. Contains over 500 questions on Season One of the series with over 50 audio/video clues. This disk contains part 2 of the Trivia Database and the "Projector" player. You MUST have disk 404 which contains the rest of the Trivia Database and the game module. Created with The Director. Binary only. Author: Gregory Epley

Fred Fish Disk 406

ATCopy A program to copy files from the Amiga side of a system equipped with a PC/AT bridgeboard, to the PC side, using wildcards. Copies directly through the shared memory. Supports CLI and WorkBench usage. Version 2.0, shareware, binary only. Author: Peter Vorwerk

DirWork A fast small simple efficent shareware DirUtility that gets directories off floppies in about half the normal time. Configurable options and buttons, as well as all the usual features. This is Version 1.12, an update to the one on disk 328. Binary only. Author: Chris Hames

DMS DiSK-Masher is a utility that allows users to compress and archive entire floppy disks. Offers four different types of compression, extended virus checking of boot blocks, and data encryption. Requires at least 512K of memory. This is version 1.01, binary only. Author: SDS Software

GnuAwk GNU awk is the GNU Project's implementation of the AWK programming language. It conforms to the definition and description of the language in The AWK Programming Language, by Aho, Kernighan, and Weinberger, with the additional features defined in the System V Release 4 version of UNIX awk. Version 2.10 beta, includes source. Author: Paul Rubin, Jay Fenlason, Arnold Robbins, et al.

GnuGrep The grep program from the GNU project. Replaces grep fgrep, egrep, and bmgrep. This is an update to version 1.5 on disk 295 and now handles AmigaDOS style wildcard specifications. Includes source. Author: Many (see README file)

MadBlanker A cute screen blanker that bounces a transparent rectangle around on the screen, like a theater spotlight, with configurable options which include size and whether or not you want the rectangle to change size. Version 2.0, includes source. Author: K. Mardam-Bey

Fred Fish Disk 407

DMouse A versatile screen & mouse blanker, auto window activator, mouse accelerator, popcli, pop window to front, push window to back, etc, widget. This is DMouse version 1.24, an update to version 1.20 on disk 258. Includes source. Author: Matt Dillon

Flex Flex is a replacement for the UNIX "lex" (lexical analyzer generator) program that is faster than lex, and freely redistributable. This is version 2.3, an update to the version on disk 156. Includes source. Authors: Jef Poskanzer, Vern Paxson, William Lottus, et. al.

WonderSound Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls. Version 1.4, binary only. Author: Jeffrey Harrington

Fred Fish Disk 408

DCmd A utility that monitors a CLI's console IO and copies it to a user specified file. The console IO is unaffected by this monitoring. Version 1.00, includes source. Author: Matthew Dillon

KickDate Saves and retrieves the current system date stamp to the first sector of the kickstart disk. This is handy for A1000 users with autobooting hard drives, since it can save the system time across system resets and power cycles. Version 1.0, includes source. Author: Joe Porkka

MoniDie A cute little "screen hack". Be sure to turn up the sound. Binary only, source available from author. Author: David Donley

Post An excellent PostScript interpreter for the Amiga which supports the full Adobe language and type 1 PostScript fonts. Includes Charter font in Roman, Italic, Bold, and Bold-Italic, and Courier font in Roman, Roman-Oblique, Bold, and Bold-Oblique. Requires Arp library V39+ and ConMan V1.3+. Version 1.3, includes source in C. Author: Adrian Aylward

Fred Fish Disk 409

Trek An excellent shareware Star Trek game. The object of the game is to stay alive, healthy, and maintain the Enterprise in good condition. As Captain of the ship, you must go on missions where you show your common sense and level headedness. An overly cautious Captain will loose his ship as well as a careless or irrational Captain. This distribution unpacks into two almost full disks. Version 1.0, binary only. Author: Tobias Richter

Fred Fish Disk 410

MechFight A role playing game where you explore a world, buy or find items, and fight against robots and aliens. During the game you are asked to perform certain tasks. This is version 1.0, binary only. Author: Florian Marquardt

Vlt VLT is both a VT100 emulator and a Tektronix (4014 plus subset of 4105) emulator, currently in use at SLAC (Stanford Linear Accelerator Center). Although the VT100 part was originally based on Dave Wecker et al.'s VT100, many enhancements were made. Features include use of ARP, an ARexx port, XMODEM 1K/CRC and Kermit protocols, support for additional serial ports, external file transfer protocols (XPR), a "chat" mode, and scrollback/review/history buffer. It comes in two versions, one with Tektronix emulation, and one without. The Tektronix emulation allows saving IFF files, PostScript files, and printing bitmaps to the printer. This is version 4.846, an update to version 4.428 on disk 308. Binary only. Author: Willy Langeveld

