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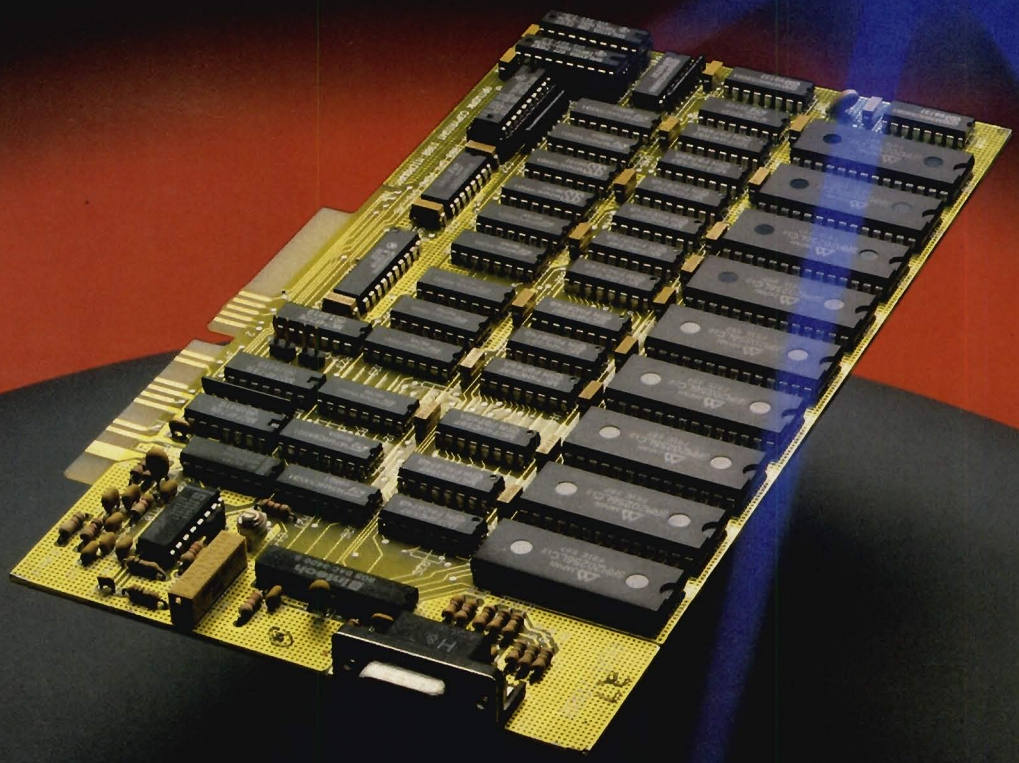

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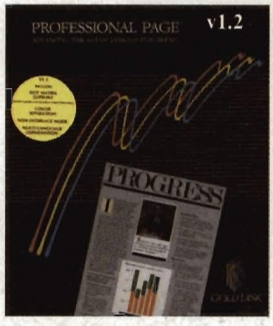

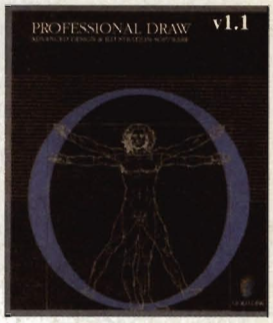

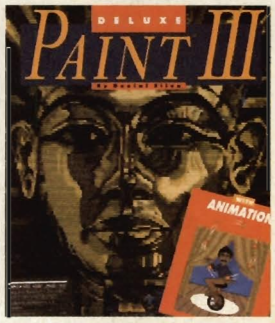

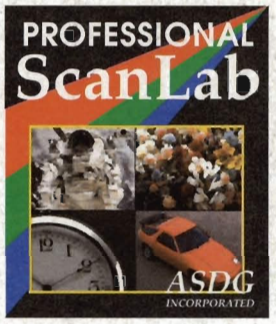

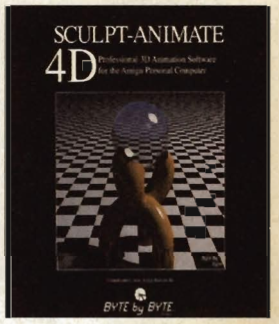

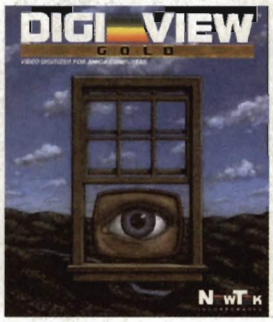

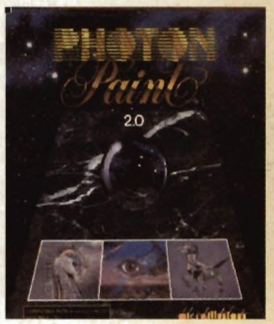

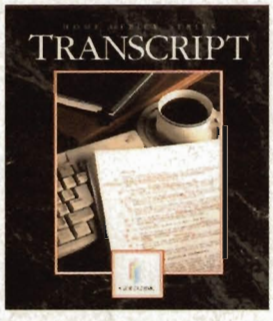

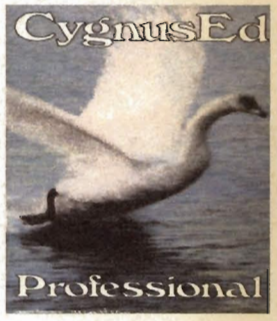

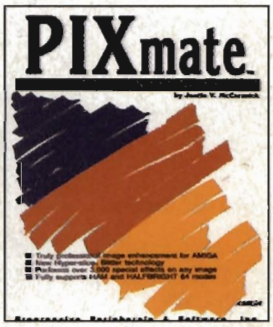

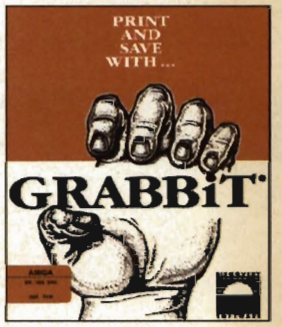

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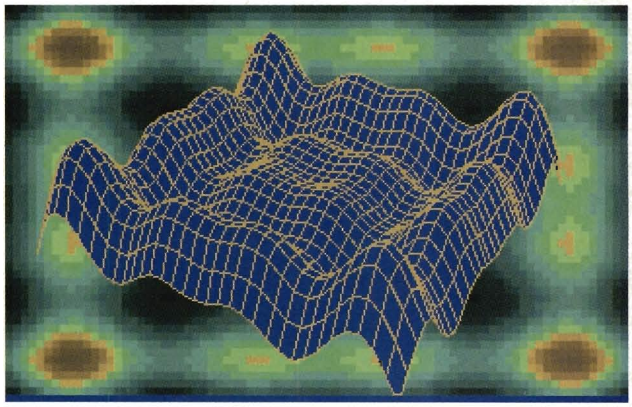

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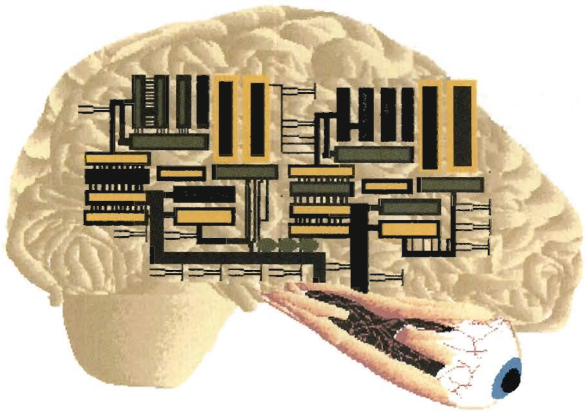
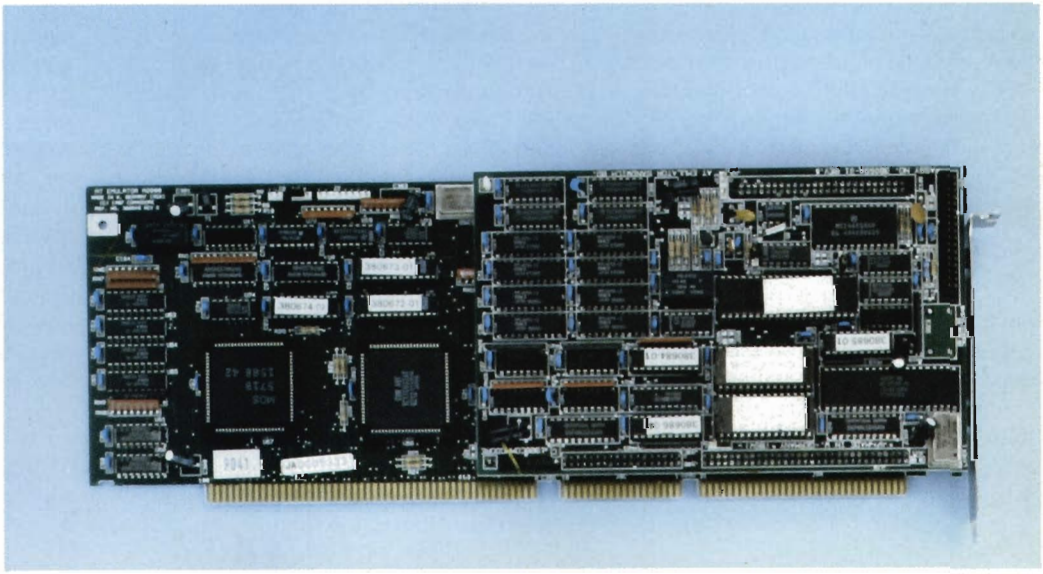


PROGRAMMING

CONTENTS

REVIEWS

DEPARTMENTS



The Commodore A2286 IBM AT Bridgeboard for Amiga 2000/IBM AT compatibility

The Editor's Corner

Some of you may remember an article I wrote (AmigoTimes, v1.3) about what I thought the Amiga 3000 should look and be like. Much to my surprise and anger, Commodore decided to publish in their newsletter that such articles represent irresponsible journalism. The reasoning behind the statement was that such articles would hurt sales of present Amigas because potential buyers would delay purchasing an Amiga until an Amiga 3000 is released. Another reason was that when an Amiga 3000 appears it may not stack up to what has been written about it, therefore buyers of the machine would be disappointed. Well, I have a few things to say about that.

I am first and foremost an Amiga user, and as such I wrote an article which reflected the wishes of myself and other Amiga users. The article is a simple message: this is the type of computer we want, and this is the type of computer Commodore needs if it wants to continue the success of the Amiga. Amiga users are tired of seeing Macs and IBMs getting better graphic capabilities and faster processors. If the Amiga 3000 won't have the main enhancements mentioned in the article then it will be of no surprise that there will be disappointed buyers, and the disappointment will certainly not be due to what I had written. I think that blaming low Amiga sales on articles about the 3000 is a poor excuse for Commodore's actual marketing problems. I am glad to say though that not all of Commodore shares this view, I have talked to people in both the engineering and the marketing departments who were able to accept the article for the message it was meant to be.

That aside, let's take a look at what's in store for you this issue. Of all the software categories, business software has been the slowest in appearing in the Amiga marketplace, making it difficult to introduce the Amiga into the office environment. Still, there are many companies and individuals (including AmigoTimes) that are using the Amiga for other professional endeavors and have therefore opted to also use the same machine for the more traditional computer roles, i.e. accounting, forecasting, planning, file-keeping, and management. Even though there are not that many business software packages, there is still at least one good package for every business category.

For those who are not satisfied with the business software available on the Amiga, there is also the option of using the Commodore BridgeCard, which allows the Amiga user to virtually use any software intended for the IBM PC/XT or AT. Also, with ReadySoft's new AMAX Macintosh emulator there is a host of Macintosh business packages available. Of course, it would be more convenient to have a wider selection on the Amiga itself and, fortunately, there have been quite a few additions recently. For example, EasyLedgers from Brown-Wagh Publishing has been one of the first accounting packages to really make use of the Amiga's graphic interface. There is also an upcoming spreadsheet package from Gold Disk called Advantage that will let you export your business graphics in the Professional Draw non-bitmapped clip object format, making it possible to create professional business reports. I believe that with a few more software options and some compatible networking hardware, the Amiga can take its place in the office beside the computers that are already there.

Beginning with this issue, AmigoTimes has gone full-color throughout the magazine, so if you happen to come across a black & white page it's because we couldn't figure out what color to put on it. We are trying hard to increase the quality of the magazine in our quest to prove that the Amiga is a powerful and viable choice for Desktop Publishing. Our next issue of AmigoTimes will have in-depth coverage of Desktop Publishing on the Amiga, so you can expect to learn about things the other guys can't tell you. Look for AmigoTimes v1.8 at your newsstand, bookstore, or local computer store in September. ❑

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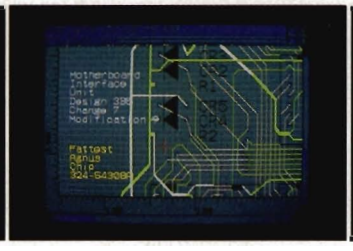

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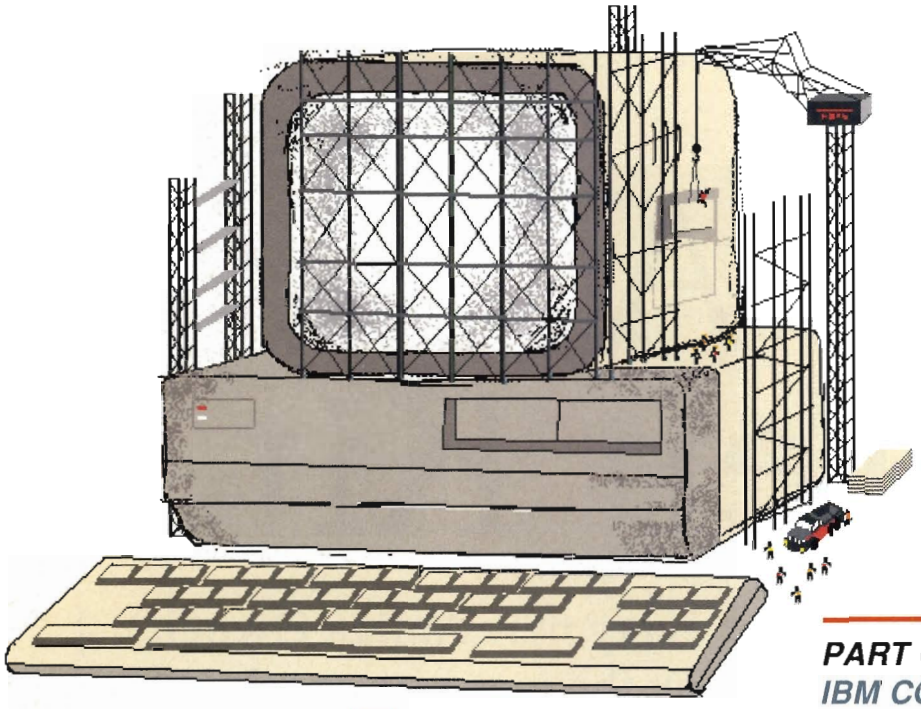


BUILDING THE ULTIMATE BUSINESS MACHINE

PART ONE: IBM COMPATIBILITY WITH THE AT BRIDGEBOARD

You can have the great graphics and sound of the Amiga and the wide selection of business applications available on the IBM, all in one box

There's an old adage in computer consulting. Find the application your client needs and select the hardware to match the selected application. This approach generally results in the consultant recommending a computer that runs MS-DOS. Nobody got fired for buying an IBM, right? IBM is the safe, although boring when compared to Amiga, choice for most business applications. If you work for an innovative company you might have a Macintosh, but unless the business is video or graphics oriented, it's not likely that you'd find an Amiga in the typical office environment.

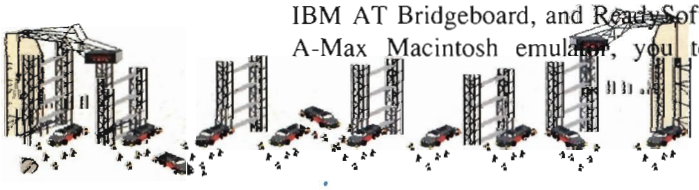
What if you could buy one computer, and run the applications you need now and any other application that might be needed in the future? What if you could have the great graphics and sound of the Amiga, the wide selection of business applications available on the IBM, and the advanced publishing tools of the Macintosh all in one box? No need to say "what if" anymore! With an Amiga 2000, Commodore's A2286 IBM AT Bridgeboard, and ReadySoft's A-Max Macintosh emulator, you too can create the ultimate business machine.

In this two part series we'll examine both the AT Bridgeboard and the A-Max emulator and determine their strengths and weaknesses. Let's begin with the new AT Bridgeboard.

BRIDGEBOARDING THE GAP

Any company releasing a new computer knows that they face an uphill climb in battling the need for IBM compatibility in the business environment. Commodore recognized this when they released the Amiga in 1985. At the Amiga premiere Commodore announced the "Trump Card" which was to bring IBM compatibility to the Amiga. Most users were disappointed when Commodore introduced the promised product as a software IBM emulator combined with a 5.25" Amiga/PC disk drive. The software emulator proved too slow and cumbersome an interface for any real work.

In 1987, Commodore introduced the



By Bob Eller

Sidecar (sometimes affectionately known as the Sidebarge) which added an IBM XT clone running at 4.7 megahertz (MHz), the standard for the old XT, to the side of the Amiga 1000. The Sidecar was cumbersome, nearly doubling the width of the Amiga, and was not compatible with most external peripherals such as memory and hard disk controllers. This incompatibility, combined with a cost that exceeded that of most of the faster clones on the market, doomed the Sidecar to failure.

Shortly after the release of the Amiga 2000, Commodore introduced the A2088 IBM XT Bridgeboard. The XT bridge brought the Sidecar down to the size of an Amiga 2000 card which plugged inside the Amiga 2000. The XT bridge uses the Intel 8088 processor running at 4.77 MHz and includes a standard XT 360K 5.25" disk drive mounted in the lower drive slot of the Amiga. All in one box with reasonable speed and DOS compatibility, at last Commodore was beginning to fulfill their promise of MS-DOS compatibility.

The XT was a good MS-DOS machine for its time, but as everyone who uses a computer knows, time does not stand still. Many newer MS-DOS applications require the speed and special abilities of the Intel 80286 processor used in the IBM AT. Commodore has responded to this need with the release of the A2286 Bridgeboard for Amiga 2000/IBM AT compatibility.

WHAT'S INCLUDED

The AT Bridgeboard includes the 80286 processor running at 8 MHz, the standard speed of the original IBM AT, a battery-backed real-time clock, 1 MB of RAM for use by the Bridgeboard, and the AT standard 1.2 MB 5.25" disk drive which mounts in the A2000's lower drive bay.

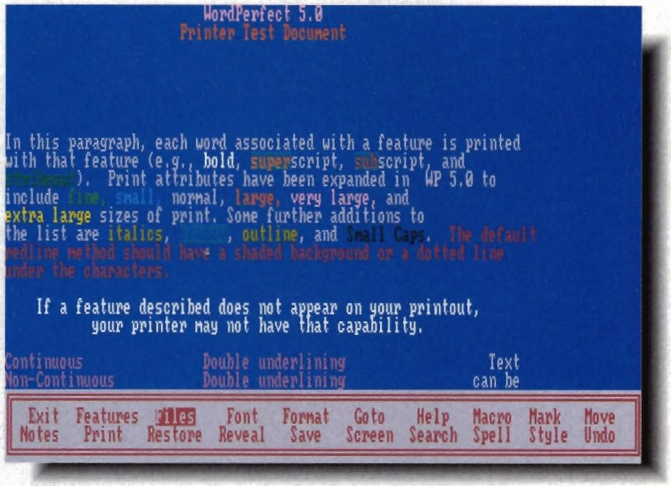
This package's software includes MS-DOS v3.3, GW Basic, and the Janus 2.0 software needed to access the AT bridge from the Amiga. Microsoft's manuals for DOS 3.3 and GW Basic are included, as well as Commodore's User's Guide covering the installation of both the XT and AT Bridgeboards and the Janus 2.0 software. Necessary cables and mounting hardware complete the package.