Fred Fish Disk 411

BPDI Demo version of a new strategy game written in GFA-BASIC. German version only. Binary only. Author: Dirk Hasse

DiskPrint Prints labels for 3.5" disks, primarily for PD library disks. Label data files can be loaded into memory so labels for special disks are available without having to type anything in or without having to wait for AmigaDOS to read in the full directory. Version 2.3e, shareware, binary only. Author: Jan Geissler

Mind A design for artificial intelligence (AI) based upon linguistics. The included animation shows how one node on a syntax tree flushes out the currently active concept in a mind contemplating a scene of the external world through the eye. Includes five documents describing the theory behind the animation. Author: Arthur Murray

PCStatus Bridgeboard user's program that displays the status of the CAPS, NUM, INS, and SCROLL key in a separate window on every PC screen. Also, both the Amiga and the PC will use the same status of the Caps Lock key. Version 2.0, shareware, binary only. Author: Alexander Hagen

Tron Another game about the lightcycle race sequence in the science fiction computer film "Tron". One or two players and other options. Written in GFA-BASIC and then com- piled. This is version 1.23, an update to version 1.1 on disk 355. Now includes source in GFA-BASIC. Author: Dirk Hasse

Fred Fish Disk 412

AutoAddRAM Allows you to add several non-autoconfig memory boards at once, optionally specifying priority and memory chunk name. This is version 2.03, binary only. Author: Jonathan Potter

Check4Mem Allows you to check from a batch file for a specified amount of memory with certain attributes. If the requirements are not met, a WARN returncode is generated. This is version 3, an update to the version on disk 242. Binary only. Author: Jonathan Potter

CopperBars A simple but pretty demo of some rolling copper bars. Author: Jonathan Potter

CopperMaster This program allows you to easily create your own custom copper lists for the Workbench screen. Author: Jonathan Potter

CustReq A glorified ASK command for your startup-sequence. It generates a requester with the specified text, positive and negative gadgets (either of which can be the default), and an optional timeout value. This is version 4, an update to the version on disk 242, binary only. Author: Jonathan Potter

DirectoryOpus A slightly disabled demonstration version of a powerful commercial directory utility. Very user friendly and configurable, with many features. Binary only. Author: Jonathan Potter

FAClock Front Analog Clock. This clock program always stays at the very front of the display. Binary only. Author: Jonathan Potter

FullView A text viewer that uses gadgets at the bottom of the screen (thus can display text 80 columns wide), opens up to the full height of the Workbench screen, has fast scrolling, and can work with files compressed by PowerPacker. Also shows IFF pictures. This is version 2.02, an update to version 1.1 on disk 287, binary only. Author: Jonathan Potter

Image-Ed An icon editor that allows you to draw and edit images up to 150 by 90, in up to 16 colors. Allows freehand drawing, empty or filled rectangles, ellipses, triangles, lines curves, and polygons, copy, flip about x or y axis, stretching and condensing, flood fill and complement, text with selection and loading of font style, undo, magnified and normal sized images, and two active drawing screens at once. This is version 2.4, an update to version 2.2 on disk 242. Shareware, binary only, source available from author. Author: Jonathan Potter

JoyMouse A simple program that allows you to use a joystick as a mouse. Binary only. Author: Jonathan Potter

JPDirUtil A directory-utilities type program with many built-in commands, and 16 customizable gadgets. User configurable in many ways. Can be iconified to Workbench screen. This is version 1.12, an update to version 1.11 on disk 287. Binary only. Author: Jonathan Potter

NoReq A very short program that alternately turns on and off the DOS requesters. Useful for bulletin boards or other systems that may be unattended for long periods of time. Includes source in assembly. Author: Jonathan Potter

OSK A software keyboard, which allows you to type using the mouse. Can be made to send keystrokes to any window, and can be iconified. This is version 1.2, an update to the version on disk 287. Binary only. Author: Jonathan Potter

PopInfo A small utility which "pops open" to give you information about the status of your devices and memory. This is version 4.0, an update to version 3.0 on disk 242. Binary only. Author: Jonathan Potter

SuperPlay A versatile sound playing utility, that will play any file, with user definable volume and speed. Will also play files randomly from a list. Binary only. Author: Jonathan Potter

SwapName A variant on the "rename" command that instead swaps the names of two files. Binary only. Author: Jonathan Potter

TicTacToe A simple TicTacToe game. Binary only. Author: Jonathan Potter

ZeroVirus A fully integrated virus checker and killer, with bootblock save and restore features. Finds both bootblock and file based viruses. Uses Brainfiles to recognise viruses, and has "on-line" Brainfile editing facilities. Can be iconified to Workbench screen. This is version III 1.15, an update to version 2.01 on disk 287. Binary only. Author: Jonathan Potter