HARDWARE INSTALLATION

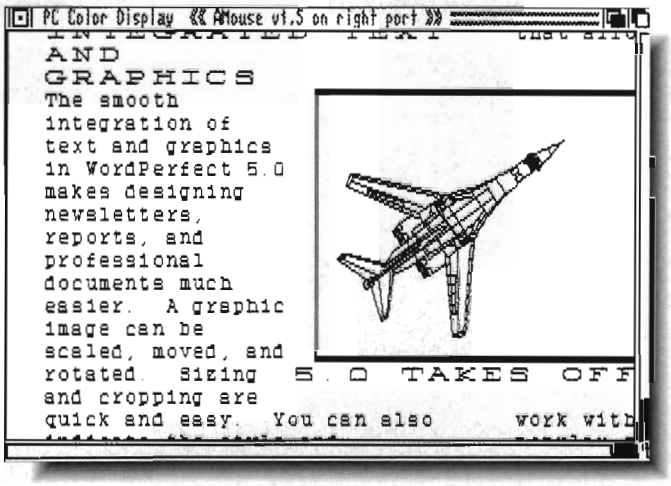
Seven expansion card slots are inside the Amiga 2000. Three of the slots are for Amiga expansion cards, two slots have both Amiga and IBM XT and AT connectors, and two slots are IBM XT compatible. The AT Bridgeboard includes connectors for the Amiga, AT, and XT slots and must be inserted in one of the two slots having the connectors compatible with all three. These are aptly titled the "bridge" slots. Once installed, any cards mounted to the left of the AT Bridgeboard are reserved for PC use.

If you have more than three Amiga expansion boards already in your 2000 you will have to decide which of these cards you can forgo. The AT Bridge has an attached daughter board which, from my experience, blocks the installation of another board to its right. Installing the AT Bridge in the first bridge slot limits your Amiga card expansion to two slots, but allows you one IBM AT expansion slot and two IBM XT slots. Installation of the AT Bridge in the second bridge slot will allow you three Amiga specific expansion cards and two IBM XT specific cards.

While it may be possible to insert a card directly to the right of the AT



WordPerfect 5.0 running on the Amiga, with use of the AT Bridgeboard. The screen shown is the Printer Test Document on a color screen.

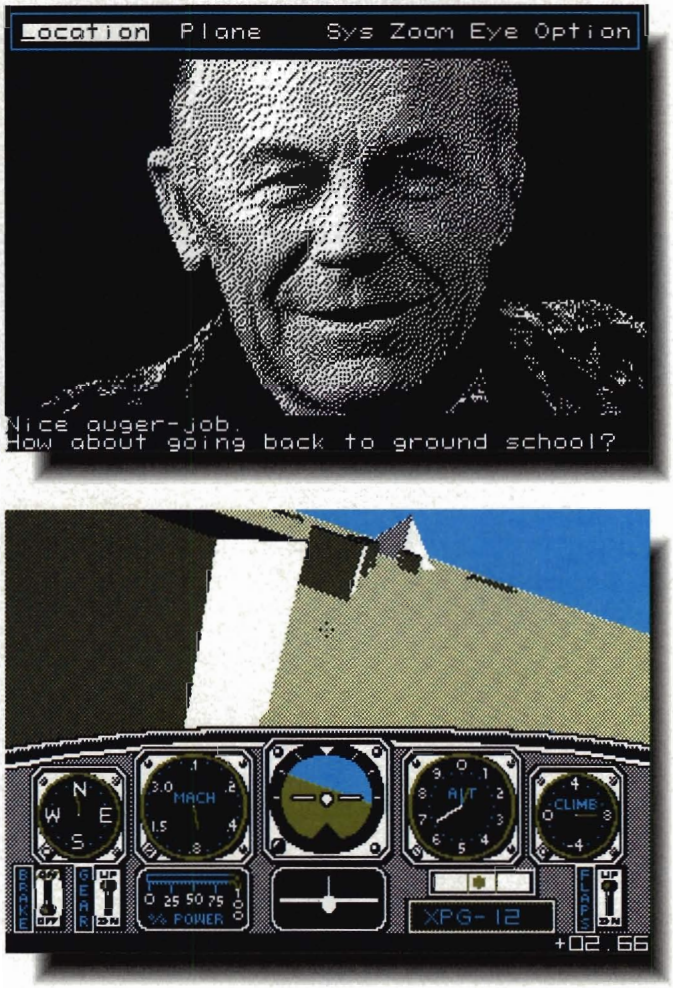


WordPerfect 5.0 again showing the integration of text and graphics in a document

Bridge, and Commodore's installation guide says that it's possible, it would involve the risk of electrical shorting between the AT Bridgeboard's daughter card and the last Amiga card. If you attempt this installation, be sure to insert insulating material between the boards. I would not recommend it.

Installing the 5.25" drive and cables, and the battery for the real-time clock are very simple. Included in the Bridgeboard User's guide are step-by-step directions, complete with pictures of the installation items discussed. Installation should be easy even for those who have not installed peripherals in their Amiga.

The most difficult item of the installation was the actual insertion of the AT Bridgeboard. When installing most add-on boards you can gently rock the board until it becomes seated in the slot. Since the Bridge card uses all three available connectors my usual technique could not be used. The User's guide states that you should position the card over the selected slots and firmly, but carefully, insert the Bridgeboard into the selected slot. After a few minutes the board had still not seated in the slot. I found that more than firm pressure was needed to fully seat the board. If you perform this installation be sure to apply pressure evenly over the board (two hands work best) being careful not to flex the circuit board causing damage. Once the AT Bridge, disk drive, and battery have been installed you can begin the real fun, configuring and using your new AT!



Graphics capabilities of the AT Bridgeboard for the Amiga, as displayed by these screen shots from the Chuck Yeager Flight Simulator

SOFTWARE INSTALLATION

Once again the User's Guide will give you the information needed to get the AT Bridgeboard up and running. A bootable Workbench disk, that contains the software needed to boot your AT, is supplied with the Bridgeboard. If you are using an A2000 without a hard disk you could simply copy this disk and use it when you needed to utilize the Bridgeboard. If you wish to install the software on a custom Workbench disk or hard disk, the disk contains an installation utility to copy the files to your custom disk. If the disk is nearly full, the installation utility will offer suggestions on the files to be deleted.

After installation you should immediately test the Bridgeboard by booting with the supplied Amiga Workbench disk and inserting the MS-DOS disk in the 5.25" drive. Double clicking the PC-Mono icon on the Workbench should open a PC monochrome window and boot the AT from the MS-DOS disk. It is simple, straight-forward, and for me it worked the first time. I was presented with the familiar A:> prompt in a window on my Amiga Workbench.

To configure the AT Bridgeboard, Commodore has supplied a setup utility which is available by hitting the CTRL-ALT-ESC keys simultaneously. This action opens a screen to set the time and date of your AT clock, identify the number and type of disks available to the AT as well as showing the amount of memory available (640K for MS-DOS programs and 384K in extended memory).

On the Amiga side, you can open PC windows in either monochrome or color on the Amiga Workbench. A jumper located on the AT Bridgeboard determines the default video mode. The factory setting is for monochrome, but through a simple PC command called mode, may be switched to color graphics at any time.

Other Amiga utilities are provided to configure the Amiga's parallel port as the AT's LPT1: port for printing, to use the Amiga mouse to emulate an IBM Microsoft mouse, and to coordi-

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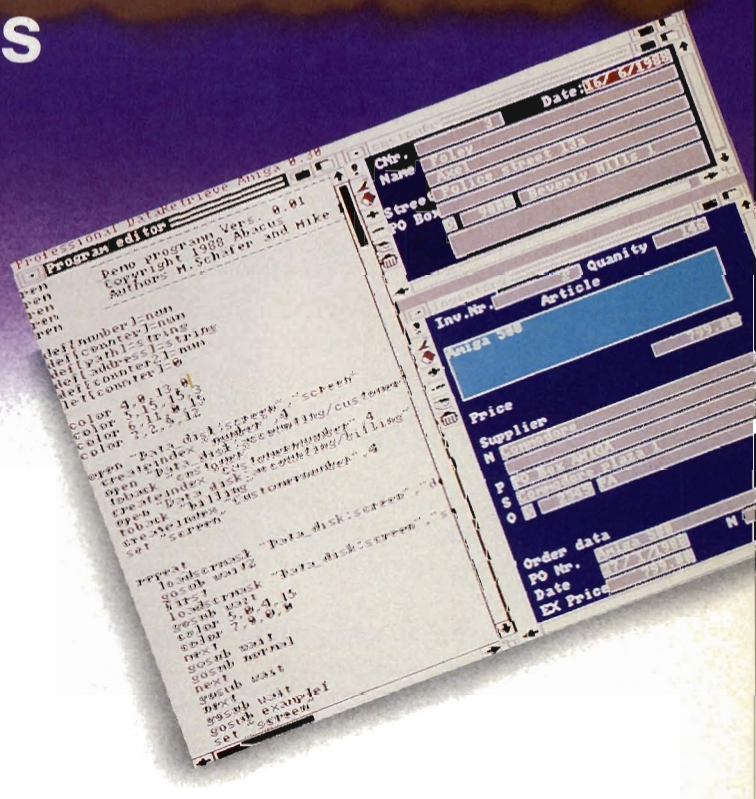

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nate the Amiga and AT clocks. The PC utilities Aread and Awrite allow files to be easily exchanged between the Amiga and the Bridgeboard.

HARD DISKS

If you already have a hard disk on your Amiga you may need to make some decisions before you install the AT Bridgeboard. If your hard disk is a 5.25" style and installed in the lower drive bay of your A2000, you may wish to purchase an external drive case with a power supply to move either the hard disk or the AT's drive outside your A2000. If you have a 3.5" hard disk mounted in place of df1: on the left upper drive bay, the installation should be uncomplicated.

Commodore should be congratulated for their method of allowing Amiga hard disks for use by the AT (or XT) Bridgeboard. If you have space available on your Amiga's hard disk, you can use this space as the hard drive, or C:, of the Bridgeboard. Using the supplied "makeab" command creates an Amiga file that will act as a pseudo IBM hard disk. Makeab creates this file and saves it on your Amiga hard disk. You then use "ed" to create a file called Aboot.CTRL in your PC directory containing the name of the Amiga file you've designated as your AT hard disk. The next time you boot your AT you can use the standard MS-DOS commands for formatting and configuring your AT to autoboot from this file.

If you don't already have an Amiga hard disk, you could take advantage of low cost IBM controllers and drives and install either an IBM controller or hardcard in one of your A2000's PC slots. An IBM hard disk may be partitioned to allow your Amiga to share this disk with the Bridgeboard.

DISPLAYING THE AT BRIDGEBOARD

As I indicated, the default window for the AT Bridge is a monochrome graphics display with 2 colors. My preference was to first open the color display, so I installed a jumper on the AT Bridgeboard to make its default the PC CGA color display. This eliminated several steps when starting to work on the AT.

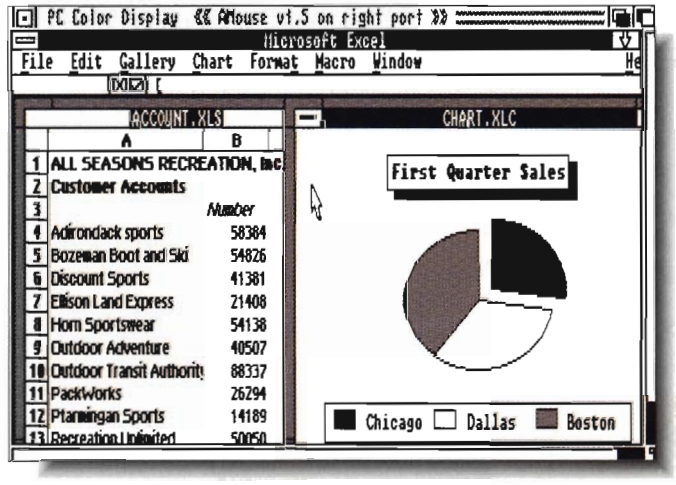
Note that the display jumper on the AT Bridgeboard does not come with a configuration jumper. An inexpensive two prong jumper can be found at any electronics store.

CGA is the older standard for PC color graphics display. If you wish to use either the EGA (Enhanced Graphics Adapter) or VGA (Variable Graphics Adapter), you will need to purchase a separate video card to install in one of your PC slots, as well as a separate monitor capable of displaying the higher resolution graphics these adapters create.

When you open the AT, you will initially have an Amiga window with the AT's information in it. The Amiga's window contains menus to save and restore settings, help you with the available commands, use the Amiga mouse to edit or paste information to and from the PC to the Amiga's clipboard. The display menu allows you to customize the PC window by changing the colors used, the available number of colors, the cursor blink rate, and the priority the Amiga gives to the PC display.

The two settings I found the most useful were the ability to change the colors to better suit the programs I ran (i.e.: changing the color of the sky and ground to be more realistic in Chuck Yeager's "Flight Simulator"), as well as increasing the priority of the display when using very graphics intensive applications.

Although the size of the PC window can be changed from the menu the easiest way is to double click the Amiga mouse. This will change a small window to a full-screen borderless PC display, or, vice-versa, a full-screen display to the smaller bordered window which can then be resized and adjusted like any other Amiga window.



Microsoft Excel v2.0 running on the Amiga, and using the Amiga mouse tocontrol program operations, after installation of an AT Bridgeboard

MOUSE, KEYBOARD, AND DISK EMULATION

The ability to use the Amiga mouse to emulate a Microsoft mouse for PC use is new with the Janus 2.0 software. It includes drivers for both the Amiga and PC which interact to perform the emulation. Pressing the left Amiga key + P switches the Amiga mouse between the Amiga and PC.

How compatible is the emulation? I tested the Amiga mouse with several of the mouse demo programs supplied with the Microsoft mouse and the demos operated perfectly. In addition, I used the MousePerfect menu program for Wordperfect 5.0, an MS-DOS shell program called Tree86, and several games which use the PC mouse. Minor glitches appeared with MousePerfect and its ability to use the WordPerfect standard menus with a color screen. MousePerfect behaved normally when

run in monochrome. Tree86 refused to let the emulator mouse access the bulk of its shell functions in either monochrome or color modes. These problems appear to be directly related to the software since most mouse applications operated as if a Microsoft mouse and driver were in use.

Also included is a mouse driver for use with Microsoft Windows and programs that use Windows as their operating system. I installed Microsoft Excel version 2.0 and used the Amiga mouse to control program operations. I did, however, use the "X" driver which the User's Guide indicates is to be used with the Sidecar only. I found that the X driver's mouse action was much smoother than the Window's driver supplied for the Bridgeboard. This may be an error in the manual, but I was unable to confirm this with Commodore. All in all, I'd rate the mouse emulation very good and certainly good enough to not require an additional second mouse to your Amiga.

Also supplied with the Janus software is the Jlink device driver. Jlink allows you to easily add virtual drives in Amiga memory or to use an Amiga disk drive as an IBM drive when needed.

If you already have an Amiga 2000, you will notice that the keypad has a set of instructions on the front of the keys. These instructions are the emulation of the keys found on an IBM enhanced keyboard. Your Amiga 2000 keyboard provides all the functions you'd normally expect when using an IBM computer including printing the screen via the PrtSc key.

PERIPHERALS

Depending on where you install your Bridgeboard you have either two or three PC slots for the addition of peripherals. Besides enhanced display adapters and hard disk controllers you might want to install some of the other specialized hardware available to the PC.

I tested the AT Bridgeboard with a DFI Handy Scanner. The Handy Scanner is a 200 dot per inch digitizer for the IBM and creates black & white graphics which can be used for desktop publishing. These scanners are widely available and retail in the $199 range, thereby offering a cheap solution to obtaining clip-art.

The Handy Scanner operated as it had on my clone where I originally used it, however, the delay between the transmission of the scan to the Amiga display proved distracting. In some cases I would complete the scan and then wait several seconds before the information was displayed. Increasing the PC's task priority and reducing the number of colors used by the display decreased the wait, but never eliminated it. Use of an external monitor and video adapter would, I believe, make the scanner behave normally. If you are considering IBM peripherals which make heavy use of the PC display you should purchase an external monitor and display adapter.

Another useful, and inexpensive, PC card is the serial/parallel port adapter. Since the Amiga parallel port can be used by the PC under emulation, an additional PC parallel port may not be necessary. No similar emulation is provided for the serial port. If you wish to use a serial printer or modem, you will need to add this port to your Amiga.

A friend suggested that a good use for the Bridgeboard would be to run a bulletin board on the PC. He found, however, that file transfer protocols which use a windowed protocol such as Zmodem appeared to conflict with the driver used to emulate the IBM hard disk. Saving file transfer to the hard disk resulted in regular errors in the transfer while files saved to the 5.25" disk drive did not.

SOFTWARE COMPATIBILITY

Ultimately, the true test of a clone is its ability to run software designed for the IBM. After all, what good is a clone if it can't run the software you need. Here the AT Bridgeboard passed with flying colors!

One of the oldest tests for clone compatibility is the Microsoft Flight Simulator. I installed version 3.0 of the Microsoft simulator and it ran perfectly, including the use of the Amiga mouse as a flight control. I also tested the AT Bridgeboard with Chuck Yeager's advanced flight simulator and found that it too ran flawlessly.

In the area of business software my experience was also good. WordPerfect 5.0, WordPerfect Library, Microsoft Excel, DBase IV, and Sidekick also performed as if they were running on a stand-alone IBM computer. In addition to these programs Commodore indicates that they have tested the AT Bridgeboard with Lotus 1-2-3, Microsoft Windows, and the GEM operating system.

Based on my experience the AT Bridgeboard should handle any software that can be used on a stand-alone AT computer with CGA graphics.

FINAL IMPRESSIONS

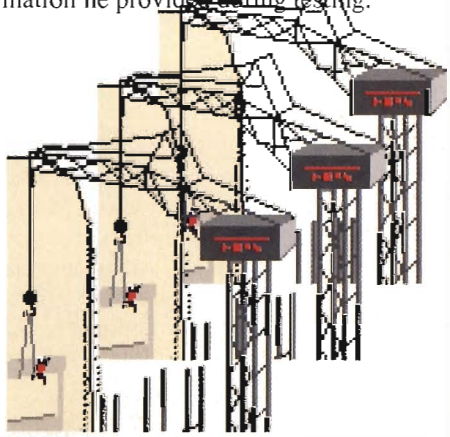
The AT Bridgeboard is a significant advance in bringing IBM compatibility to the Amiga. The only drawback to the system is the price. Commodore's suggested retail price is $1595 although most stores have reduced this to between $1200 and $1300. Many AT clones running faster than the 8 MHz rating of the AT Bridgeboard are available in this price range. However, these clones would require the addition of separate monitors and hard disks, thereby raising the cost considerably.

If you have an Amiga 2000 and your business requires MS-DOS compatibility or you want to use an Amiga in a business situation where the computer must also be MS-DOS compatible, the AT Bridgeboard is the perfect solution to meeting your business needs. ❑

COMING SOON : PART II

In part II we'll look at ReadySoft's new MacIntosh emulator, AMax.

Special thanks to Bill Summers, AT bridge owner, for the additional information he provided during testing.



ART GALLERY

"Art Museum"
Raytraced with Turbo Silver 3.0 using objects made with Modeller 3D and columns from Antic's Architectural disk by Richard Nichol

"Grunewalde"
by Delores Highsmith

"Fantasy Rider"
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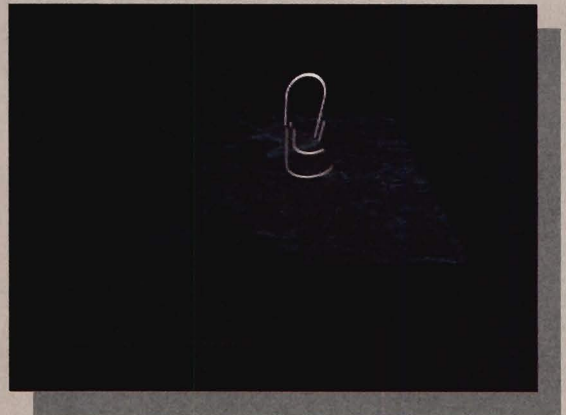

"Clip"
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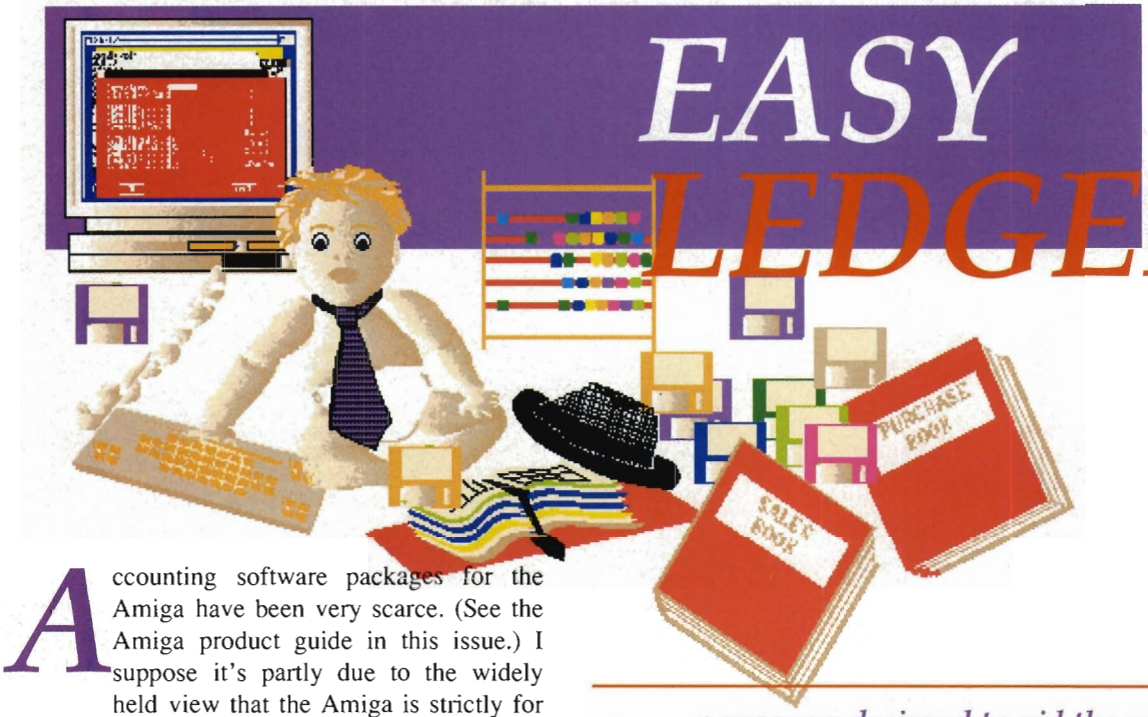
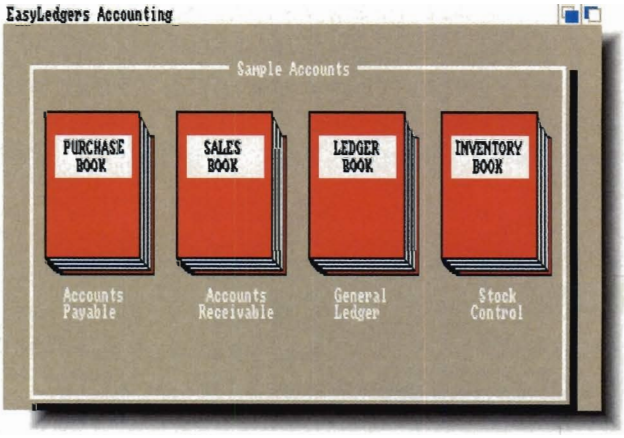


... a program designed to aid the untrained business person in the transition from using manual accounting books to a fully automated business management system

Accounting software packages for the Amiga have been very scarce. (See the Amiga product guide in this issue.) I suppose it's partly due to the widely held view that the Amiga is strictly for gaming or creative use (in the artistic sense i.e. graphics, animation, video and music). For serious grown-up operations you go to your office and use an IBM or one of its many clones. But what of us stubborn Amigaites who refuse to lay hands on one of those dinosaurs once we've been seduced by an Amiga? Well there are more and more business application packages coming out as time goes on (not fast enough for my liking, there seems to be a real reluctance in U.S. developers).

The latest accounting package to emerge is of Australian origin; EasyLedgers by Sybiz Software has been brought to the North American market by Brown-Wagh Publishing. When writing these types of reviews it is difficult not to compare and contrast the product with previously published software in the same category and it is difficult to be unbiased. I find it easy to say that in many aspects this program outshines the few that are available.

EasyLedgers claims to be designed for the transition of the untrained business person from using manual accounting books to a fully automated business management system. When you start the program four icons appear that resemble and represent your books, which you double click to open. They repre-



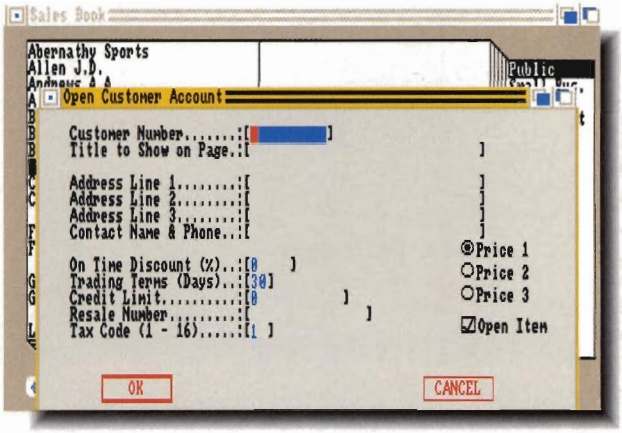
The four books which are the basis for the EasyLedgers accounting system

By Lisa Sama

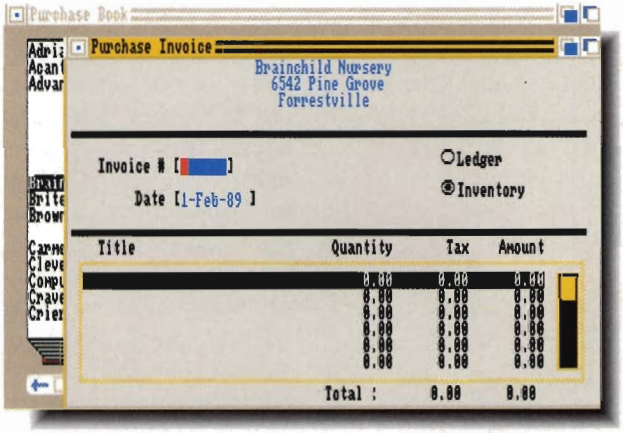
sent the purchase book (payables), sales book (receivables), the ledger book (general ledger) and the inventory book. You then can turn the pages by clicking on an arrow. This package does not do payroll. According to Mr. Brown (of Brown-Wagh) a compatible payroll program will be available next year which you can purchase as a module and use with EasyLedgers. A Job-costing (services) module will be available this fall for about $100.00 (US). Until then EasyLedgers is restricted to small companies that sell physical stock but do not sell services. If you are confident in your accounting abilities you can work around this by manual entries into the ledger and by bypassing the inventory.

The user interface is straightforward, easy to use and simple to learn. The instruction manual provides step-by-step instructions for users with single, twin drives or installation on hard drives. Sybiz has set up a sample set of books and then takes you on a tour. You don't need a password to get to the tutorial sample database. When you encounter the four books, you simply click once with the left mouse button to open a book, and the right one as usual is used to scroll through the menus. Once open, each page can hold 36 lines indicating accounts. At the extreme right of a book is a separator or label that sticks out. Here the accounts can be organized into categories or sections. Each section can contain up to 80 pages. The limit of the number of accounts depends on your setup. Using a diskette containing your program and your company accounts, you can squeeze in 700 accounts. Placing the company database on a separate diskette, the number can be doubled. With 1 MB of RAM and a 20 MB hard drive and only EasyLedgers running you can have four thousand accounts. Under the same conditions, but with 2MB of RAM you can double this to a maximum of 8000 accounts.

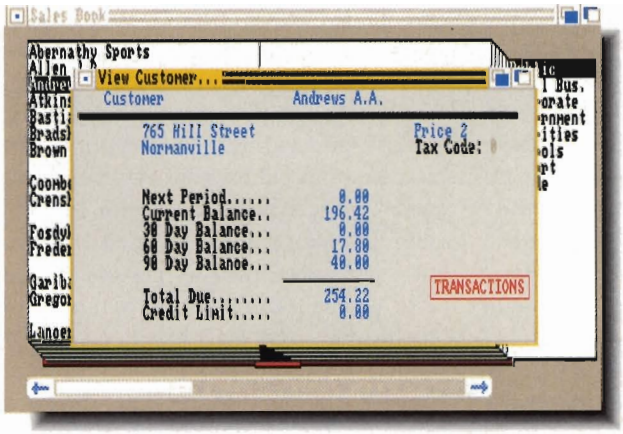
You can easily insert and delete pages from your books using commands in the menu. The package has an instant search facility i.e. type in an account name and press return (you can use upper or lower case) and "presto" there is your account. You can also go to the special menu and select "Search". It will request a string; you can input one or several letters and it will find the corresponding accounts containing that string. The program can almost be used without the manual by using the help key which describes the menu items and how to do transactions, etc. To add, change or delete an account the procedures are the same in all books. The tutorial shows you, with the help of the sample database, how to open, change, insert and delete an account. An account may be deleted as long as the account balances are zero. For all these procedures, once selected, a window appears requesting the required information.



Opening a customer account and entering customer information in the Sales Book

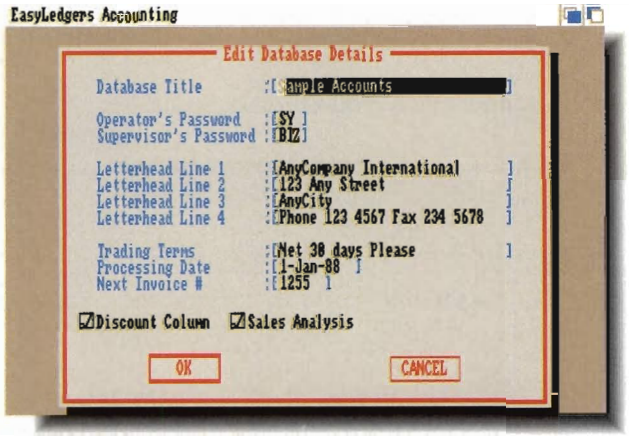


A sample purchase invoice in the Purchase Book



Viewing customer information from listings in the Sales Book

A wide range of financial reports can be produced with this package, depending which module you are in. You can print to the screen disk or to paper by selecting the appropriate icon. The tutorial ends by telling you how to save and turn off the program. Alternate keyboard/mouse commands are available if you prefer not to leave the keyboard when you're making entries. These are shown in the menus.



Editing database details such as passwords, letterhead, and invoice information via the main Edit menu

When setting up your own company you exit the sample accounts and click on the icon that says "Set up database". EasyLedgers is for small businesses and will accommodate one company at a time. For more than one company, a new disk must be used or a new database created under that company's name in a separate drawer on your hard drive. The system has a password facility which you may use or not. There is both an operator and a system password. Be careful not to use the same password twice as there is a bug in the program which makes the database inaccessible when you do this. To avoid any problems just use two different passwords.

The inventory book has a facility for manual counting input so you can easily correct any discrepancies. Also, when invoicing, you can select whether or not to bypass the inventory and go straight into the corresponding ledger sales account manually. While in the inventory book you can produce price lists, inventory lists, reorder reports etc.

The Ledger book has a skeleton set of accounts. You can follow these, add to them and have no problems. However, if you throw them out (which you can do) and if you change the order of your own account categories you will not be able to get a correct income statement or balance sheet. So, if you do throw them out, be very cautious and plan your accounts carefully (and/or call your accountant to set it up!). You can conveniently dump your information into a spreadsheet such as Maxiplan (now known as Plan It by B.E.S.T.) and create lovely graphs and bar charts. This can be done in each of the books from the reports menu, by selecting "Dump to spreadsheet". This brings up a window where you can select text format or Maxiplan format, as well as various other details. You then select dump and then name the file to write to the disk.

Transactions can be selected from the menu in each of the books and vary from book to book. Most transactions have preset forms such as invoices, credit notes, and receipts which request information and then you can print them out. To print out the various types of reports you can usually print to the display (monitor), a disk or to the printer. In some cases such as the transaction log, it won't allow you to just print to the display. You must have a hard copy which is a nice safety feature. The program encourages you to make backups often before closing months/weeks or years. You can choose to process weekly or monthly when you are setting up your company data. Another nice touch is that you cannot exit the system if your books do not balance. This helps you find your mistakes immediately, not at the end of the month or year. If you don't have time to find the incorrect or missing entry, you print out your transaction log, place a temporary entry in the ledger and then quit. You can go through your transactions at your leisure or with your accountant.

It is important that with any accounting package you understand what you are doing. If you are not 100% sure, call your accountant or bookkeeper or get one! Get him/her to sit down with you before you input your information. Because most of these packages are automated, one error can cause an avalanche effect in all your books. I want to make it clear that no accounting package will do away with a qualified accountant or, at the very least, a clear understanding of accounting and several bookkeeping courses. Attempting to use a package without the proper guidance or knowledge can be very discouraging and the software will not do the job properly.

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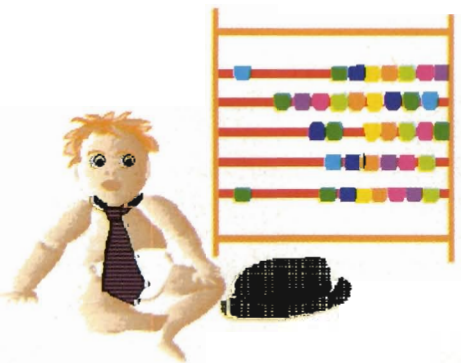

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opticks

RayTrace Software: A preview

My interest in raytracing stems from it being a useful graphics mode that I may apply to some of the jobs my computer animation company handles. In my layman's understanding, this rendering technique allows one to compose a picture, with objects that can have a defined surface (such as glass or metal), or a texturemapped surface (like wood), add one or more light sources (regular or colored lights). Then let the computer do all the calculations of where the light will hit, the degree of reflection the predefined objects have, where the shadows will fall, and so on. The result of all this calculating is usually a superb graphic that approaches some degree of realism. I know this is a very simple definition of raytracing, but for my purposes of using this method to create images and animation for my clients, this is really all I have to know.

It seems that this powerful capability is becoming more accessible for Amiga users as each new batch of productivity software is released. There are even public domain programs available that do an excellent job in this area, such as DBW_Render by Dave Wecker.

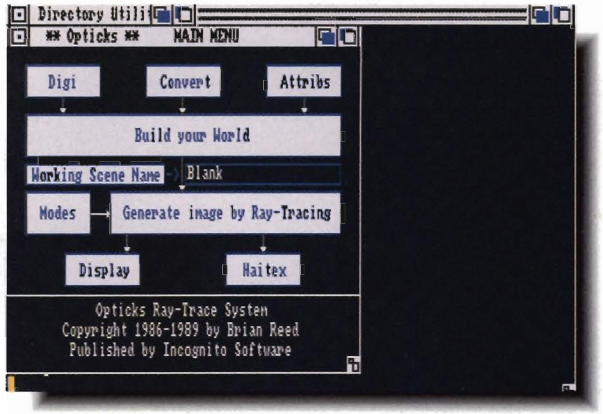
One of the finer new commercial raytrace programs now available

One of the finer new commercial raytrace programs now available is OPTICKS from Incognito Software, written by Brian Reed. You usually begin your session with either configuring your directory paths, or loading in the main menu. The Main Menu is the crossroad where all Opticks' modules meet. From here you can access:

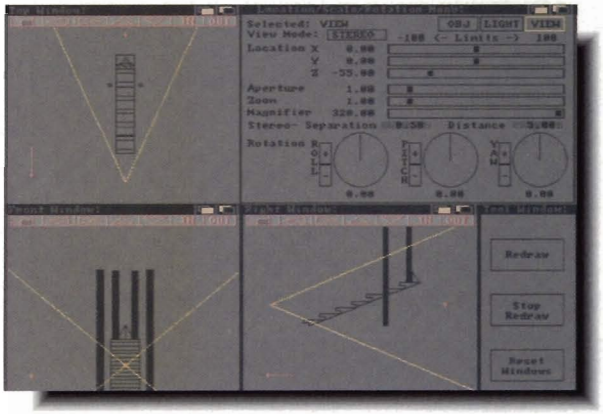
1. The Digi Module: This simple object builder allows you to create your own 3D objects; it includes extrude and lathe features.

A raytraced image rendered in OPTICKS

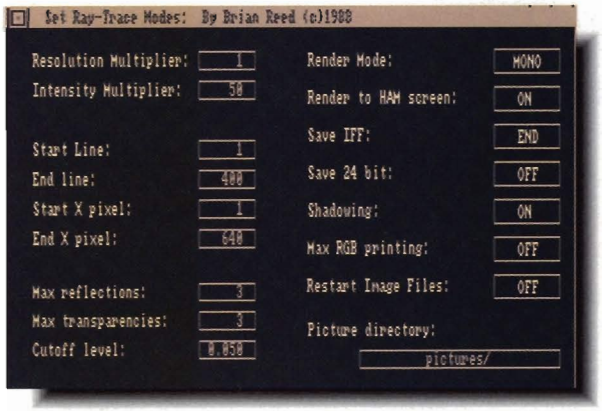
By Nick Poliwko



The Main Menu of OPTICKS showing the protocol for use of the various modules



The triview working area of the Build Module



The requesters of the Modes Module, for definition of various aspects of the rendered image such as resolution and rendering mode

2. The Convert Module: From here you can import Sculpt 4D or 3Demon generated objects, and convert them to Opticks' format.

3. The Attribs Module: This editor for the lighting attributes is used in scene building to show light intensity, colour, surface, etc.

4. The Build Module: This module, the heart of Opticks, uses a triview work area to allow you to compose your scene, define your light sources, and place your "camera."

5. The Modes Module: This group of requesters lets you define the rendered image in terms of resolution, rendering and display mode, etc.

6. The Display Module: This program will allow you to load in the 16 or 24 bit files generated by Opticks, and display them as Amiga HAM (Hold And Modify) images.

Opticks keeps track of your current scene as you move between the different modules. Individual modules would be easier to upgrade, and perhaps even provide for swifter upgrades. Not only is Opticks intuitive and fluid, it's also very easy to build a scene with spectacular results. Opticks isn't a speed demon when it comes to rendering (the 68020 version of the rendering module was significantly faster), but perhaps the quality is worth waiting for.

Some of the more powerful features found in Opticks are the surface and texturemapping options. You are able to define any surface as glass, water, brass, etc., and then texturemap a 32 colour bitmapped image onto that surface while retaining the surface definition properties. Amazing and eerie effects can be easily created with this combo.

Another feature is the ability to place a light source right in the rendered scene. Most raytrace programs will render an in scene light source as a black "video burn." Opticks will actually render it as a light source. This allows you to create ghostly glows and neon effects, have light emanating from windows or light actual renderings of lamps within a scene for added realism!

Most of the work you do in Opticks will likely be done in the Build Module. Here, in a triview work area, you will move and rotate your objects to compose your scene, set your objects' colours, surface and texturemap properties, show light types, sources, and color, then choose and angle your "camera" or point of view. All these things were easily and quickly accomplished, although it did take a while to redraw the triviews once a few objects were loaded into the scene. Hopefully this will be worked on for a future upgrade.

The method for indicating your "observer's" location and what the observer "sees" is novel. It's accomplished with a wireframe "pyramid." The tip of the pyramid is your location, your point of view, and whatever the base of the pyramid encloses indicates the area of the triview you can "view" or render. Although one of the triviews provides a small wireframe view of your intended image, there is a serious drawback to

the program; it's the inability to have a color (non-raytrace) preview of your image. The only way you can see a quick render example of your scene is to generate the scene in a larger pixel matrix, i.e. 3 x 3. Unfortunately, what little you gain in rendering speed you lose in image detail. A colour preview mode is essential for the computer artist to check the lighting and color of a scene before committing the time to a full raytrace.

Even with these slight hindrances, Opticks keeps bringing me back for more because of the quality and look of the fully rendered image. Opticks' look is vibrant, rich, and well worth the effort. Some of Opticks' features include the ability to render and save a raytrace much larger than screen size, and the ability to save or load an image as an IFF HAM, or a 16 to 24 bit IFF or Targa format file. You can also generate ray traces to use specifically with Haitex's 3D Specs.