Fred Fish Disk 413

Aerotoons Animations with anthropomorphed aircraft as the center of their humor. Includes "Swiss Army F-16 In Combat" and "Stealthy Manuever II". Author: Eric Schwartz

Juggette Some cute "juggler" animations from Eric Schwartz. Includes "Juggette Anim", "Juggette_2", and "Juggler Demo 2". Author: Eric Schwartz

Fred Fish Disk 414

Anims Some more cute animations from Eric Schwartz. Includes "Batman", "LateNight", and "Terminal". Author: Eric Schwartz

Din A library that allows you to share image and text objects between programs. The din.library is ideal

if you want to write an editor and a DTP program that can share text, or a drawing program and a DTP program that can share a brush. Requires AmigaDOS 2.0. This is version 1.0, some source included. Author: Jorrit Tyberghein

Lila A shareware utility that allows you to print listings or other text files on Postscript printers, with header, page numbers, and multicolumn pages. Can print in portrait or landscape orientation. This is version 9004b, an update to version 8912a on disk 368, binary only. Author: Bertrand Gros

PPAnim An anim player for normal IFF ANIM opt 5 (DPaint III,...) files or ANIM files crunched with PowerPacker. The decrunching is done automatically as the file is read. Features many command line options, palette change during animation, full overscan PAL/NTSC support and yet it is only 7K. Compatible with AmigaOS 2.0. Some new 2.0 features (ASL requester) supported. Version 1.0, binary only. Author: Nico Francois

PPLib A shared library to make life easy for people who wish to write programs that support PowerPacker. Loading crunched files from C or assembly is made fast, short and easy. This is version 34.2, an update to version 34.1 on disk 371, and fixes a relatively serious bug. Library binary only, source examples included. Author: Nico Francois

Wrap A program to wrap a Sculpt-Animate 4D image around a sphere or cylinder. You can even use reliefed surfaces to construct planetary objects or other textured shapes. Version 1.32, shareware, binary only. Author: Martin Koistinen

Fred Fish Disk 415

CBBS A WORLI-like BBS system for use in amateur radio. Originally written for IBM-PC compatibles, it was ported to the Amiga by Pete Hardie. This is version 6.71a, an update to Version 6.1c on disk 241. Binary only, source available from Pete Hardie. Authors: Hank Oredson, the CBBS group, Pete Hardie

FileTypes This program can recognize different kinds of files in a directory. Currently recognized types are executable and IFF (all types, ILBM, 8SVX etc.). Includes listing the whole contents of a directory or only files of one or more types. This is version 2.1, and includes assembly source. Author: Sebastian Leske

Uedit A nice shareware editor with learn mode, a command language, menu customization, hypertext, online help, a teach mode, split windows, copy and paste, undo, and other user configurability and customizability features. This is version 2.6c, an update to version 2.5d on disk 287. Binary only. Author: Rick Stiles

Fred Fish Disk 416

Budget A program to help with managing personal finances. Version 1.301, binary only. Author: Le Lay Serge Camille

Clock Two programs to put clocks on the WB screen. The executables are small (2Kb) and take little processor time (1.5%) to run. Version 1.4. Both programs require ARP. Source in C is included. Author: Stuart Mitchell

Intoxicated A nice little screen hack which affects the mouse. Saying any more would spoil the fun. Includes source. Author: Thomas Albers

Quantizer FLCLQ color quantizer which converts 24 bit true color images into 256, or less, color images. Uses a fairly sophisticated algorithm, mixing median-cut, popularity, and a custom algorithm. Includes a version for Amiga's with a math coprocessor. Version 1.0, shareware, binary only. Author: Christophe Labouisse and Frederic Louguet

SoundEditor An 8SVX stereo sound file editor written in assembly language for speed and minimum size. This is V.98, an update to V.80 on disk 355. Many new features including a working digitizer, raw loads, raw mac loads, time markers, rate converters, delay, ramp, filters, scroll, and it will iconify. Binary only. Authors: Howard Dortch, Mike Coriell, Matt Gerald

Utils A group of small utility programs requiring ARP. "Du" displays the disk space used by a directory, "Head" displays the first lines of a file and "Cookie" displays a humorous message. All executables are very small (less than one disk block each). Assembly source is included. Author: Stuart Mitchell

WTF WTF (Window To Front) is a little hack which brings a window to the front when double-clicked. Includes source. Author: Thomas Albers

Fred Fish Disk 417

Alert Program to create custom alert boxes and standalone programs to display them. Each alert can be up to 7 lines of up to 77 characters per line. Version 3.6, shareware, binary only. Author: Thomas Jansen