CONCLUSION

Overall, Opticks gives the user a lot of control over every possible situation encountered in setting up, composing and generating a raytraced image. This control, combined with the powerful mapping options and the quality of the finished renderings are good enough reasons to purchase this program. As I've mentioned, there are a few drawbacks in the use of this program because of the lack of some fundamental functions, but generally, the program modules are easy to operate and seem to work flawlessly with each other. It's obvious that Brian Reed has invested much time working on this software project, and the result is an excellent productivity tool for the Amiga novice and graphics professional alike. ❑

OPTICKS 1.0
Incognito Software
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Westland, MI 48185
USA
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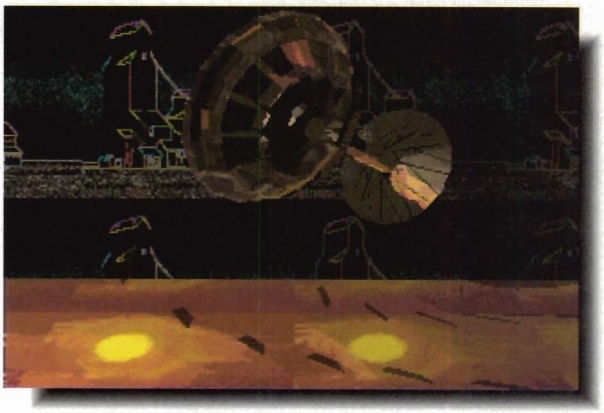
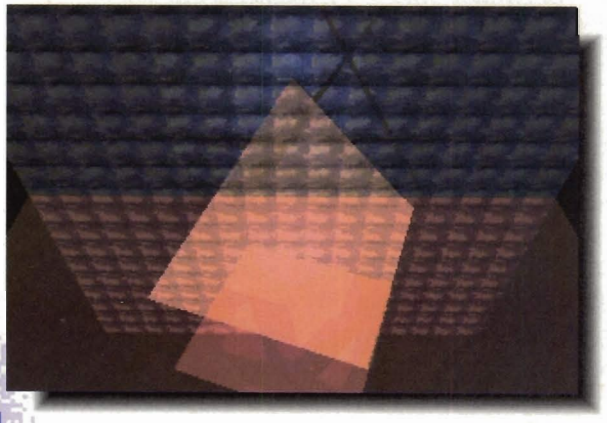
(313) 937-2355 [BBS]





Several images created in OPTICKS illustrating the various effects which can be achieved when using the program

ABOUT THE AUTHOR
Nick Poliwko is owner and President of Pixelight, a company specializing in Amiga-based graphics and animation for video.

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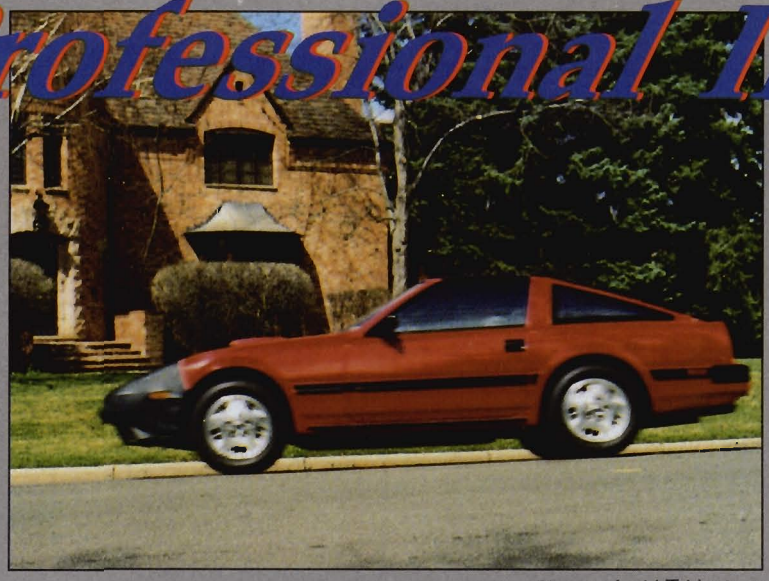

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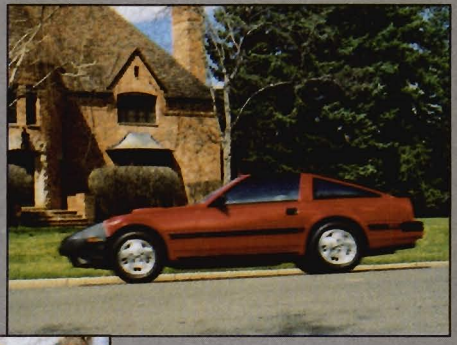

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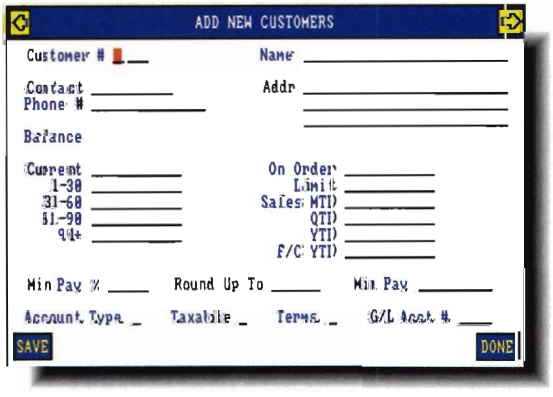
THE AMIGA AS A BUSINESS COMPUTER

How close is the fit ?

Every year, thousands of people start new businesses. Thousands more expand successful businesses, and they all need computers. Most of them will automatically buy IBMs or compatibles, whereas others will think about other options. Some of those will buy an Amiga if they believe it will handle their needs. So how does the Amiga fare as a business computer, in a situation where it's used to help organize and run the business, as opposed to producing graphics or video?

With WordPerfect, Superbase Professional and MaxiPlan Plus, we now have at least one major Amiga contender in each of the "big three" business categories: word processors, databases and spreadsheets. The introduction of Professional Page, Pagestream, Professional ScanLab and Project Master are edging us into other business categories. For some quirky reason, there have also always been Amiga accounting packages; Nimbus and B.E.S.T, to name two.

We're covered as far as most obvious business software goes. What else can Amiga users and developers do to get Amy a healthy share of that huge and profitable business market?



An example of one of the order processing screens from B.E.S.T. Business Management, an accounting program for the Amiga

BLEND INTO THE IBM STRUCTURE

We need to mesh the Amiga's "freestyle" graphics interface with the highly structured, streamlined approach of the business world. No matter how obvious the Amiga's advantages seem to us, we can't expect business computing to change its ways, at least, not immediately. The Amiga has to do the adapting.

Let's face it, Amiga owners are individualistic. (If we weren't, we'd all have IBM-compatibles.) We like having complete control over the computer. We like being able to tailor the system to our exact specifications, multitasking many individual little programs by clicking on icons. We also think it's dull to have a computer that just gives you a choice between a spreadsheet and

By Marion J. Deland

a word processor.

It's different in business, the key word becomes integration. Systems need to be designed with menus and macros so that an inexperienced user can work with minimum supervision. For the Amiga to be taken seriously as a business machine, it needs more programs designed with this concept in mind.

HARD DISK MANAGEMENT

We need programs in areas such as menus, utilities and CLI shells for hard disk management. For floppy disks, the Workbench is fine. You just open the disk window and the program icon is right there, in the "root directory" of the disk.

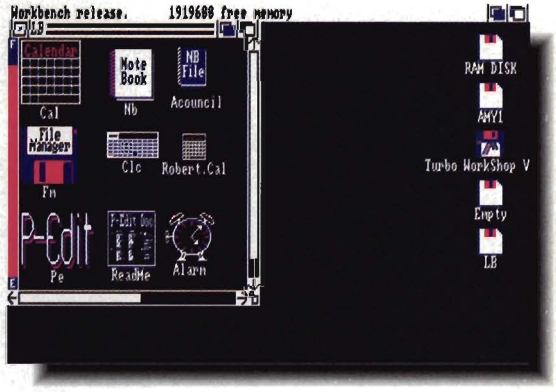
Business computers, however, have hard disks. To be manageable, a hard disk has to be organized into tiers of directories and subdirectories, and these are not so easy to handle from WorkBench. To load a program by clicking on its icon, you might have to open drawer after drawer to get to it; multitasking this way is more trouble than it's worth.

To use a hard disk successfully, therefore, you need some kind of menu that will give you instant access to your most used programs. It's also useful to have a CLI shell; a program that displays directories and executes CLI commands with the mouse.

The only Amiga program I've seen that combines a menu and CLI shell is CLI Wizard. Unfortunately, it views only a single directory window at a time, which makes it hard to compare directories for copying, deleting, etc. The best CLI shell on the market now is Disk Master from Progressive Peripherals. I would love to see a program of this quality add menuing capability comparable to that of Take Charge for the PC.

It's possible to create menus on the Amiga, of course. You can do it with executable batch files (or AREXX), but that takes a certain amount of expertise. Or, with Iconx (Workbench 1.3), you could set up a graphic menu: a window of icons, each of which executes a script file, threading its way through the maze

Quarterback for the Amiga is a sophisticated hard disk backup program.



WordPerfect Library for the Amiga provides a set of icon-accessible desktop utilities.

of subdirectories to load the program. Again, this would take some experience with the CLI.

The IBM world has a host of disk management programs, both commercial and public domain. Some are simple menu programs. Others are sophisticated TSRs that pop up notepads, calculators, DOS shells, disk utilities, etc., while you're using another program. (TSR means "Terminate and Stay Resident" and it's a substitute for multitasking.) The sky-high sales of PC Tools Deluxe attest to the popularity of these programs.

With multitasking, we don't need desktop programs per se; we can use separate notepads and calculators. To be useful in a business environment, however, they should be accessible from a single menu, preferably with a consistent "look and feel." WordPerfect Library has a good selection; it would adapt well to a menu.

We need more hard disk utilities for the Amiga. Without them as a safety net, it's hard for businesses to feel secure about committing their records to an Amiga.

The best set of Amiga disk utilities I've seen so far is Disk Mechanic, which includes an optimizer, a backup program and an error repairer. We also have good backup programs for the Amiga. Quarterback is fast and efficient, and tells you in advance how many disks you'll need, which few PC backup programs do. Dave Haynie's DiskSalv (the bugs in V1.3 have been fixed along with new features in V1.4) deserves a special mention as the Amiga user's life-saver.

So far, however, we have nothing to compare with neither the PC's Norton Utilities Advanced, with its amazing disk diagnostics, nor SpinRite, that formats a hard disk to correct errors, leaving its data intact.

Here's a tip for Bridgeboard owners: I've used SpinRite on a "J" drive by removing the Amiga partition, creating an IBM partition, running SpinRite, then reversing the process. The data was intact, and SpinRite had removed a bad sector that was causing problems. Don't try this without a backup!

SHARE AND SHARE ALIKE

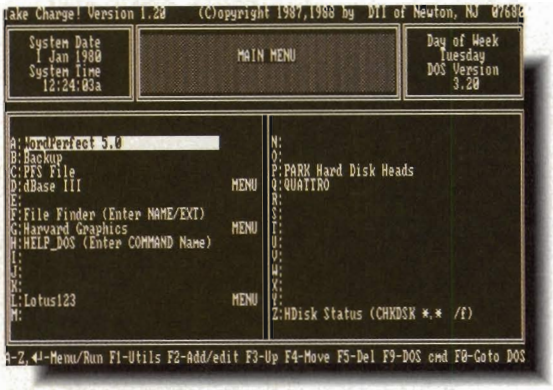
To be useful in the existing world of business computing, the Amiga needs to be able to share data and peripherals with IBM-compatibles. Many Amiga programs have been designed with this in mind. Superbase Professional 3.0, for example, has built-in telecommunications that can be programmed to download data into its IBM equivalent, Superbase 4. MaxiPlan Plus, Analyze and other spreadsheets will convert Lotus

123 worksheets. In addition, WordPerfect Amiga was designed to be compatible with the IBM version.

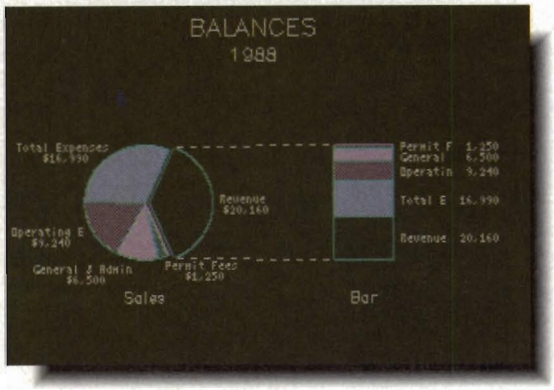
There are several ways to transfer files from an Amiga to an IBM-compatible. For example, telecommunications; Diga!, with a wide variety of protocols and terminal emulations, was designed to put the Amiga in touch with the rest of the computer world.

If you'd rather just hand over a disk, DOS2DOS is a program which transfers Amiga files (ASCII or binary) to and from MS-DOS and Atari disks. Central Coast Software promises Mac-2-DOS will soon be released to do the same thing with Macintosh files.

Amiga owners with a Bridgeboard can make use of the vast quantities of software and inexpensive hardware available for the PC. My A2000, for example, has two hard drives and a controller on the PC side; one is an Amiga "J" drive and the other is a PC drive. Because I tutor for both the PC and the Amiga, I divide my time between the two sides of my A2000. Although there are so many programs, both commercial and public domain, for the PC, I do my writing and record-keeping on the Amiga, because it's friendly. I can take advantage of the PC world when I need to, and enjoy the Amiga the rest of the time.



Take Charge for the PC includes this menu program and a set of desktop utilities.



Linked charts, common in PC programs like First Choice, are not yet available in Amiga programs.

For many businesses, it's important for workstations to be able to share data and/or expensive hardware. LAN (Local Area Network) systems control the logistics of shared equipment and data through a combination of hardware and software. An Ethernet package is already available from Ameristar Technologies; it allows Amigas to share files on a Unix host, and is used mostly in colleges. There are rumors of Arcnet and DECnet packages in the near future. In the meantime, DOS2DOS and the Bridgeboard also give Amiga users access to LANs through MS-DOS.

WHAT THE AMIGA DOESN'T HAVE - YET

It's a fact of life that there are business programs available for the PC that haven't reached the Amiga yet. Personal Information Managers (PIMs), for instance. These are one of the latest PC fads. The term covers a wide variety of programs, but the one thing they have in common is that they help you keep track of the dozens of miscellaneous bits of information that cross your desk every day.

There are Amiga programs that fit loosely into this category. The most likely seems to be a new program, Thinker, which claims to link database concepts with writing concepts, giving more power than traditional outline processors. Nag Plus, the new "schedule assistant" that lets you attach a note to any word in your appointment calendar also qualifies as a PIM. However, there is no Amiga equivalent to Lotus Agenda, which sorts your notes and categorizes them for you. From our point of view, it may not really be needed, thanks to multitasking, but from the business user's, it's an area of software that's not covered by the Amiga.

There are hardware fads, too. PC Magazine recently reviewed 15 Fax boards available for the PC. While most people would probably be better off with a separate Fax machine, these boards are hot sellers in the PC world. As yet there are none for the Amiga.

AMIGA'S BUSINESS ADVANTAGES

The Amiga has the potential to shine in business graphics. IBM programs like Harvard Graphics and Graph Plus are top sellers in the business world. The Amiga has the ability to create spectacular graphs and charts, and transfer them to slides or videotape with ease. Yet to date there has only been one dedicated business graphics program: Impact from Aegis Development, and it was clumsy and crash-prone.

While Amiga spreadsheet programs like MaxiPlan or new Superplan include business graphics, they are limited in scope. I have yet to see an Amiga program that can link two pie or bar charts, the second expanding a section of the first. This option is available in some of the most elementary PC chart programs.

An Amiga program of the quality of Harvard Graphics for the PC would be wonderful. Harvard Graphics allows you to import spreadsheet files, embellish your charts with graphics and create

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Collectible gems are bootable PD programs that occupy one (or more) disk(s). It seemed appropriate to create a special disk set devoted to this special variety of PD program, saving you the trouble of trying to find them on BBS's and then having to spend an hour or more trying to download. Look for reviews on CGS in future AmigoTimes issues.

To order CGS, use the subscription form in this issue.

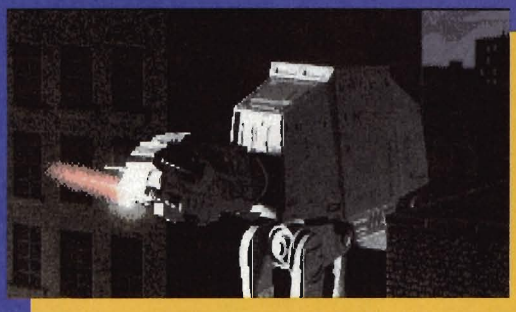
1 disk CGS costs $5.95
2 disk CGS costs $8.95

CGS #1 (2 disks)

WALKER DEMO I

by Imaginetics/Brian Williams

By now this animation is a classic. The animation depicts one of those "Star Wars" Walker robot/tanks lumbering across a wooden desktop in front of an Amiga 2000. All throughout the animation there are sampled sound effects that add to the realism of this animation. Two versions are available, depending on the amount of RAM your system contains. The 2 MB version comes on two disks and the 1 MB version on 1 disk (N.B. Some scenes have been removed in this version).



CGS #2 (1 disk)

MORIA v3.0

by Richard & Brian Henderson

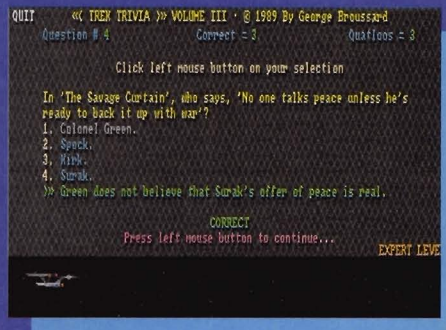
A game based on the idea of "Dungeons & Dragons". Its not very complicated, but it can be entertaining. You are presented with a top view of the game board and all characters appear as tiny people on the screen. The game is entirely mouse driven and easy to learn. You can buy weapons, spells and other articles. You even have the option to haggle over the price of supplies. The objective: beat to a pulp as many beings as possible. The results of your fighting are indicated by verbal representations of what actually happens.

CGS #3 (1 disk)

STAR TREK TRIVIA (vol #'s 1,2,3)

by George Broussard

If you bought issue v1.4 you probably have seen volume 1, v1.0, of this program. The title is self explanatory; trivia questions asked about the ever popular TV series. If you think you know the series inside out, or you want to learn trivia about the series, then this disk is for you. It contains volumes 1, 2, 3 of the new release, v2.0. Its been improved with sounds (from various scenes in the series) that play before each question.

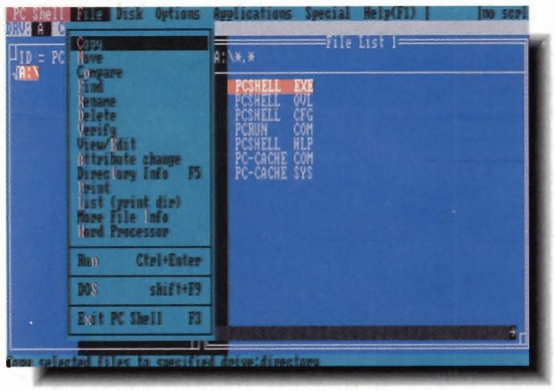


CGS #4 (2 disks)

WALKER DEMO II

by Imaginetics/Brian Williams

Here is the follow up to Walker Demo I. If you thought the first one was amazing, you will be stunned by this version. We debuted it at the March AmiExpo (in New York) and it was a smash hit. The opening scene captivates you, the sounds tantalize you and then you are trapped, stunned and have to see it again to believe your eyes. The opening scene shows you a bridge, then a rear glimpse of the Walker lumbering through the streets. A helicoper approaches, scanning the area with a spot beam, and when it spots the walker it opens fire with its gun turrets. After taking a couple of direct hits the Walker realizes whats going on and retaliates. The outcome ... what do you think?.



PCTools Deluxe, which includes the DOS shell seen here, is a top-selling business program for the PC.

slideshows. It even spell-checks your text. Imagine all this combined with Amiga graphics!

CAD (Computer-Aided Design) is an area that is tailor-made for the Amiga. Until recently, however, most programs were too slow or difficult to use. Now, as accelerator boards and math co-processors are becoming more available, we are seeing more 3D-modelling and CAD for the Amiga, as well as conversion programs to take advantage of all the libraries of CAD symbols available for the PC.

We know that most Amiga programs are menu and keyboard-driven. In an office, that means a new employee can learn these programs quickly by using the menus, then switch to the keyboard for speed. WordPerfect is an excellent example of this, the Amiga version is much easier to learn than the IBM version.

NO MORE BUGGY PROGRAMS

Most important Amiga programs I have used have been prone to crashes in the initial release. Sometimes the cause has been bugs in the program, often in the area of memory management, and sometimes it has been my inexperience with a new program. When I lose an hour's work because the program crashes, the cost is my time and frustration.

Program developers who want to reach the business market will have to put a lot of time into pre-release testing to idiot-proof their programs. So will those of us who help beta-test programs. Buggy programs are unacceptable in today's business world.

With all the advantages of multitasking, the Intuition interface and great graphics, the Amiga deserves a place as a business computer. ❑

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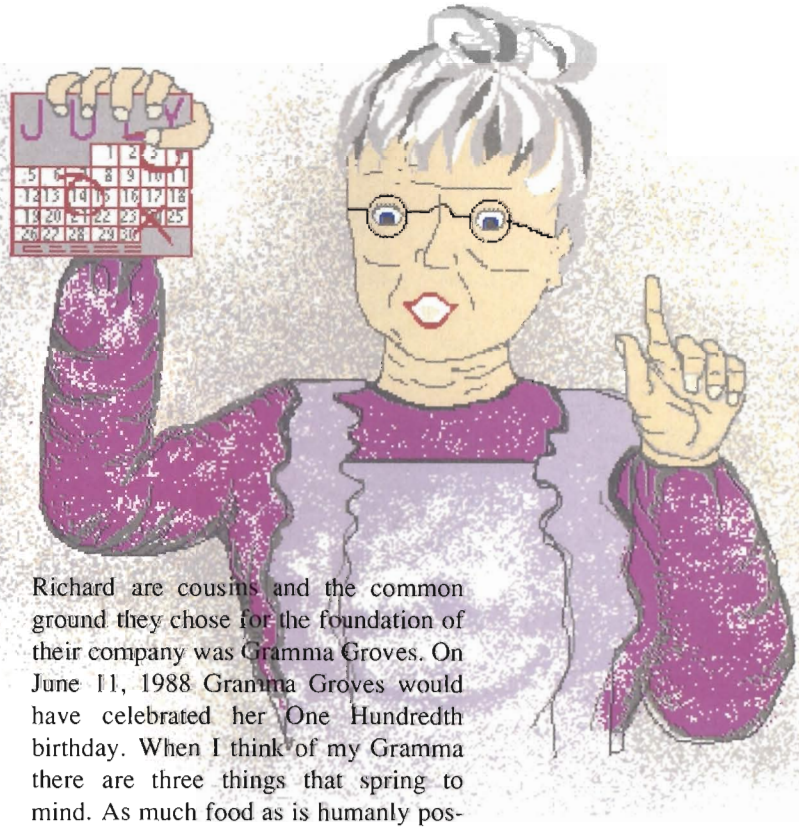


In Japan people highly esteem their elders, so much so that it is customary for people to live with their parents, even after they are married and have families of their own. They look to their elders for leadership and direction and even consider themselves under their authority. It seems to me that one of the single most neglected resources of our continent is "our" elderly. Let's face it, the social systems of our respectful nations are straining to the limit to cope with our aged population. Yet, it has come to my attention that within these people lies a wealth of experience and knowledge that could greatly benefit anyone who would listen.

Right now you are probably wondering what on earth I am getting at. Well, stay tuned and you will soon find out. First let me urge you if you have any surviving parents, or grandparents, to take the time to buy them a cup of coffee, and talk with them. I don't and sorely wish that I did.

You see there is this new product out by a company called "Gramma Software," and this is supposed to be a review of that product. I telephoned the founders of the company and learned some very interesting things. Mike and Richard are cousins and the common ground they chose for the foundation of their company was Gramma Groves. On June 11, 1988 Gramma Groves would have celebrated her One Hundredth birthday. When I think of my Gramma there are three things that spring to mind. As much food as is humanly possible to consume, stories that make your imagination sing, and her incessant admonishments to do good.

Gramma Software out of Seattle, Washington has seen fit to incorporate this type of philosophy in their product development. Their motto "For Your Own Good" says it all. Gramma's appearance into the Amiga forum was led by Nag Plus 3.0. Nag Plus is an exciting, useful product that makes the use of a daytimer almost obsolete. I say almost because they have yet to develop an Amiga that will fit in your pocket.

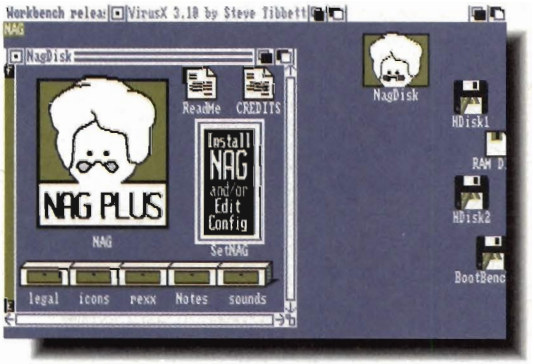
By Stephen Robitaille

Let alone, where on earth one would plug it in. Nag is a Schedule Assistant, not only are these people out to eradicate daytimers, but secretaries as well. The truth of the matter is that Gramma is a socially concerned company. In fact anyone who donates free underwear to the homeless has got to be a good guy. "Gramma Software" has what they call "Gramma's underwear project." In conjunction with "Fruit of the Loom" and K-Mart in the Seattle area, Gramma is giving free underwear and socks to the homeless. After all isn't that what Grammas are supposed to do?

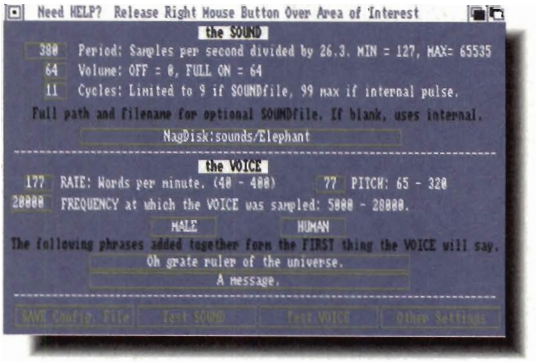
Once installed on your harddrive or workbench, memory resident Nag will keep you on top of your business and personal life. Nag will remind you in any combination of three ways: a visual explanation of the Nag, a noise (elephant blast, blues riff or anything you like), and a voice verbally reminding you. Currently, there are four types of events that Nag will remind you of: Action, Birthday, Anniversary or Deadline. The newest version of Nag will enable you to customize this to anything you want.

While we are on the topic, Nag is adaptable to your personal or corporate needs. It allows you to customize almost everything, to suit you the user. Not only are you able to use any digitized sound or personal message but it will allow you to customize an array of variables adapting to whatever Amiga configuration you might have. Nag will even let you decide how many times you need to be "nagged" and at what interval in relation to the event in question. Let me be frank with you, since I received my copy of Nag Plus 3.0, I can't find my agenda planning diary. Nag will enable you to schedule 99 appointments a day. Gone are the days of re-entering everyone's birthday every year. Nag's perpetual calendar enables you to simply insert these things once and for all. Nag will also allow you to edit your appointments up to two years in advance. If you need a hard copy of your daily schedule, no problem - Nag will do it. In fact you can keep several people organized on your Nag and print out each one of their schedules.

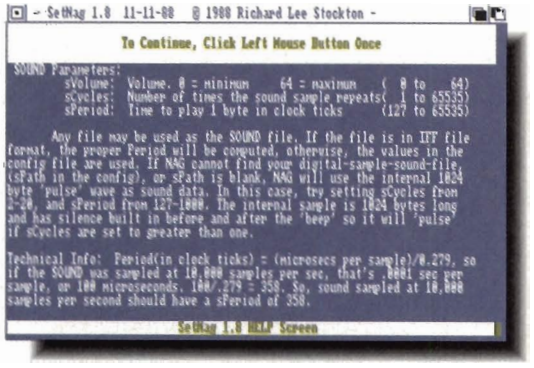
So far, you are probably thinking, what a great way to get organized. Well it is, but I have not yet told you the really exciting part. Nag is capable of Arex and Exec commands. Uh-HUH this baby is a "doer not just a talker." Now you secretaries are in trouble. Nag is able to communicate with other Amiga programs to get things done. There is a fellow in Washington, every morning he receives a wake-up call from Nag and five minutes later his Nag will telephone his partner across town and wake him up. This is not all, one could program Nag to: auto-dial someone on the telephone, fire up the word processor, search for a particular file pertaining to the call, and print that file. Well I still haven't met a Gramma I didn't like. Any woman can be a Grandmother, all she has to do is have a child who has a child. "Gramma" is a title that is earned. It seems that Gramma Software intends on keeping this honor. They will be following Nag with more products in line with Gramma's spirit: FreD a speed dialer, NoMo a modem substitute, and a story teller. I can surely say "it is sure good to have Gramma back in my life again." ❑



Nag Plus 3.0 window open on the Workbench - the Nag tag can be seen in the upper left corner to indicate Nag is operating



The Cofiguration screen where parameters are set for the voices and sounds of the Nag



The Help screen which aids in deciding Voice parameters

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CONTEST

Announcing the City of Montreal's 2nd International Computer Animation Festival (Montreal 1989)

This year once again the City of Montreal in collaboration with Miralab would like to present the **International Computer Animation Festival** (November 1989).

The festival consists of two sections and will be held parallel to several other activities such as a computer image exhibition.

The first section is professional and will group the best worldwide productions of the Geneva (Switzerland) Festival. To this will be added a Montreal subsection.

This year for the first time a section for microcomputers will be added to the festival.

The section will group the best short animations created by amateurs who use their own home personal computers (Amiga or other).

AmigoTimes will be collecting and holding all entries for the micro computer section of the festival for the City of Montreal.

Persons interested in participating should send their entries (3/4 inch videotape or floppy disks) **before the 1st of September 1989** to the following address:

AmigoTimes

INTERNATIONAL COMPUTER ANIMATION FESTIVAL
5124 St-Laurent Suite 100
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Prizes will be divulged in the next issue, and will include an internship with a large company. For further information contact: **Jean Paquin (514) 872-6960.**

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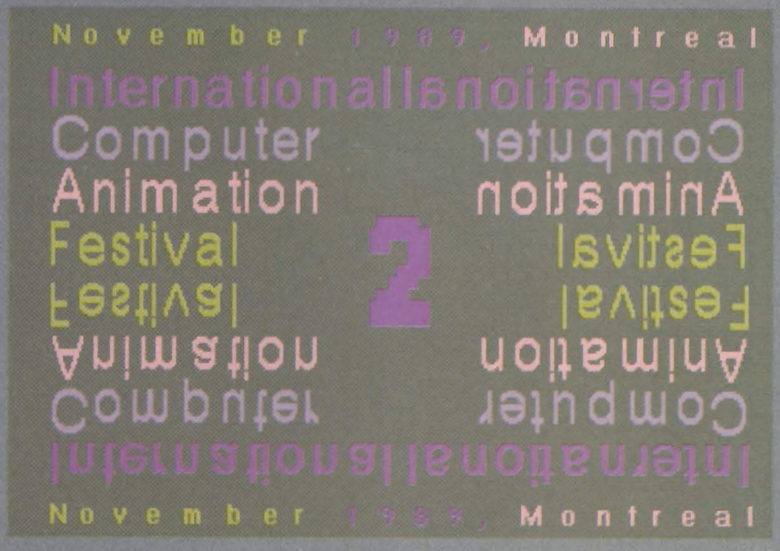

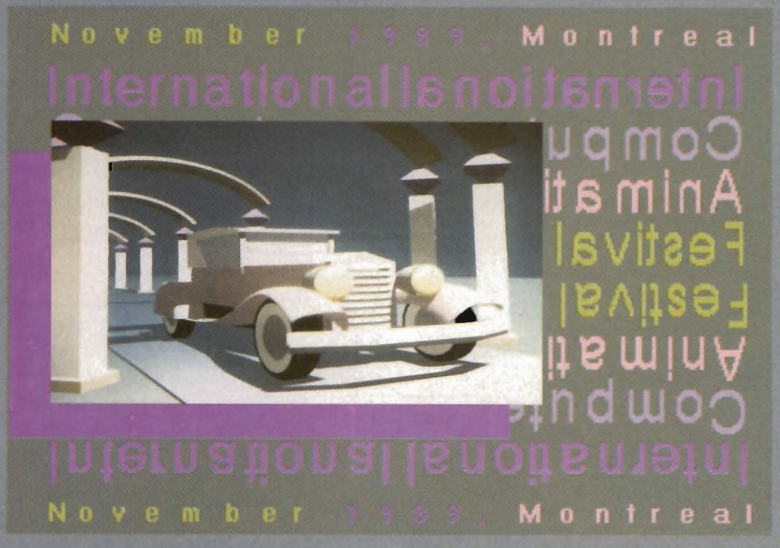

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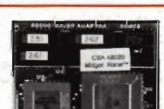

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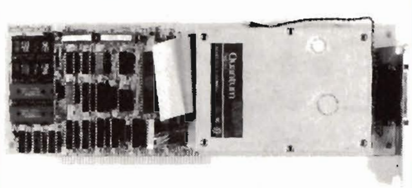

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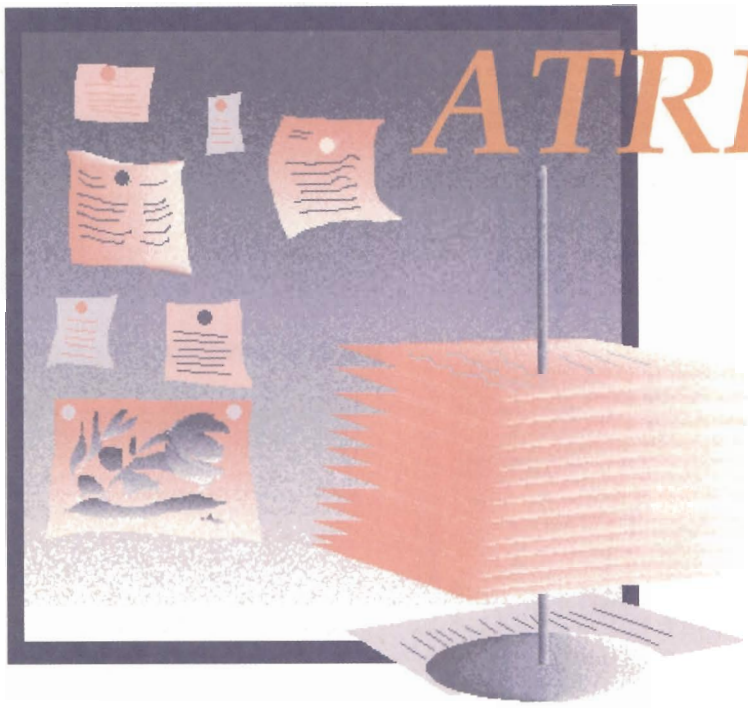


ATREDES 1.1

A New Type of BBS

When I first went out shopping for a BBS program, I was on the lookout for the latest Amiga version of BBSPC. To my dismay, all the stores I called did not have it in stock. I was set to place an order for it with my favorite dealer, when a friend told me about a new BBS program that had just come out. It was called Atredes.

A major upgrade which could be the future of telecomm on the Amiga

Being the new kid on the block, few people knew much about Atredes, other than it was supposed to be good and different. Surprisingly, some of these statements were from people who ran BBSPC Boards. I figured I should go and take a look at this program.

The Atredes Bulletin Board System was written by Michael Cox, and released through Incognito Software. As I read the packaging hype about the enclosed software, one feature caught my eye: SKYPICS. This was a new protocol that would support the transmission of full color graphics to any Skypics supporting terminal program. The BBS I was planning was going to be oriented toward Amiga professional applications such as graphics and animation, and this protocol seemed to suit the nature of this type of board.

Atredes allows the construction of a BBS around three major areas: message bases, databases and text libraries. There is no limit to the number of these areas other than storage and memory constraints. Also, thoughtfully included in Atredes' maiden release are embedded commands that allow extra options as well as the implementation of questionnaires. Now, with the release of 1.1, I realize in retrospect how fortunate I was that I had bought Atredes... for this could be the future of telecomm on the Amiga!

MAJOR UPGRADE

Version 1.1 of Atredes should be considered a major upgrade with all the new options offered. There are so many changes between the original release and 1.1, that you can almost consider it an entirely new package. Let's look at some of the features.

MENU CREATION

This can be an arduous task with many BBS programs, but not with Atredes. Included with 1.1 is a menu "compiler!" This great little utility will automatically generate BBS menus for you in various formats, including standard ASCII, color Ansi, and color Skypics. The Compiler interface is well thought out,

By Nick Poliwko

with two screens giving you all the options you need to create clean, functional menus in minutes.

The "Command" screen of the Compiler gives you the BBS commands now available, which you can include with your various menus. You must use a single letter to specify the chosen command, but with twenty-six letters in the alphabet, you can easily create one master menu that could handle all the operations of your BBS. Once you've defined the menu options, you simply click on an "Accept" gadget, and you've returned to the main Compiler screen.

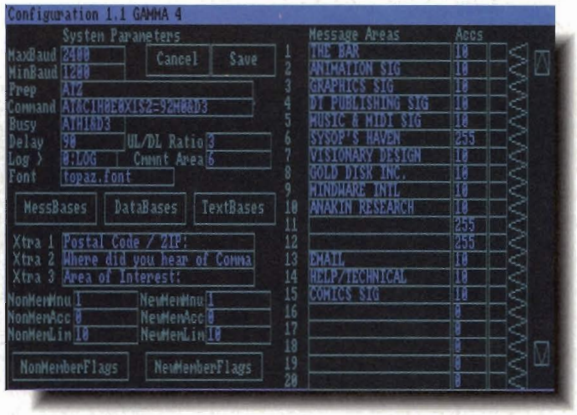
All you have to do now is generate the menu. You can choose to have your menu generated for you in one of the three formats previously mentioned, or you can generate the "controls only" (which will allow you to construct your own text and/or graphics portion), or you can use the "old text" of a menu already created.

From the main Compiler screen, you can also denote a RANGE of message bases, databases or text bases that each sub-menu can access. This is a powerful feature that will allow you to set up several BBSs that are completely separate from each other within one system.

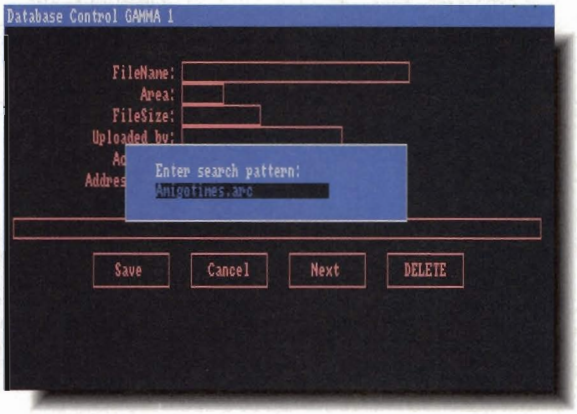
Atredes 1.1 leaves the menu structure completely open. Every menu has an access level associated with it; each menu can delimit the number of message and database areas that are available, you can make a text file trigger menus, make multiple choices and yes/no decisions, even trigger BBS commands automatically.