Coyote Another cute animation from Eric Schwartz. This one is "Coyote 2: The Road Test", Eric's tribute to Chuck Jones. Has the typical Roadrunner and Coyote mayhem. Author: Eric Schwartz

DataEasy A database program which includes a phone dialer, speech output, a simple screen editor for making and modifying the database definitions, a screen print function, form letter printing, sorting, searching, and two small sample databases. Version 1.1, binary only, source available from author. Author: J. Dale Holt

MemLook Gives a graphical view of your machine's entire memory area. Features memory gauge and controllable scrolling speed via the cursor keys. Version 2.0, an update to version 1.1B on disk 364. Includes source in assembly. Author: Thomas Jansen

MostCurrent Two programs that are to be used with B. Lennart Olsson's Aquarium program. The first program creates a new button called "Most Current". The second program updates the index file so that the "Most Current" button is set for all entries that are the most current versions of their set. Version 1.0, includes source in C. Author: Peter A. Phelps

Quiz A simple Quiz game. Current quiz subjects include "Bible", "Indians", "New England", "Physics", and "States". Binary only. Author: J. Dale Holt

WBGauge A utility to patch AmigaOS 2.0 to bring back the little gauge in the left border of disk windows, showing the ratio of available space on the disk. Version 1.0, binary only. Author: Jean-Michel Forgeas

WhatIs A neat little utility which not only recognizes a wide variety of file types (executables, IFF, icons, zoo files, etc), but prints interesting information about the structure or contents of the recognized file types, such as what libraries, devices, resources, fonts, etc. a program uses. This is version 2.0, an update to version 1.2a on disk 334, and is for AmigaDOS 2.0 only. Binary only. Author: Jorrit Tyberghein

Fred Fish Disk 418

AtMovies Another of Eric's cute animations, this one starring his cartoon creation "Amy the Squirrel" and her boyfriend in some hijinks at the movies. Author: Eric Schwartz

BootCACHE Utility to turn off the 68020/68030 instruction and data caches upon rebooting. This improves chances of old programs (especially games) working on Amigas with one of these processors (e.g. the A3000). Version 1.0, includes source in assembly. Author: Nico Francois

LJP A program to print text files on an HP LaserJet printer. Supports landscape or portrait modes, use of any built-in font, automatic downloading of soft fonts, extremely fast printing, one or two logical pages on a single paper, multiple styles of page headers, adjustable page length and width, user specified pitch and point of a font, selectable margins and tab spacing, multiple copies, optional line numbers, and more. Version 1.01, binary only. Author: Khalid Aldoseri

ModulaDefs Implementation and Definition modules for the Amiga's Graphics, Intuition, and Math libraries, to be used with the Modula 2 compiler from disk 24. Includes a source example of using the modules. Binary only for the rest of the distribution. Author: Jonas Green

PSX A public screen manager for AmigaDOS 2.0. Lets you open, manipulate, and close public screens, set the global public screen bits, and provides a good example of using GadTools and ReadArgs. Includes source. Author: Steve Tibbett

PubScreens Two utilities to manipulate public screens. You can open and close them, or ask for information. PublicS is the workbench version of PubScreen. AmigaDOS 2.0 only. This is version 1.0, binary only. Author: Jorrit Tyberghein

Running A classical maze and puzzle game. You run around in a maze and try to catch the ghosts or spiders. It is completely multitasking friendly and compatible with AmigaDOS 1.2/1.3 and 2.0. You can design your own levels. Binary only. Author: Jorrit Tyberghein

ScreenX A program designed to make getting at screens easier, particularly screens that are lost behind other screens that don't give you depth gadgets. You can pop them to the front, push them to the back, save the screen to an IFF file, print it, and even try to close it. This is version 3.0, an update to version 2.1 on disk 158. Binary only. Author: Steve Tibbett

Fred Fish Disk 419

ParM Parameterable Menu. ParM allows you to build menus to run whatever program you have on a disk. ParM can run programs either in workbench or CLI mode. This is an alternative to MyMenu which can run only when WorkBench is loaded. ParM can have it's own little window, or can attach menus to the CLI window you are running it from. This is version 2.5r, an update to version 1.1 on disk 375. Includes source. Author: Sylvain Rougier and Pierre Carrette

ReqAztec An enhanced version of the interface to req.library for Aztec C 5.0. Includes source in assembly. Author: Pierre Carrette.

ReqLib A runtime, reentrant library designed to make it easier for programmers to use powerful, easy to use requesters, for communicating with users. Includes such functions as a color requester, file requester, message display requester and many functions to make the creation of gadgets for your own custom requesters easier. This is version 2.5, an update to version 1.2 on disk 400. Binary only. Author: Colin Fox and Bruce Dawson

SetColors A Palette replacement program that does a lot more in only 3K. Can save and load color files, and update preferences. Includes source in C. Author: Pierre Carrette.