BBS UTILITIES

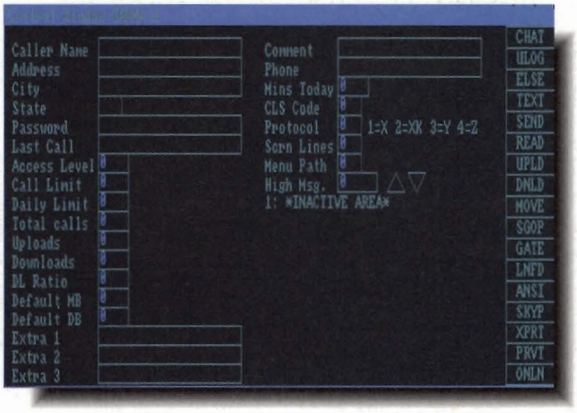
If you're familiar with Atredes 1.0, you already know the Configure utility is the Configure program that will allow you to define the basic areas of your BBS. From the Configure screen you name your various message, data, and textbase



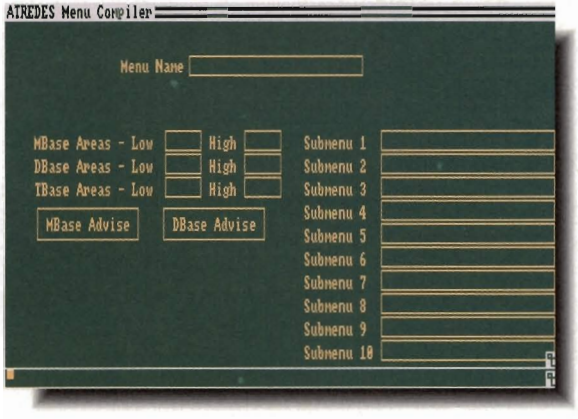
The Atredes Configuration menu



The Atredes Database upkeep menu



The Atredes Interactive Userlog menu



A screen from the Atredes Menu Compiler

areas, set access numbers, choose whether or not a message base will be read only, access only, password-protected or EMAIL. From here you also choose whether a database area will be upload and/or download only, or be a Personal Address base (this allows users to send a file privately by addressing it specifically to another board member). It also allows you to configure your modem settings, and set system user flags for people registering on your board.

There are few changes present in the 1.1 Configure program as compared to the version included with the original 1.0 release. The most obvious since Configure is now activated as a window on your BBS screen. Select any of the BBS utility programs available and your screen automatically reformats to a high resolution split screen with the BBS fully displayed in the top portion and the utility program in the bottom.

The most important of the current BBS utilities available with Atredes 1.1, is probably "Interact." This program contains all the user's vital information and privilege flags. There is an interactive mode (allowing for changes to a user's settings while the user is online), and a maintenance mode.

Since Atredes allows you to have up to 255 possible

"main" menus, an important option in Interact is the ability for the Sysop to set a caller's menu path. These options give you the ability to effectively create 255 independent BBS systems, with users routed to the particular system that meets their needs.

Upkeep Control is a window containing a single gadget, which, when selected, will automatically run through an upkeep procedure (such as cleaning out the message bases according to your presets, etc.), upon log off of the first call of each day.

It's the numerous embedded commands that really boost the strength of Atredes

Database Upkeep is similar to a portion of the "Sysop program" from Atredes 1.0, but has a great new feature called "Adopt Orphans." Selecting this option will allow you to add a large number of files to the database. The program automatically records the relevant data listings such as the file name, size, and uploaded by. All you're left to do is enter the description and hit save.

OTHER FEATURES

Amongst the other new options available, one of the more interesting and practical is called "Iconify." Selecting this will close down the BBS screen and windows, relegating them to a small gadget in the Workbench title bar labeled "BBS." This allows you to utilize your Amiga more efficiently for other tasks (unhampered by the overhead of the Atredes screen), while allowing your BBS to remain fully operational.

User selected display is another new addition; you can choose from three different screen display modes. ZModem is now included as one of the four available transfer protocols, in both the BBS and the Sysop's full featured local terminal.

I think that a few of the hottest features of Atredes are the Skypics Protocol, embedded commands, and the "Elsewhere" option. Skypics features sixteen colour vector based graphics, bitmapped "brushes," sound, animation, even mouse/pointer control to be transmitted from your BBS to remote users running terminal software that supports the Skypics protocol. Also included with the BBS is a paint program called SkyPaint; this gives you the ability to generate "Skypics" graphics and text to use with the BBS.

Example of screen display and menus at a local terminal

A couple of exciting additions to the Skypics protocol in 1.1 are "Skypics gadgets" which allow the remote user to select all his menu options with his mouse, and the ability to easily combine Skypics graphics with text in the message base (think of the possibilities here: a "Classified" message base with pictures accompanying the ad text, "Stats" screens for online role playing games, etc.). By cleverly combining these two options you could easily out-Telidon Telidon!

It's the numerous embedded commands that really boost the strength of Atredes. All the menu options and more can be triggered through the embedded commands; by using these in log on screens, textfiles, Skypics graphics, even menus, a whole range of possibilities opens up for the imaginative Sysop. You can easily customize your BBS completely to your liking. Adding prompts such as "Read New Mail?" and "List New Database Files?" are a snap. You can easily implement questionnaires with multiple choice questions or even write a text adventure that may be played online. Finally, another option unique to Amiga BBS software is "Elsewhere." This command allows the remote user to exit the BBS, activate and use a separate program on the computer, and then return to the BBS when finished. This is similar, in concept and operation, to the "Doors" available in later versions of PCBoard BBS for the IBM. This is an ideal area for implementing online games such as those available on some large systems (TradeWars, Chess, etc.), or having an online database like MicroFiche Filer Plus available for use.

PROS AND CONS

On the downside, there are a few things I don't like about Atredes. One of the major dislikes is the lack of "global" commands about user log and database functions. For instance, if you wanted to alter users' access numbers from 10 to 15, you'd have to go through the user listings one by one to make the change.

Another major dislike is the slowness at which the system stores and retrieves messages. I'm sure this can be made to work faster, and I hope this is something that will take priority for version 1.2.

File handling and listings display could also use improvement. I would like to see more options available on a LOCAL LOGON for file manipulation, such as renaming files, the ability to alter the file description, and to be able to browse through file headers with the option of an alphabetical or by date sort. It would be nice to be able to customize the display of the file listings as well. I think the current method of showing the file number, title, size, and area on one line and the description on another looks cluttered.

Overall, after about six months of constant use, I must say that I am more than satisfied with the product. All things taken into consideration, 1.1 offers trouble-free setup and use, and has

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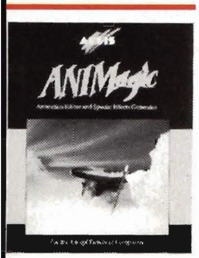

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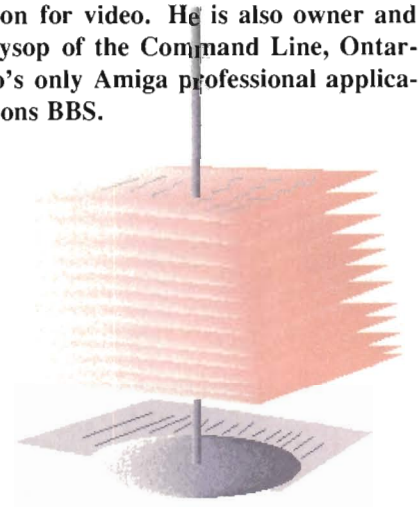
proven to be a solid release; visits from the guru only happen in exceptional cases. I'm pleased that the author added commands like "global message read," and has included a nifty "read Newsletter?" command. The software handles extreme line noise, illegal log offs, and attempts by some to "crash" the system. Skypics is a definite plus. There is a lot you can do with this protocol, and we should be seeing an amazing evolution in telecommunications on the Amiga when more terminal programs support it. In the meantime, Incognito Software, who publish Atredes, have cleverly included a "Demoterm" program that may be freely redistributed in the public domain. It's a nice way to get people to marvel at the Skypics graphics and animations while they wait for commercial term software to include the Skypics protocol.

We've briefly covered only a few of Atredes' new options in this article, but there are so many things available to the Sysop in version 1.1 that there would be absolutely no problem in building a really large BBS if you wanted to, and no problem having a slick, professional looking BBS with a minimum of fuss and bother. With Atredes, your bulletin board system is able to grow as easily as your ideas and user base. Accolades to Michael Cox for the time, effort and care he obviously put into Atredes 1.1. ❑

The Atredes
Bulletin Board System 1.1
Incognito Software
34518 Warren Rd., Suite 149
Westland, MI 48185
USA
(313) 462-2148
(313) 937-2355 [BBS]

ABOUT THE AUTHOR

Nick Poliwko is owner and President of Pixelight, a company specializing in Amiga based graphics and animation for video. He is also owner and Sysop of the Command Line, Ontario's only Amiga professional applications BBS.



TRANSCRIPT 1.0

... a word processor designed for writers

This is a word processor designed for writers; it's fast and efficient, with many top-of-the-line features. When I sit down at my Amiga to write an article, I don't need graphics nor elaborate fonts, I need a fast, efficient word processor. Now I have one. It's Transcript from Gold Disk, written by Chris Zamara and Nick Sullivan, the editors of "Transactor for the AMIGA" magazine.

Transcript is designed for those writers who write the text first then format and print it later. In fact, Gold Disk, who also markets Professional Page, emphasizes Transcript's value as a preprocessor for desktop publishing. The emphasis is on speed and ease of use; if you are a professional writer, a student, a business person who prepares reports or anyone who produces a lot of text, this might be your word processor.

For one thing, it's fast. This is the only Amiga word processor I've used that can keep up with my typing. The cut-and-paste function, especially, seems instantaneous. A second document is handled by the Amiga as a separate task, so it makes no real difference to the speed.

Besides speed, there are many little things that make life easier for the writer. The file requester is one, for example. Transcript checks to see what disk drives you have and displays buttons for them so you can select a directory. If it gets halfway through displaying the directory and you see the file you want, you can click on it; the display will stop. Click twice and the file loads.

The next enhancement is the cursor. You can choose between insert or typeover mode, and each has a different type of cursor. The typeover cursor is the usual solid block; the insert cursor is a vertical bar that fits between letters. You can also choose a flashing (slow/fast) or stable cursor. I like the flashing cursor. Besides being easier to spot, it reminds you which window is current, since it only blinks in the current window.

One of the things we've learned to endure in word processors is the way the solid cursor appears to be an extension of the highlight bar. Usually, you have to "subtract" the last highlighted character, which is actually the cursor. The blinking cursor solves that problem too by separating it visually from the highlight bar.

Although Transcript has only one scroll bar to indicate the length of the document, it makes sense, since the text arranges itself to fit the width of the window. I don't understand why the scroll bar is horizontal instead of vertical. There seems to be no reason why it

By Marion Deland

shouldn't run down the length of the document, as others do.

EDITING A DOCUMENT

Transcript has many features to ease document editing. You can "Open" a file (in a new window) or "Load" it (in the existing window). A document can be as large as memory permits, and the manual states that you can work on several documents at the same time. I was stalemated when I tried to open a fifth document with an interlaced screen. The program said there wasn't enough memory, but the "avail" command (Workbench 1.3) said I had nearly 1 MB of memory left, including 130K of CHIP RAM, most of it contiguous. It seemed there was room for at least one more new document. I "iconified" the document windows, but it didn't help. With a non-interlaced screen, the program opened nine new documents without a complaint. Is there a bug here, or am I just underestimating the CHIP RAM needed for interlace?

Speaking of memory, there is also a program called TransEdit on the disk. This is a stripped-down version of Transcript, with no printing nor hyphenation, for those first drafts of a document. It takes less memory, and it's useful if you're memory-conscious. Also for those memory-conscious is a feature called "pack text memory," it makes Transcript's internal text storage more efficient, and may salvage some memory in a crisis.

Back to editing. With Transcript, you can get around the document quickly; paragraph by paragraph, screen by screen, top/bottom of the document, etc. There are also four "bookmarks"; you can mark your place in the document and get right back to it by pressing a function key.

You can delete a word, sentence, paragraph or line with Amiga-key combinations. The deleted text is stored in the clipboard, so you can paste it back if you made a mistake.

With most word processors, highlighting a piece of text puts you into "highlight mode." You can only cut or copy, so if you type anything else, you lose the highlight. With Transcript, however, highlighted text stays highlighted until you clear it with Amiga-H or highlight another piece of text. You can type and delete characters, move around, etc., and the highlight will stay there. Two function keys let you move between the beginning of the highlight and the end. You can also save the highlighted text as a separate file.

You can add to the paste buffer without erasing what is already there. It's very useful, for instance, if you are writing an article that quotes from a transcribed interview. Instead of cutting and pasting back and forth between the two documents, you can snip phrases from the interview, building them into a coherent quote, then paste the whole thing into the new document. I also use it for a review like this one, to organize my jotted notes into a logical flow and to rearrange sentences. (A tip: clear the buffer before doing this!)

The Find/Replace function has all the usual options, with a couple of extras. You can search forward or backward, as well as search from the top of the document. You can match upper/lower case. The question mark is allowed as a wild card, and you can search for style codes, index markers and format codes including returns.

Transcript treats a tab as a series of spaces, not the tab character, so there are no aligned or justified tabs. However, the writers of Transcript know all about the problems of reading ASCII files into word processors, so you can insert a tab character (ASCII 9) into the document, specifically for exporting to another program. There are also commands to "join single lines" (i.e. take unwanted return codes out of imported text), and "separate lines" (to break up a document for a text editor or telecommunication). You can use these commands on the whole document or just the highlighted range.

Another nice idea is case conversion; highlighted text can be converted to upper or lower case. I also like being able to do a quick word count of a Transcript document. (Word counts can be the bane of a writer's existence.)

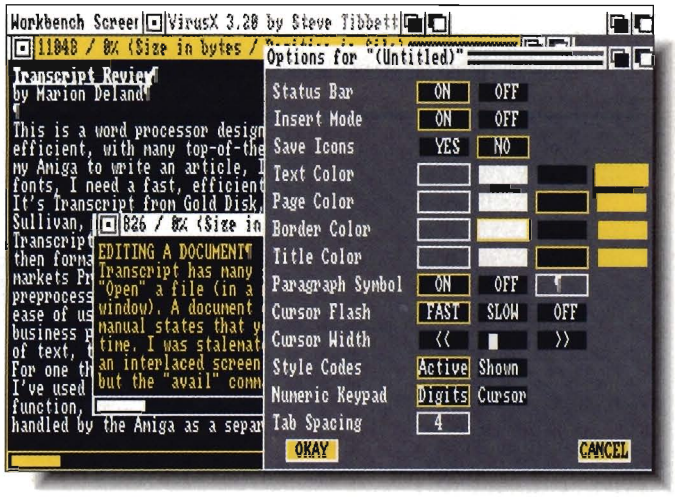
The Transcript manual is brief and easy to read, and it contains some good advice. There's a section on creating "dummy" format files, for example, and one on juggling colors and contrast on an interlaced screen. Another chapter deals with customizing Transcript; you can customize the program and individual documents, with either the Options Control Panel, icon tooltypes or CLI command line option codes. You can set colors, the cursor flash and width, tab spacing, insert/typeover, and more. There's a list of no less than 25 tooltypes to choose from.

When you save a Transcript document, everything is saved, including these options. The document loads back in exactly as it was; the window is the same size and position, with the cursor in the same place, ready for you to continue where you left off.

Two separate Transcript documents, each in their own window, open on the Workbench screen

FORMATTING A DOCUMENT

Since Transcript is essentially a text editor, it is not WYSIWYG ("what you see



The Options requester box where the formats for each working window are specified

is what you get"), except for bold, italic or underlined text.

There are no special fonts; Transcript uses only the Topaz font to display text on the screen. The size of the font depends on the screen format: an 80-column screen uses Topaz 8, an interlaced screen uses Topaz 11 and a 60-column screen uses Topaz 9, though it's not recommended. The usual styles are available, but the key combinations are slightly different; Amiga-_, for instance, turns on underline. There are also symbols available with Alt-key combinations.

Formatting is an "extra." This is the trade-off for all that speed and compactness. You control much of the formatting: margins, line spacing, hyphenation, with the print requester. If you want to include other formatting options, such as justification, headers/footers, widow/orphan control and printer escape codes, you type in two-character format codes. If you're used to word processors where formats are selected from the menus, you may find these format codes awkward to begin with, but once you use them, they're easy enough.

Soft hyphens (to override Transcript's hyphenation choices) and hard spaces (to have Transcript treat two words as a single word) are also available.

The print requester includes a screen preview so you can see if you've got the formatting right. If the program spots an error in your formatting codes, it tells you so, and puts the cursor on the error so you can fix it quickly. A "format example" file on the disk helps you figure out the answers.

OTHER USEFUL FEATURES

There's a separate spell checker. You can multitask it, accessing it from Transcript's menus, or use it independently. There's a "batch" option; it creates a file of unrecognized words so you don't have to decide each one manually. The dictionary loads into memory, however, if you're short on memory you can run it from disk. I used it on this review, and it choked only on names, unusual terms, and contractions like "I've" and "wouldn't." In addition to the main dictionary, you can create user dictionaries and exceptions dictionaries (words you want the spell checker to reject).

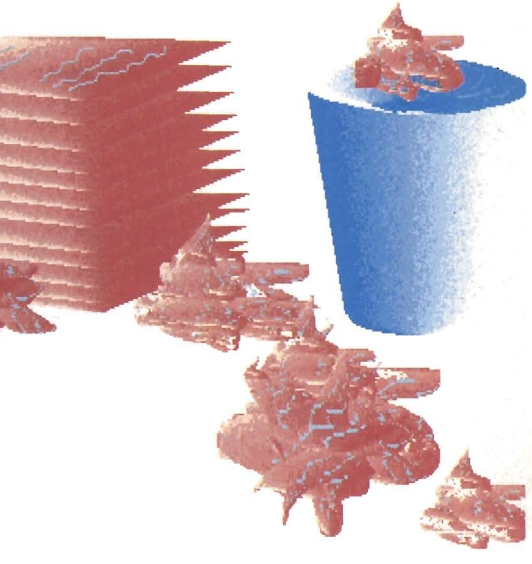
Mail merge is available, with up to 99 fields and an unlimited number of records. There's also an indexing feature; you can mark words or phrases (each up to 48 characters), and the program will list them alphabetically, with their corresponding page numbers, in a separate file. This is not a speedy process, indexing never is, but the program reports progress page by page.

Headers and footers are also featured. You create them with those two-letter formatting codes, then put your text in quotation marks. The pound sign "#" prints out as the page number. This is not as easy as menus, but it's not hard either.

Macros are a last-minute addition to Transcript, described in the README file, but not in the manual. You can create up to 10 macros (one for each function key), including two that can be driven by the mouse, and they can be chained. Macros can include both keystrokes and menu selections, but operations on requesters will be ignored. For instance, you can use a macro to bring up a file requester, but not to click on "okay."

There are a few features not available in Transcript that can be found in programs like WordPerfect, notably math, columns and aligned tabs. Graphics-based word processors are a different kettle of fish entirely, but for straightforward writing, this is the best program, and the best value, on the market. ❑

Transcript
Gold Disk Inc.
P.O. Box 789, Streetsville
Mississauga, Ont.
CANADA, L5M 1C2
(416) 828-0913
$69.95 (US/CDN)



AmigoTimes Designer Disk Set

What are AmigoTimes designer disks?

The AmigoTimes DESIGNER DISK SET was created because of the large volume of interesting Public Domain programs that we have collected, but due to size constraints, are unable to place on the AmigoTimes issue disk accompanying the magazine.

Each DESIGNER DISK SET deals with a specific theme, and is packaged as a three (3) disk set, packed with close to 2.6 megabytes of information relating to a specific theme. This gives you the freedom to choose only those programs that you would like *to have*. ***To order any of the Designer Disk Sets, use the subscription form in this Issue.***

ANIMATIONS

DESIGNER DISK SET

This was the first *DESIGNER DISK SET*, with the theme being animations. Many of these animations are must haves (check issue v1.2 for a description of some of them) and would never have appeared on the disk accompanying the magazine. All the necessary tools needed to run the animations are on the three disks, all you have to do is double click on their icons and away they go.

INCLUDED ON THE SET

BOING THROWS (WITH SOUND)
FROG_MOVIE
TELLSTAR-ONE
GHOSTPOOL (WITH SOUND)
KHANANKAS (WITH SOUND)
MOTION_MACHINE
BUBBLES
CAR
TOWER

UTILITIES

DESIGNER DISK SET

Here is the next *DESIGNER DISK SET* following in the footsteps of its predecessor. The idea is exactly the same, just the topic is different. Its three disks full of handy utilities, including icon tools, dir tools, accelerators and many more important utilities that will help you function more productively. Some of the programs that will be appearing on this DDS have been around for a while, but are either classics, must-haves or updates.

MAIN CATEGORIES ON THE SET

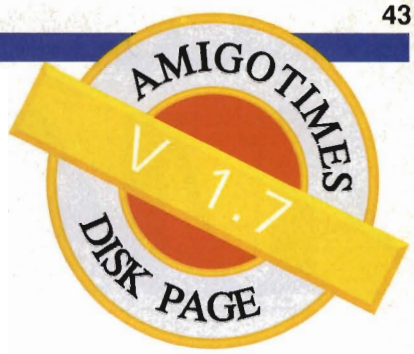
DIR_HELPERS (4 progs)
GADGETS (4 progs)
SPEED (6 progs)
CLI_HELPERS (12 progs)
SYSTEM_MONITORS (9 progs)
PROTECTION (3 progs)
POTPOURRI (21 progs)
MOUSE_HELPERS (5 progs)

MIDI & Sound Samples
AT_ANIMATION_CONTEST_WINNERS
(you saw them in issue v1.5)

PLANNED DESIGNER DISK SETS

TELECOMM
GRAPHIC
UTILITIES
SPECIAL FONTS
PICTURES EXTRAVAGANZA

The above disk sets are currently in production and as soon as they are available, will be announced in AMIGOTIMES magazine. *All DESIGNER DISK SETS are sold separately.*



Why include a disk with a magazine?
It allows AmigoTimes to provide the reader with some of the latest and best commercial demos, shareware, and public domain software available. Making demos of commercial programs available on the disk allows you to have hands on experience with the program before actually going out and buying the original package. How about public domain software and shareware? You now have access to a vast, continuously changing library.

As a programmer you will have available to you pretested source code that does not have to be typed into the computer; most of the source code and running programs that are referred to in AmigoTimes articles can be found on the disk.

CONTENTS

All material on the enclosed disk has been made available by third pa ng them as public domain software or shareware. Some of the programs were r AmigoTimes. All DEMOS provided on the disk are made available bot f the Companies, and agreement to their distribution as PUBLIC DOMAIN goTimes Disk is freely distributable and belongs in the PUBLIC DOMAIN. We fu areware concept and suggest you contribute the amounts requested by sharev find their programs useful.

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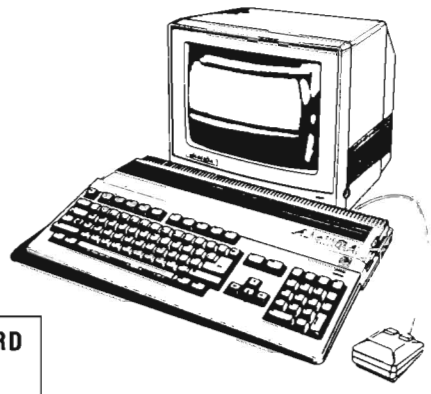

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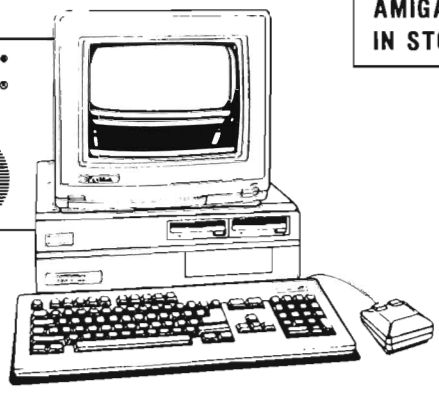

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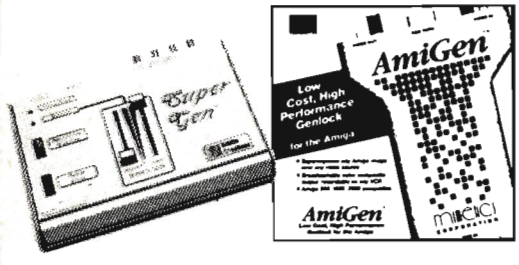

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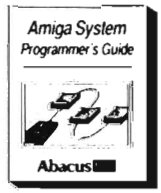

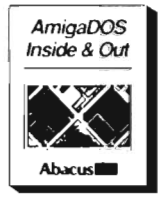

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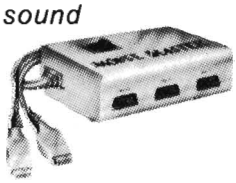

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Comprendre et bien exploiter son Amiga (1,3)

NOUVEAU MANUEL FRANÇAIS INDISPENSABLE POUR TOUT UTILISATEUR D'AMIGA

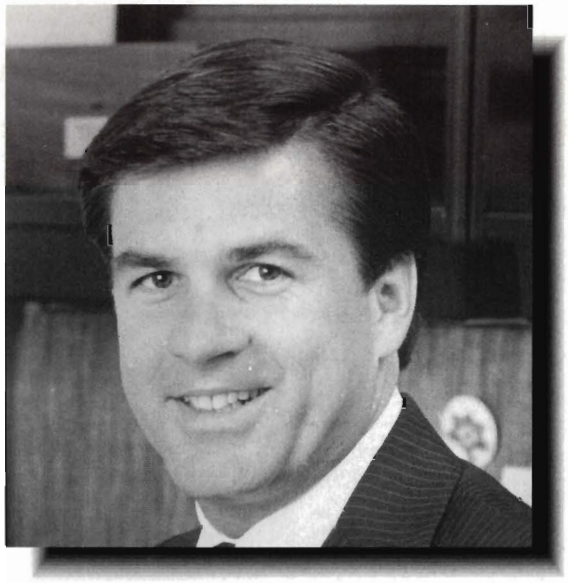
The Amiga monitor
Vol. VII

NEW PRESIDENT FOR COMMODORE BUSINESS MACHINES

Commodore International Limited has named Harold D. Copperman as President and Chief Operating Officer of Commodore's U.S. Operations, Commodore Business Machines, Inc.

Mr. Copperman, 42, was formerly Vice President and General Manager, Eastern Operations, of Apple Computer, Inc. He also managed Apple's Federal Systems Group. Before that, he served with IBM for twenty years, most recently as National Director of Marketing for IBM's Academic Information Systems Business Unit.

Mr. Copperman said that he plans to take advantage of Commodore's broad range of products to further penetrate the education market. He also plans to continue to build and enhance their dealer distribution network. These activities are in line with Commodore's continuing U.S. and worldwide strategy of increasing its presence in business, government, and education while maintaining and expanding its traditional strength in the consumer sector. ❑



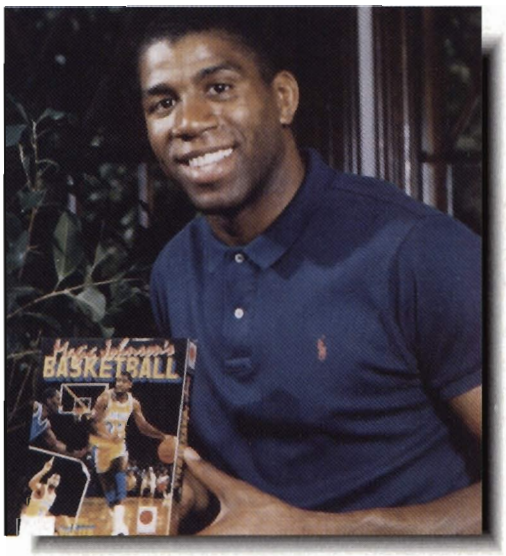
CBM's new man at the helm Harold D. Copperman.

MAGIC JOHNSON'S BASKETBALL BEGINS SHIPPING

The game, endorsed by superstar Earvin "Magic" Johnson, is a direct translation of the new arcade game, Magic Johnson's Fast Break Basketball.

The two-on-two game is played on a full-court scrolling screen with officials. After each game is played, player stats are updated. Both one and two-player options are included in Magic Johnson's Basketball. At the end of the one-player contest against the computer, the player, if victorious, can go one-on-one with Magic in a test of skill and daring.

Magic is considered to be the most outstanding star in professional basketball today. He is an NBA leader in assists and steals, and one of the top scorers. Magic's contribution to the new computer game goes beyond the usual professional endorsement of a quality product. His commentary in the development of the game has provided the programmers with input on style and technique. ❑



Electronic Arts now allows you to go one-on-one with Magic Johnson.

MAGIC JOHNSON'S BASKETBALL
Virgin
Mastertronic Inc.
711 West 17th St, Suite G9
Costa Mesa, CA 92627
USA
(714) 631-1001
$49.99 (US)
Shipping around August

ENTER THE MENACING WORLD OF SHINOBI

Deep in the caverns of the city roam members of an evil terrorist network who have kidnapped the children of the world's leaders. There are dozens of beastly golden Buddhas, flying fireballs and an evil oversized helicopter that must be overcome before you complete your mission successfully.

Use your mighty Ninja stars to fend off thugs, mongos and green Ninjas. You'll also need Ninja might and magic for the impossible moments against the evil Ring of Fire and to fight off a relentless army of terrorist attackers in Shinobi, the home-computer version of the arcade success. Available in September. ❑

SHINOBI
Mindscape
3444 Dundee Road
Northbrook, IL 60062
USA (312) 480-7667
$49.95 (US)

BYTE BY BYTE SHIPS SCULPT-ANIMATE 4D JR.

Sculpt-Animate 4D Jr. (SAJr.), the consumer version of the professional Sculpt-Animate 4D software has recently been released. SAJr. is targeted at consumers and educational institutions who wish to gain a flavor for 3D design and animation. SAJr. is an integrated three dimensional design, rendering and animation software program for the Amiga personal computer.

The SAJr. interface enables the user to create a computer simulation of virtually any 3D shape. It was composed for people who want to learn 3D design and animation skills with minimum effort. The program automatically takes care of the messy details such as perspective, illumination, and in-betweening. The user controls object rotation, camera movements, timing, and action with an easy-to-use graphical interface. The animation may be previewed in real time wireframe before final rendering in full color. Animations can be compressed in either SAJr.'s internal format or ANIM 5 and then replayed from RAM. The rendering options include wireframe or polygonal shading. The scenes created in any of the Sculpt-Animate packages are interchangeable.

Sculpt-Animate 4D Jr. comes with a 200 page manual. This software can be used with a minimum configured 512K Amiga, although 1 MB of RAM is recommended for complex animations. ❑

SCULPT-ANIMATE 4D JR.
BYTE by BYTE
Arboretum Plaza 11
9442 Capital of Texas Highway N.
Suite 150
Austin, TX 78759
USA (512) 343-4357

The places you will see, and the things you will do! An entertaining and educational way to see the world.

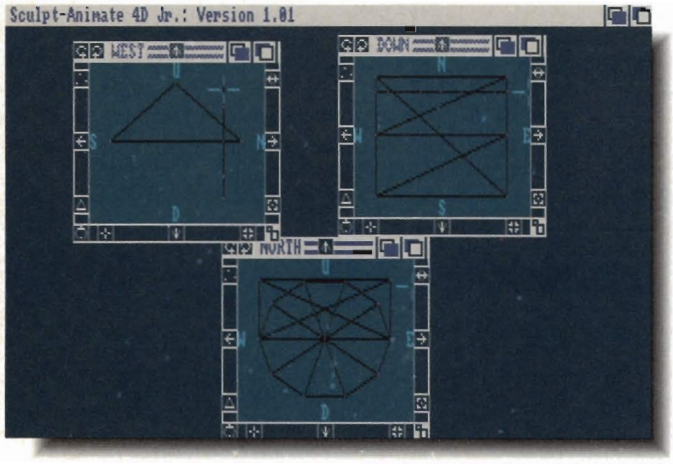
WHERE IN THE WORLD IS CARMEN SANDIEGO?

This combination education and entertainment series has been a consistent top seller. It has also received several honors, including the Best Learning Product award from the Software Publishers Association.

WHERE IN THE WORLD IS CARMEN SANDIEGO? is the first of the series to be released for the Amiga. It has been redesigned to take advantage of the Amiga's high-resolution graphics and extensive color palette.

In the Carmen Sandiego geography adventures, Carmen and her gang of thieves steal the world's priceless treasures and landmarks. Players must capture the various gang members and eventually Carmen herself by questioning witnesses and unearthing clues at the scene of each crime. The clues may involve topography, cities, flags, currency, languages, historical events or other facts. The program includes a copy of the World Almanac to help players decipher clues. ❑

WHERE IN THE WORLD IS CARMEN SANDIEGO?
Broderbund Software
17 Paul Dr.
San Rafael, CA 94903
USA
(415) 492-3200
$44.95 (US)



The tri-view working area of the Sculpt-Animate 4D Jr. interface

LATTICE LOWERS PRICE OF C++

As of April 3, the price of Lattice's C++ package for the Amiga has been reduced from $500.00 to $300.00.

Lattice is also offering additional savings to current customers in the form of discount coupons. Owners of the Lattice AmigaDOS C Compiler can take $100 off the price of C++, and purchasers of C++ can save $100 off the price of Lattice C. The coupons are included in Lattice's C++ and C Compiler packages. Registered users may also obtain the discount coupons through Lattice's customer service department.

"The price reduction is a direct result of the product's success," explains Robert Hansen, Lattice vice president. Based on the higher than expected volume of sales, it is apparent that the product is also being used by a large number of professional and professional-level software developers. Since we will be able to recover the development costs much sooner than expected, we are choosing to pass these savings on to our customers," said Hansen. ❑

C++
Lattice
2500 S. Highland Ave.
Lombard, IL 60148
USA
(312) 916-1600

TAKE THE ACCOUNTING OUT OF ACCOUNTING WITH NIMBUS 1.3

Nimbus is designed for the small business owner who has no time to spend with a complex accounting system. The user can set up his books in just a few minutes with its editable built-in Chart of Accounts and pre-defined statements and reports.

Nimbus' multitasking capabilities give constant access to the General Ledger, Accounts Payable, and Accounts Receivable. The General Ledger is automatically updated when data is entered into either Accounts Payable or Accounts Receivable. In addition, any Nimbus report including invoices can be printed in the background while working on other Nimbus tasks or even other programs.

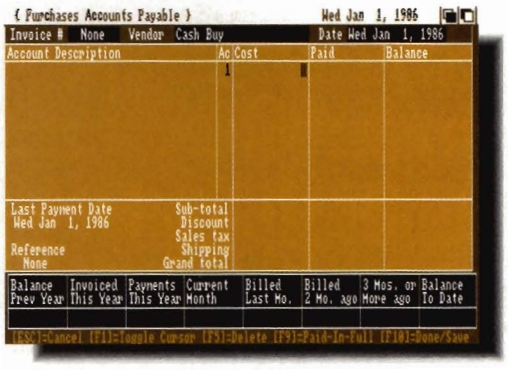
Customers and vendors are tracked by name, rather than by numbers. The small business owner can find information on any customer or vendor by simply entering the first few letters of the customer or vendor's name. Pre-defined invoices can provide, at the users option, a summary of customer account aging. This lets the small businessman know his customer's account status and acts as a customer statement of prior invoices.

Nimbus was written for the novice computer person and the non-accountant business owner to do his accounting and record keeping for him. User friendly mini-menus guide him through the data entry process and enable him to quickly produce invoices and enter payables. Nimbus takes the accounting out of accounting: no more debits and credits, all the accounting is done internally by the program. The user enters checks and creates invoices in an everyday business manner. The first time computer user will not be intimidated by the Nimbus program.

Nimbus 1.3 new features include installation on a hard disk, storage of data on separate data disk, the choice of printing invoices on pre-printed forms or on plain paper. It also includes improved End of Month processing, mouse clicks or keyboard equivalents for every command.

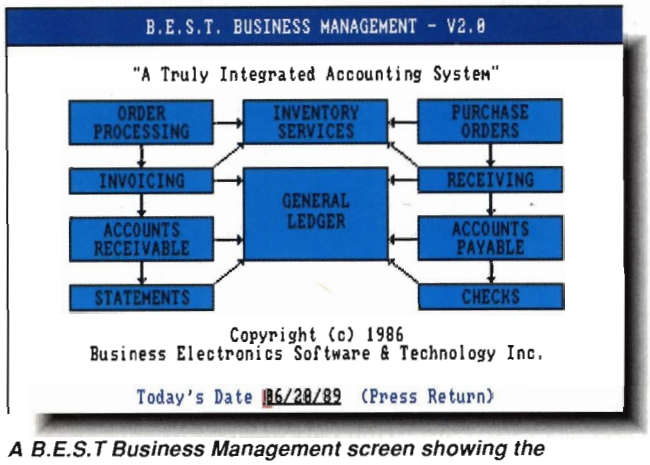
Upgrades are available to all registered owners of prior versions of Nimbus.

NIMBUS 1.3
Oxxi Inc.
P.O. Box 90309
Long Beach, CA 90809-0309
USA
(213) 427-1227
$159 (US)
Update: $25 (US)



The Purchases Accounts Payable screen of Nimbus showing a sample invoice .

B.E.S.T. BUSINESS MANAGEMENT



A B.E.S.T Business Management screen showing the program organization in the form of a flow chart

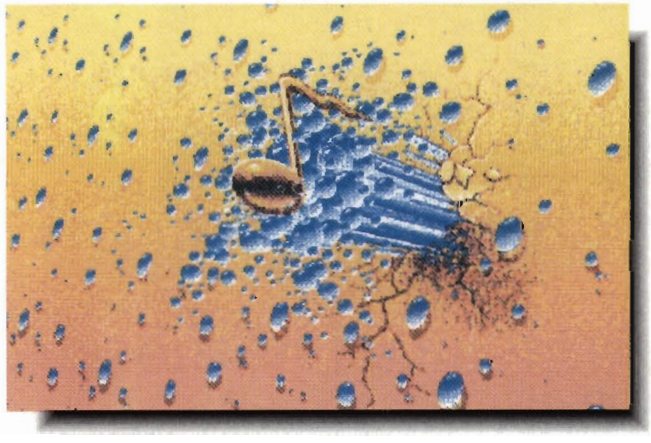
B.E.S.T. is the Professional software for your accounting and business information management needs. Now you don't have to become an accountant to computerize your business. It is easy-to-learn, easy-to-use, and is supported with an understandable, illustrated, 380-page owner's manual.

Conduct your business your way. You can sell products or services, print your statements and detailed invoices for your customers and receive payments. Order and receive your goods and print checks to pay your suppliers. And spend more of your time with your customers.

B.E.S.T. Business Management adjusts your inventory and updates Receivables and Ledger Accounts automatically. It adjusts your inventory and updates your payables and ledger accounts. In addition, it helps you organize and categorize your business information so that you can manage your business more effectively.

B.E.S.T. is complete and integrated. It lets you print purchase orders, invoices, statements and checks using imprinted or non-imprinted B.E.S.T. business forms and double window envelopes. Also with owner defined password security, you choose who has access to which parts of your business data. ❑

B.E.S.T. BUSINESS MANAGEMENT
Business Electronic Software & Technology, Inc.
P.O. Box 2305 19
Tigard, Oregon 97224
USA
(503) 684-6655



A colorful computer graphic printed on an ink-jet printer with Inky Dink

AN AFFORDABLE ALTERNATIVE TO EXPENSIVE INK-JET INK: INKY DINK

Once you've tried inky dink, you'll never go back to the high priced manufacturer's ink.

Inky dink was developed by an independent laboratory to provide better color printing at a lower cost. Inky dink can provide your images with richer blues, fiery reds and deep, velvety blacks. In addition, it is nearly half the price of competing brands.

Inky dink is available in cyan, magenta, black and yellow and in three sizes (17, 34, 62cc). It's compatible with most color ink jet printers. ❑

INKY DINK
Software Sensations
1441 South Robertson Blvd.
Los Angeles, CA 90035
USA
(213) 277-8272

INTRODUCING PERFORMANCE FROM PREGNANT BADGER MUSIC

Performance is the first software package for the Amiga that lets you use your existing patch files and sequences in live situations. Now you can use your sequences at a gig without having to bring your sequencer, automatically transfer patch files to your equipment, have your synth presets memorized for each song. It also has an impartial expert to organize your sets for you and it uses a single software package to integrate your sequences, patch banks and song presets.

Performance was written with the live performance in mind. Once your repertoire is in a Performance file, Performance accesses your patch files and sequences and knows how to send them to your MIDI hardware automatically when you change songs. Loading the next song requires just one tap on the space bar.

Performance uses a user-defined database to track all the information associated with each song in your repertoire. It also lets you create an unlimited number of sets for live gigs using Performance's built-in set randomizing and editing tools. It supports standard MIDI file sequences and patch files in raw MIDI format. ❑

PERFORMANCE
Pregnant Badger Music
10010 Biscanewoods Way
Sacramento, CA 95827
USA
(916) 361-8217
$179.95 (US)

24-BIT COLOR SEPARATION UTILITY FROM ASDG

ASDG plans to produce ASDG-RESEP, a new utility program that will automatically insert 24-bit color images scanned using ASDG's Professional ScanLab into Postscript color separations generated in Professional Page.