Yacc This is a port of Berkeley Yacc for the Amiga. This Yacc has been made as compatible as possible with the AT&T Yacc, and is completely public domain. Note that it is NOT the so-called Decus Yacc, which is/was simply a repackaging of the proprietary AT&T Yacc. This is an update to the version on disk 299. Includes source. Author: Bob Corbett et. al.

Fred Fish Disk 420

BootX Yet another virus killer. BootX can check the bootblock of a disk, check memory for any resident viruses, and scan a disk for link viruses. It can load bootblock libraries for you to write on your disks as an alternative for the boring DOS install bootblock. It can load brain files so you can add any new bootblocks that BootX does not yet recognize. BootX is written completely in assembly for maximum speed and minimum size. Version 3.40, binary only. Author: Peter Stuer

Iff2Src A utility to convert IFF pictures or brushes to source (C or assembly). The bitplanes, mask, colormap and image are written to a file. You can convert multiple files at once. Supports new 2.0 AppIcon windows (like IconEd). AmigaDOS 2.0 only. Version 1.0, binary only. Author: Jorrit Tyberghein

MenuWriter Allows you to write a menu to the bootblock fo a disk. Allows up to 30 entries of 39 characters long, with commands up to 31 characters long. The loader also allows batch files to be executed. Includes a built in virus detector. Version 3.1, binary only, source available from author. Author: Peter Stuer

QuickHelp With the QuickHelp utilities you can make your own help files like "man" in UNIX (it is not compatible however). AmigaDOS 2.0 only. Version 2.0, binary only. Author: Jorrit Tyberghein

ShowGadgets A simple utility to view all gadgets in a window. Includes source. Author: Jorrit Tyberghein

SpaceWar A two player game with each player controlling a spaceship. The object is to shoot the other player, gaining one point for each kill. The game ends when a player reaches fifty points. Version 1.11, binary only. Author: Jeff Petkau

SysInfo A program which reports interesting information about the configuration of your machine, including some speed comparisons with other configurations, versions of the OS software, etc. Version 1.94, an update to version 1.4 on disk 368. Binary only. Author: Nic Wilson

TTDDD Textual TDDD is an ASCII version of Turbo Silver's TDDD object and cell description files. The TTDDD format enables users to algorithmically generate objects, scenes, and animations. Includes programs to convert between TDDD and TTDDD formats. Version 1.0, shareware, binary only. Author: Glenn M. Lewis

WinMan A very simple utility to manipulate windows. It adds some menus to the workbench, which you can use to shrink, maximize, tile or cascade your windows. AmigaDOS 2.0 only. Version 1.0, includes source. Author: Jorrit Tyberghein

To Be Continued.....

In Conclusion

To the best of our knowledge, the materials in this library are freely distributable. This means they were either publicly posted and placed in the public domain by their authors, or they have restrictions published in their files to which we have adhered. If you become aware of any violation of the authors' wishes, please contact us by mail.

IMPORTANT NOTICE!

This list is compiled and published as a service to the Commodore Amiga community for informational purposes only. Its use is restricted to non-commercial groups only! Any duplication for commercial purposes is strictly forbidden. As a part of Amazing Computing™, this list is inherently copyrighted. Any infringement on this proprietary copyright without expressed written permission of the publishers will incur the full force of legal actions.

Any non-commercial Amiga user group wishing to duplicate this list should contact:

PiM Publications, Inc.
P.O.Box 869
Fall River, MA 02722

AC is extremely interested in helping any Amiga user groups in non-commercial support for the Amiga.

Amazing Computing for the Commodore Amiga — Your Original AMIGA Monthly Resource & AC's GUIDE for the Commodore Amiga

Name _____

Address _____

City _____ State _____ ZIP _____

Charge my ☐ Visa ☐ MC # _____

Expiration Date _____ Signature _____

MasterCard® VISA®

Please circle to indicate this is a **New Subscription** or a **Renewal**

PROPER ADDRESS REQUIRED: In order to expedite and guarantee your order, all large Public Domain Software orders, as well as most Back issue orders, are shipped by United Parcel Service. UPS requires that all packages be addressed to a street address for correct delivery.
PAYMENTS BY CHECK: All payments made by check or money order must be in US funds drawn on a US bank.

One Year Of Amazing	**Save over 49%** 12 monthly issues of the number one resource to the Commodore Amiga, ***Amazing Computing*** at a savings of over $23.00 off the newsstand price!	☐ $24.00 US ☐ $44.00 Foreign Surface ☐ $34.00 Canada and Mexico
One Year of AC SuperSub!	**Save over 46%** **12** monthly issues of ***Amazing Computing*** PLUS AC's GUIDE/AMIGA **2** Product Guides a year! A savings of $31.30 off the newsstand price!	☐ $36.00 US ☐ $64.00 Foreign Surface ☐ $54.00 Canada and Mexico
Two Years Of Amazing	**Save over 59%** **24** monthly issues of the number one resource to the Commodore Amiga, ***Amazing Computing*** at a savings of over $56.80 off the newsstand price!	☐ $38.00 US (sorry no foreign orders available at this frequency)
Two Years of AC SuperSub!	**Save over 56%** **24** monthly issues of ***Amazing Computing*** PLUS AC's GUIDE/AMIGA **4** Complete Product Guides! A savings of $75.60 off the newsstand price!	☐ $59.00 US (sorry no foreign orders available at this frequency)

Please circle any additional choices below: *(Domestic and Foreign air mail rates available on request)*

Back Issues: $5.00 each US, $6.00 each Canada and Mexico, $7.00 each Foreign Surface.

1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10
2.11	2.12	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.10	3.11	3.12	4.1	4.2	4.3	4.4	4.5
4.6	4.7	4.8	4.9	4.10	4.11	4.12	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	5.10	5.11	5.12

Back Issue Volumes: Volume 1-$19.95* Volume 2-$29.95* Volume 3,4,or 5-$29.95* each
*All volume orders must include postage and handling charges: $4.00 each set US, $7.50 each set Canada and Mexico, and $10.00 each set for foreign surface orders. Airmail rates available.

Introducing: AC's TECH/AMIGA **January 1991 Issue: $14.95**

One-Year Subscription to *AC's TECH* —Four Issues!

Charter Rate: $39.95 (limited time only)!

Freely Distributable Software:

Subscriber Special (yes, even the new ones!)

1 to 9 disks	**$6.00 each**
10 to 49 disks	**$5.00 each**
50 to 99 disks	**$4.00 each**
100 or more disks	**$3.00 each**

$7.00 each for non subscribers (three disk minimum on all foreign orders)

Amazing on Disk:
AC#1. . .Source & Listings V3.8 & V3.9
AC#2. . .Source & Listings V4.3 & V4.4
AC#3. . .Source & Listings V4.5 & V4.6
AC#4. . .Source & Listings V4.7 & V4.8
AC#5. . .Source & Listings V4.9
AC#6. . .Source & Listings V4.10 & V4.11
AC#7. . .Source & Listings V4.12 & V5.1
AC#8. . .Source & Listings V5.2 & 5.3
AC#9. . .Source & Listings V5.4 & V5.5
AC#10 ..Source & Listings V5.6 & 5.7

InNOCKulation Disk: IN#1...Virus protection
AC#11 ..Source & Listings V5.8, 5.9 & 5.10
AC#12 ..Source & Listings V5.11, 5.12 & 6.1

Please list your Freely Redistribuatable Software selections below:

AC Disks _____
(numbers 1 through 12)

AMICUS _____
(numbers 1 through 26)

Fred Fish Disks _____
(numbers 1 through 420; FF395 is currently unavailable. Please remember Fred Fish Disks 57, 80, & 87 have been removed from the collection)

Subscription: $_____

Back Issues: $_____

AC's TECH: $_____

PDS Disks: $_____

Total: $_____
(subject to *applicable* sales tax)

Please complete this form and mail with check, money order or credit card information to:

P.i.M. Publications, Inc.
P.O. Box 869
Fall River, MA 02722-0869

Please allow 4 to 6 weeks for delivery of subscriptions in US.

Complete Today, or Telephone 1-800-345-3360

And furthermore...

An Interview with Jeff Scherb of CATS

In Amazing Computing's *premiere issue, we talked with Commodore's developer support group and discussed how an individual or company could become an Amiga developer, and what would be the advantages of such a venture. As we enter our sixth year, we feel it is only fitting to return to Commodore Business Machines and see how Amiga developers are created and supported today.*

One of the many important areas at CBM is the CATS (Commodore Applications and Technical Support) program. As Vice President of CATS in the United States, Jeff Scherb bears a range of responsibilities for creating and supporting new products and developers for the Amiga.

In early December 1989, Mr. Scherb began his post as VP of CATS. We were fortunate enough to be able to talk with Mr. Scherb recently about the programs CATS has created and the level of support that CATS has made available to the Amiga community.

"There are two million Amigas out there and that is a big enough installed base for some millionaires to be made in the Amiga developer community."

AC: What were some of the reasons you came to CBM and the Amiga?

Scherb: I came for several reasons, but reason number one was that I am a "techno-geek" at heart and I fell in love with the Amiga technology. It still amazes me to this day.

AC: What is the basic function of CATS?

Scherb: CATS has three missions: Mission number one is to evangelize the Amiga. That means to go out and knock on people's doors to get new developers to support the machine, to get existing developers to keep pushing the technology, and to get developers to fill holes in the product line.

Mission number two picks up where evangelism leaves off. Once somebody gets evangelized and gets convinced to do something, we want to make sure it happens. There are a bunch of people here who have the title "Project Coordinator" and their job is to work with the third party in whatever respect is necessary to make sure that it happens.

Mission number three is technical support. If a developer has a problem, he calls us up and we take care of him.

AC: Do you do a lot of on-line handholding like that?

Scherb: Yes we do. Actually we have two different levels of the program, the Commercial Developer Program and the Certified Developer Program.

The Commercial Developers are eligible for on-line telephone support. They can call during whatever hours we have set up and they can talk to a human being who happens to be an expert in whatever Amiga area they need.

The Certified Developers get their on-line support through BIX (BYTE Information Exchange). We have somebody devoted to BIX who spends about 80% of his day working with developers on BIX. Although anyone can ask questions on BIX, these special sections are devoted to Certified Developers only.

AC: Can anyone with $450.00 become a Commercial Developer?

Scherb: No. There is an application process and we review them. You need to have a product on the market or very close to the market. You need to be a commercial entity. Where individuals can join as Certified Developer, you really need to be in the business of building Amiga hardware or software to become a commercial developer.

AC: What have you accomplished at CATS?

Scherb: When I began, we had been given the three missions I listed above in the belief that, instead of being reactive, CATS should be pro-active with software and hardware developers. I have built the evangelism group from one to four people. We have added to the technical support group. We added CATS Europe to our group. We have concentrated on improving everything that we do. We have tried to raise the level of the group and raise the level of service so that we are second to none. I think we still have a ways to go, but I think we have made a lot of progress.

AC: What are your future plans for CATS?

Scherb: There are a number of things that I want to do in the technical area. I want to focus more on setting technical standards—for example, multimedia standards, new IFF forms. We do that now, but I want to do it much more actively.

We want to continue to improve the technical journals that we publish. We want to do more evangelism. We want to get out there and talk to more developers about writing for the Amiga. We also have some internal software projects that we are going to accomplish.

AC: You are running a developers conference in Milan, Italy in February and a DevCon in Denver, Colorado September 4 to 7. What can a developer expect to return with after a developers conference?

Scherb: We are trying to run separate tracks. If you are interested in hardware development, you can attend all of the hardware sessions. If you are interested in the operating system, you can attend all those sessions. We are expanding our coverage of the marketing and business issues as well. That is an area that CATS can do some good with the developers. How do you advertise? How do you package? How do you market?—basic information that can help people.

The Amiga developers are an amazing group. I don't think there is another group like them anywhere in the world. They are the most technically brilliant people I have ever met, but a lot of them could use some help in their marketing and advertising. I want CATS to be a more full-service organization. We will do the technical stuff, but also look at the business stuff.

AC: Can you describe an average Amiga developer?

Scherb: That's a tough question. I would say that a large portion of them are technically brilliant, they love the Amiga technology, they would like to make a living at it, and they are generally a small operation.

My goal is for those guys to become bigger operations and to make a lot of money at it. One of the things I said at the last DevCon in Atlanta was, 'I want to see some millionaires in this audience. There are two million Amigas out there and that is a big enough installed base for some millionaires to be made in the Amiga developer community.' If I can do that, then I have been successful.

AC: Is there any message you would like to leave with the Amiga community?

Scherb: I say it every chance I get. I write a column in every issue of Amiga Mail, and every issue I am on a different soap box. I think developers should take advantage of CATS as much as possible. We are here to help. If there is something we can do that we are not thinking of doing, call us and suggest it. Chances are we will do it. We have taken a lot of suggestions from developers. If there are ways that we can support the developers better, I want to know about it because that is what we are here for.

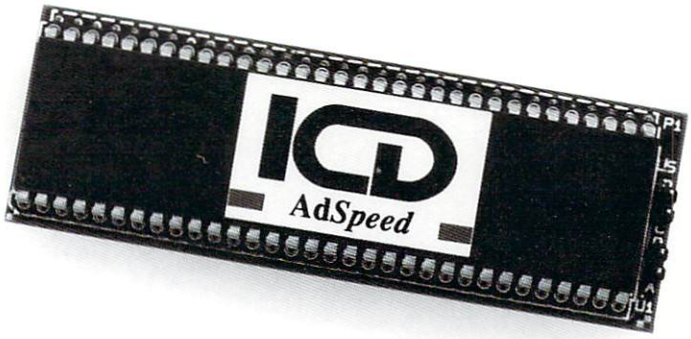
AMIGA DEVELOPER SUPPORT

Certified Developer Program
Annual Fee: $75.00
Features: Subscription to CATS' Amiga Mail (a bimonthly technical newsletter), a subscription to Amiga Mail Market (a quarterly newsletter on marketing Amiga products), discounts on Amiga hardware, internal documentation and technical updates from CBM, early information on new products and new system software, invitations to the developers conferences, and a special discount coupon for BIX.

Commercial Developer Program
Annual Fee: $450.00
Features: All those features available through the Certified Developer Program, plus early advances of system software, pre-release product testing (CBM will test your product and you can test theirs), discounts on Amiga hardware, access to additional BIX conferences, discounts for developers conferences, and a $40.00 coupon on any manuals that CATS sells.

Commodore Business Machines, Inc.
1200 Wilson Road
West Chester, PA 19380
Inquiry #287

This is the most cost effective way to increase the speed of your computer. AdSpeed™ !



Ad*Speed*

ICD expands its line of innovative enhancement products for the Amiga® with the introduction of **Ad*Speed***, a low cost, full featured 14.3 megahertz accelerator for all 68000–based Amiga computers.

Ad*Speed* differs from other accelerators by using an intelligent 16K static RAM cache to allow zero wait state execution of many operations at twice the regular speed. All programs will show improvement. No 68000 or 68020 accelerator without on board RAM will make an Amiga run faster.

Ad*Speed* continues ICD's tradition of providing the best product available. These are some of the features that set it apart from the rest:

- Works with all 68000–based Amiga computers, including the 500, 1000, and 2000.
- Simple no solder installation — just remove the computer's 68000 and plug **Ad*Speed*** into its socket.
- Low power, high speed CMOS 68000 CPU for full 100% instruction set compatibility.
- Software selectable speeds, with a true 7.16 megahertz mode for 100% compatibility. Switches speeds on the fly without rebooting the computer.
- 32 kilobytes of high speed static RAM — 16K of data/instruction cache and 16K of cache tag memory.
- Full read and write–through cache for greatest speed.
- Bus monitoring to prevent DMA conflicts.
- ICD's famous quality, dependability, and support.
- Worlds smallest 68000 accelerator. (Photo above is actual size).

ICD, Incorporated 1220 Rock Street Rockford, IL 61101 USA
(815) 968-2228 Information (800) 373-7700 Orders (815) 968-6888 FAX

Check the fax. You'll choose a DataLink.™

Combine the raw power of your Amiga with the utility of a modem and the indispensable convenience of a fax machine - and you've got a DataLink Send-Fax™ modem from Applied Engineering.

Send faxes directly from your Amiga's screen* without ever printing a "hard copy" of the information. The exclusive AE Send-Fax™ software installs itself as a printer option in "Preferences". Faxes can then be sent as simply as printing. Or even easier with our programmable "Hot Key". Go back to what you were doing, while AE Send-Fax operates in the background, or watch progress in an unobtrusive window. You'll automatically receive a report when the fax is completed.

Compile your own fax-number phonebook for instantaneous dialing. Preview your faxes — even program AE Send-Fax to send faxes to entire distribution lists. And you can fax to lengthy distribution lists late at night, when rates are lowest. The next day a report confirms your faxes were received.

Best of all, AE Send-Fax comes with the finest modems you can buy — the DataLink series. 2400 bps modems that redefine the art of telecommunications by delivering unparalleled reliability and unmatched technical excellence.

The result? Standard features like complete communications software included free, full Hayes AT compatibility, asychronous data format, auto answer, non-volatile memory, automatic tone and pulse dialing, remote access, built-in diagnostics, FCC certified designs, free tech support, five year warranties and more. And upgradeability to MNP-5 with 4800 bps throughput speeds and error-free data transfer.

DataLink 2000™ (top) is an internal 2400 bps modem for A2000/3000 series machines. It can be configured with the MNP-5/Send-Fax package or either option individually. **DataLink Express™** (bottom) works externally with ALL personal computers and features another AE exclusive, our "Line Engaged" indicator to show a shared phone line is in use. The MNP-5 data compression and error correction option must be present on DataLink Express in order to include AE Send-Fax.

Order today! To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 8 ¼% sales tax. Add $10 outside U.S.A.

DataLink 2000	**$159**
w/MNP-5	**$189**
AE Send-Fax™ option	**$39**
DataLink Express	**$249**
w/MNP-5	**$299**
w/MNP-5 and AE Send-Fax	**$349**
AE Send-Fax (field upgrade requires MNP-5)	**$79**

*REQUIRES KICKSTART VERSION 1.3 OR LATER

Applied Engineering®

The enhancement experts.

A Division of AE Research Corporation

(214) 241-6060

P.O. Box 5100
Carrollton, TX 75001

Made in the USA

Circle 113 on Reader Service card.