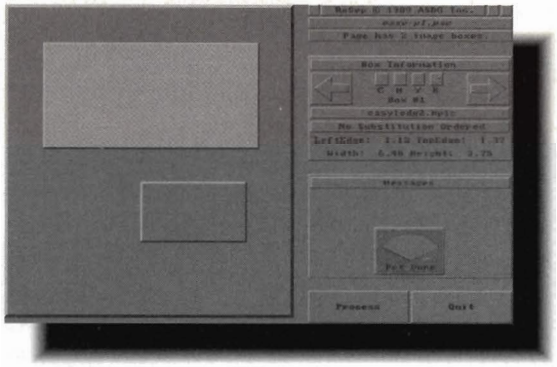
Developed in cooperation with Gold Disk, ASDG-RESEP is a conversion utility for use in conjunction with a page composition system composed of Professional Page, Professional ScanLab, an Amiga 2000, and a JX-300 or JX-450 color scanner from Sharp Electronics Corporation.

Perry Kivolowitz, president and founder of ASDG says, "ASDG-RESEP marks an important step in the maturation of the Commodore-Amiga as an inexpensive (under $10,000) workstation for professional quality color publishing."

To use RESEP, an image is saved using the Sharp Scanner and Professional Scanlab in two different formats: as a 4,096 color HAM image and as a 16,000,000 color, 24-bit image. The HAM image is then used in Professional Page for composition and proofing purposes. Once layout is complete, the Professional Page file is color-separated and saved as a Postscript file.

ASDG-RESEP takes a 24-bit color separation performed by Professional Scanlab, which it uses to replace the HAM color separation in the Postscript file previously made by Professional Page. The whole file is saved in Postscript format, and can then be sent across the serial or parallel port directly to a Linotype imagesetter, or if you don't have one to an outside service bureau for producing the color films used in printing. ❑

ASDG-RESEP
ASDG
925 Stewart St.
Madison, WI 53713
USA



With RESEP, a Professional Page v1.2 generated postscript file is loaded and its HAM separations are replaced with 24-bit seps produced with ScanLab. The scans in AmigoTimes are separated this way.

THE FUTURE OF DESKTOP VIDEO...

This summer, Digital Creations and Progressive Image Technology will introduce a complete and cost effective line of professional desktop video (DTV), paint, titling and animation products. After more than two years of development and with video memory and gate array design technology, Progressive Image has created a new series of revolutionary DTV products.

V MACHINE

The V MACHINE is a sophisticated DTV workstation designed to provide an all-in-one solution for all your video production needs. This DTV tool is a Time Base Corrector with dissolve, overlay and keying systems, and a programmable real-time digital video effects system. Incorporating video digitization, scan line scaling, translation and matting capabilities, the V MACHINE can manipulate video in real-time.

As incoming video is digitized on one channel, it can be played out again synced with video passing through another channel. To do this, a full frame of video memory is used. Since the V MACHINE is capable of syncing to non-time base corrected video, it is able to do this with simple VCRs and doesn't need any other equipment.

It can also shrink or expand the video on a line by line basis, before it puts it into the frame buffer. Once the video is in the frame buffer, it can also be played out in sophisticated ways. With the Video Artist Workstation software, the V MACHINE is put through its paces doing many effects and lets you create new and different effects of your own design.

The V MACHINE also functions as a frame store or paint box with revolutionary features and picture quality at a full resolution greater than S-VHS bandwidth. With a maximum resolution of 1024 x 512 x 16 million colors, the V MACHINE with Living Color PaintBox becomes a full function paint box.

LIVING COLOR

This series includes add-on expansion options for the SuperGen 2000S card and professional desktop video software. Hardware add-ons include a frame buffer and TBC/digitizer option. Software products include PaintBox, Special Effects, Titling and Animation.

LIVING COLOR FRAME BUFFER: This provides the Amiga with full 16 million color Paint capability. There are also several color register indirect and double buffering display modes that let both color cycling animation and ANIM type animation with up to 256 colors. Living Color Paint, IFF picture and ANIM conversion systems are included with Frame Buffer.

LIVING COLOR PAINTBOX: This is a virtual color resolution paint system included with all our paintbox products including the Frame Buffer and the V MACHINE. A version of Living Color PaintBox is also available for the Amiga in all its resolutions and drawing modes including HAM.

LIVING COLOR TBC/DIGITIZER OPTION: This option gives the Frame Buffer the ability to digitize video in full 16 million color space and acts as a video Time Base Corrector. It can also shrink or zoom, move and then overlay the digitized video in real time relative to the video input on the SuperGen 2000S board. It includes Video Artist Workstation software for creating visual effects with the TBC.

VIDEO ARTIST WORKSTATION: This is the real time, interactive software system for the creation of visual special effects. With the Video Artist Workstation, included with the V MACHINE, the video professional can create and modify thousands of special effects.

SUPERGEN 2000S

The SuperGen 2000S is a S-VHS compatible Genlock and overlay card for the Amiga 2000 series computers. It is installed into the video slot of any A2000 or A2500 Amiga computer. Further capabilities are provided through upgrade paths to a frame buffer with time base correction and full color video digitization through the Living Color series of add on expansion products.

The SuperGen 2000 encodes and overlays in separate luminance and chrominance channels to guarantee full S-VHS bandwidth and stunning picture quality. It also supports composite RS-170A NTSC video, and with separate channel encoding, color crawl is virtually eliminated. ❑

Digital Creations
2865 Sunrise Blvd.
Suite 103
Rancho Cordova,
CA 95742
USA (916) 344-4825

INFILTRATE A MILITARY OUTPOST OF THE FUTURE WITH DARK SIDE

Dark Side, a 3-D space adventure, takes the player on an ominous jaunt into a twilight zone of deadly surprises. He becomes a mercenary of the future dedicated to save the world from imminent destruction. Armed with lasers, shields, and a jet power pack, he must infiltrate a heavily-guarded military zone and destroy the doomsday weapon before the apocalypse is unleashed.

Nothing is what it appears to be, as the player discovers hidden geographical secrets, learns to use powerporters and unravels the mysteries of the telepod crystals hidden throughout the lunar military grounds.

Dark Side features Freescape, the smooth-scrolling solid 3-D system. Players will believe they are travelling in a futuristic world as they view their entire surroundings in a first-person point-of-view. ❑

DARK SIDE
CINEMAWARE
4165 Thousand Oaks Blvd.
Westlake Village, CA 91362
USA (805) 495 6515
$39.95 (US)

DAZZLING MOTION WITH FANTAVISION

Your computer can bring you a wild, wonderful world of make-believe to life with Fantavision. Create imaginary creatures dancing in the sky, racing rhinoceroses, etc. You can do it all in sharp, clear color, with an original sound track.

Draw something in one frame, then instantly bring it to life. You can create your own motion picture by using the special tools such as "tweening" and "transforming." With Fantavision, your computer can instantly generate dozens of "in-between" frames for every one that you draw. After you produce smooth fluid movements and special effects, make ShowDisks for your friends so they can watch your movies on their own computers. If you're not an artist, Fantavision makes it easy to get started. A built-in demo gives you ready-made movies and backgrounds so you don't have to create everything yourself. ❑

FANTAVISION
Broderbund Software Inc.
17 Paul Dr.
San Rafael, CA 94093-2101
USA
(800) 521-6263
$59.95 (US)

XII RELEASED FOR THE AMIGA COMPUTER

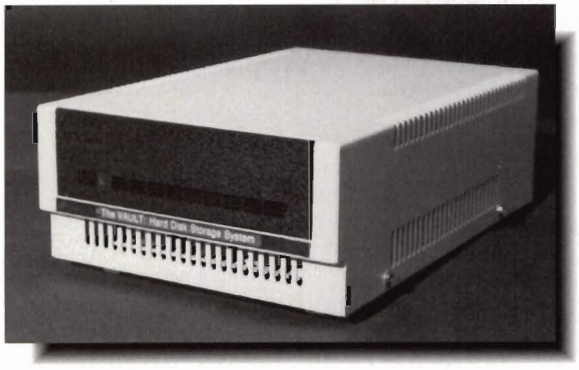
The first release of XII which runs on the lowest cost computer that supports XII server and clients is the Amiga Personal Computer.

It supports displays up to 1008 x 1024 on a special monitor and resolutions down to 640 x 480 on lower cost monitors. On the Amiga, XII takes advantage of the custom blitter chip to speed up operations. The Amiga XII is just as fast if not faster than more expensive XII machines.

The Amiga XII uses top/ip over ethernet for connections to other machines and an efficient shared memory message passing scheme for local connections. It supports up to fifty different printers, both b/w and color. A single Amiga can be used as a general purpose print server.

Amiga XII coexists with the native windowing operating system of the Amiga. Since the Amiga can split its display into multiple bitmaps with different resolutions and colormaps, one can be using uwm in one X screen, twm in another screen, Intuition in the standard Amiga Workbench screen, and any number of the amazing paint/animation programs available for the Amiga in another screen. ❑

AMIGA XII
Dale Luck
GfxBase
1881 Ellwell Dr.
Milpitas, CA 95035
USA (408) 262-1469
$395 (US)



VAULT: THE LOW-COST, EXTERNAL HARD DRIVE FOR AMIGA 500 AND 1000

The Vault is an inexpensive data storage system that uses a unique hardware & software interface which allows the use of standard low-cost, IBM-style hard disks with the Amiga 500 and 1000 computers.

The vault includes an intelligent interface cable that enables you to connect it together to the 500 or 1000. The cable will automatically adjust to compensate for the differences between the A500 and A1000 expansion bus.

It also comes with CLImate, the popular software utility program. The Vault is packaged with utility software for maintaining your hard disk. It is complete with 20 MB drive, controller, software, power supply and instructions. ❑

VAULT
Progressive Peripherals & Software, Inc.
464 Kalamath St.
Denver, CO 80204
USA
(303) 825-4144
$599.95 (US)

THE SERIAL SOLUTION

Do you have an extra printer or plotter you'd like to use? Are you tired of switching between your MIDI interface and your modem? Are there specialized Amiga peripherals you would like to use, but your built-in serial port is already full?

Checkpoint Technologies announced the Serial Solution, a dual-port serial board for the Amiga 2000. It is an internal Amiga plug-in board which adds two more serial ports to the existing built-in serial port. The first port on the board is an Amiga-compatible 25-pin serial port. This port supplies 12 volts of power and will accommodate most Amiga-specific peripherals. The second port is an AT-compatible 9-pin serial port which is equivalent to the first, but will adapt to AT serial cables.

The Serial Solution provides more convenience to the user and complements the Amiga's existing multi-tasking operating system. Most existing software written for the Amiga's internal port will work with the Serial Solution. A port configuration program will allow your existing software to work with either the 25-pin port or the 9-pin port.

Typical devices that might be used with the Serial Solution are printers, plotters, laser printers, PostScript printers, modems, MIDI interfaces, drawing pads, sound samplers and VCR controllers. Now you can do all this, on-line simultaneously! ❑

THE SERIAL SOLUTION
Checkpoint Technologies
P.O. Box 2035
Manassas, VA 22110
USA
(703) 330-5353
$299 (US)

BROADWAY COMES TO HOME COMPUTERS WITH THE KRISTAL

Based on the Kristal of Kronos, an original stage musical, this science fiction epic brings the look and feel of a Broadway performance to home computers.

The Kristal, a 3-D interactive stage production for home computers, is the first computer game ever to have its origins in a stage musical. It features graphics, including 60 scenes to serve as backdrops for the action. Characters are carefully animated to express personality, so that a beggar limps, a hippy slouches and guards march boldly in front of castle gates.

High drama and humor abounds as the player takes on the role of Dancis Frake, a space pirate who seeks the long-lost Kristal of Kronos. Emerging from a timeless dream with no memory of who he is or where he's from, Dancis must discover the secrets of his past as well as his future on this colossal adventure.

The Kristal includes the finest elements of graphic adventure and space exploration. Scores of lifelike animated characters interact with the player, providing clues to the quest. If a spaceship is acquired, the player can travel to planets throughout the galaxy on his search to locate the mysterious Kristal. Many adversaries attempt to obliterate Frake and his plans to save the universe. Swordfighting encounters and heated space battles are just part of the action awaiting the adventurer. ❑

THE KRISTAL
Cinemaware
4165 Thousand Oaks Blvd.,
Westlake Village, CA 91362
USA
(805) 495-6515
$49.95 (US)

INTRODUCING PROFESSIONAL GRAY-SHADE VIDEO DIGITIZER

Progressive Peripherals will take the lead in June in the professional video market with the release of FrameGrabber 256, a real-time, 8-bit video digitizer. FrameGrabber 256 captures interlaced, 256-shade, monochrome images in 1/30 of a second on a standard Amiga monitor.

FrameGrabber 256 allows any standard Amiga monitor to display 256 shades of gray with up to 16 images on the screen simultaneously. The FrameGrabber 256 also has a Delta mode for real-time image comparisons. When it is used with an RGB camera or color wheel, the FrameGrabber 256 can digitize static images in 16.7 million colors with 24-bit, true color accuracy.

The digitizer comes with four RCA video inputs with programmable video switching and an exclusive Live Video Switch which allows you to preview any video source under software control with a single monitor. The FrameGrabber 256 is also equipped with hardware controls for adjusting brightness and black-level. ❑

FRAMEGRABBER 256
Progressive Peripherals & Software, Inc.
464 Kalamath St.
Denver, CO 80204 USA
(303) 825-4144
$699.95 (US)

S-VIEW: THE CONNECTION

If you've been disappointed with the Amiga's composite video output, get S-View: The Connection, the first S-Video cable for the Amiga computer. Whether you're recording on super-VHS, ED-Beta, Hi8 or presenting your Amiga on a large-screen, S-Video monitor, you need S-View.

S-View will improve you image by eliminating the cross-color interference inherent in the NTSC composite video system. It reduces shadows, ghosts, dot crawl and color smear to the lowest possible level. Text appears sharper and clearer, colors are more vibrant, and graphics will be more accurate and defined. 80 column text becomes easy to read on any standard S-Video monitor or high-band video recording.

S-View is compatible with all Amiga S-Video encoders including CMI's V series, C-LTD's C-View II, and Communications Specialties GenOne. It includes an 8 foot cable length with standard S-Video connector used on all consumer and industrial S-Video equipment. Gold plated connections are used for maximum conductivity without interference. ❑

S-VIEW
SOFTWARE SENSATIONS
1441 South Robertson Blvd.
Los Angeles, CA 90035
USA (213) 277-8272

Digitize images in 16.7 million colors with Framegrabber 256 from Progressive Peripherals and Software

The Classic Wood interface of the ancient board game Kikugi, adapted for the Amiga .

KIKUGI

Image Tech has announced the release of KIKUGI, the first in a series of ancient games.

In ancient Japan, generations of rulers and emperors sharpened their skills of strategy and concentration with Kikugi. The game is as follows: jump marbles and remove as you go, but the strategy suddenly becomes more intricate as you go along. Each move you make limits the amount of remaining moves, making each additional move more intense.

You can load and save games, back-up moves, show all possible moves, time each move or the entire game, and review all the moves made during a game. One or two players can play as well as the computer. The interface keeps track of remaining marbles and announces a score in timed games. If you solve a board, the ancient guru will reward you with some helpful advice. ❑

KIKUGI
Image Tech
6006 Greenbelt Rd.
Suite 189
Greenbelt, MD 20770
USA
(301) 794-7426
$39.95 (US)

LINT 3.0 FOR THE AMIGA

The version 3.0 of Lint for the Amiga is a diagnostic facility for the C programming language. Lint will analyze C programs and report on bugs, glitches and inconsistencies, providing a strong typing facility for C. Lint looks across multiple modules. It helps in developing reliable programs and in porting programs to new machines, new operating systems, new compilers, or new memory models.

Lint 3.0, with 50 new error messages, has established a standard in the degree to which C programs are scrutinized. It detects missing break statements, uninitialized or unaccessed arrays and structures and unsigned/signed mismatches; it contains a variety of precision tests and does a thorough check on the inconsistent use of the ANSI const and volatile keywords.

It features a degree of control over the format and generation of error messages; messages may be suppressed by error number and/or symbol name. Other errors reported on by Lint are: inconsistent declarations, argument/parameter mismatches, uninitialized variables, unaccessed variables, variables assigned, but not used, suspicious macros, indentation irregularities, function inconsistencies, unusual expressions, printf-scanf inconsistencies, and more.

Lint provides 4 types of errors: fatal, syntactic, warning and informational. It provides full K&R and ANSI support, one-pass, very fast operation, use of the large memory model internally with all tables expandable, and special Lint-style comments to suppress errors. ❑

LINT 3.0
Gimpel Software
3207 Hogarth Lane
Collegeville, PA 19426
USA (215) 584-4261
$98 (US)

PROGRESSIVE PERIPHERAL & SOFTWARE RELEASES DUNLAP UTILITIES

Dunlap Utilites, a collection of over 40 interactive utility programs for the Amiga, uses Modular Software. This powerful concept in multi-tasking program design allows multiple, independent programs to perform as a single complete application while letting other existing software to be used simultaneously. Dunlap utilities can even replace the Workbench or CLI with a custom, user defineable interface.

With Dunlap Utilities you can verify and fix hard disk errors without reformatting, select and retrieve one or multiple deleted files, and boot-up and use the Amiga 1.3 Fast File System on a single hard drive partition with Commodore 2090 controllers. In addition, you can add custom menus to your Workbench for loading programs and program your keyboard with 77 hotkey combinations.

You can create convenient, text-driven menus within the Amiga operating system which can replace either or both the Workbench and CLI with one of Dunlap Utilities' more powerful tools. These menus can also be set-up for designing custom databases which can access pictures and sound files. All Dunlap Utility programs can be used independently or run interactive to perform hundreds of functions. ❑

DUNLAP UTILITIES
Progressive Peripherals & Software, Inc.
464 Kalamath
Denver, Colorado 80204
USA
(303) 825-4144
$79.95 (US)

LIVE! 2000

The real-time video Framegrabber for the Amiga 2000 converts composite video to moving digitized images on your Amiga's display. Live! 2000 accepts standard composite video (NTSC) from color or black & white video cameras, VCRs, laser disks, broadcast TV tuners, etc. The NTSC signal's red, green, blue and luminance channels are decoded. You can select either Composite input or direct RGB input from an RGB camera. In addition, it doesn't need external filters.

A-SQUARED provides full programming documentation and a complete programmers' Video Library in the Amiga format, on the Live! disk. Live! 2000 is a single internal card that fits into any of the 100 pin slots in your Amiga 2000.

Live! 2000 features, among many things, dual video source switching which allows you to fade, wipe and cut between two separate video sources. It displays rates in 16-level grey display, 32 color display or in HAM display. It also has Real-time video effects: Color maps, tinting, strobe, posterization, chroma-key, mirroring, keyhole, fade to black and fade to white. ❑

LIVE! 2000
A-Squared Distributions Inc.
6114 LaSalle Ave.
Suite 326
Oakland, CA 94611
USA
(415) 339-0339
$450 (US)

EXPERIMENT A2000

This experimental board for the Amiga 2000 makes it possible to design experimental-circuits like interfaces, graphical extensions, SCSI-controllers, signal processors and much more for the Amiga 2000-bus without the need of designing a completely new board.

Experiment A2000 works as a "SLAVE" only, and complete control over the bus is not supported. The development board is equipped with a ready-to-use bus-interface-logic that supports auto-configuration and provides a decoded adress-range of 64 byte. The upper 32K are usable free, whereas the lower 32K are reserved for an optional transputer-linkinterface (for connection with popular transputer-boards like the INMOS B004 or the SANG MEGA-Link01) and an optional fast 16-bit I/O-port.

All the signals of the Amiga-bus and a /SELECT-pin for the upper 32K realize development at a minimum effort of time and hardware. The main area of the board consists of a wrap-field, that can be used completely for doing your own design. ❑

EXPERIMENT A2000
SANG-Computer systeme GmbH
Am Wunnesberg 13
D-4300 Essen 1
West Germany
Tel. 0201/71 01 191

INVISION

Invision software allows you to capture, process and display video effects instantly and continuously in real time. It takes full advantage of all features of the LIVE Frame Grabber by A-Squared and turns your Amiga and video system into an effects-generating powerhouse.

Invision is simple, interactive and immediate. You can assign effects that you design yourself to keys on the keyboard, where they are then at your fingertips to apply instantly on the moving video, at up to 30 frames per second.

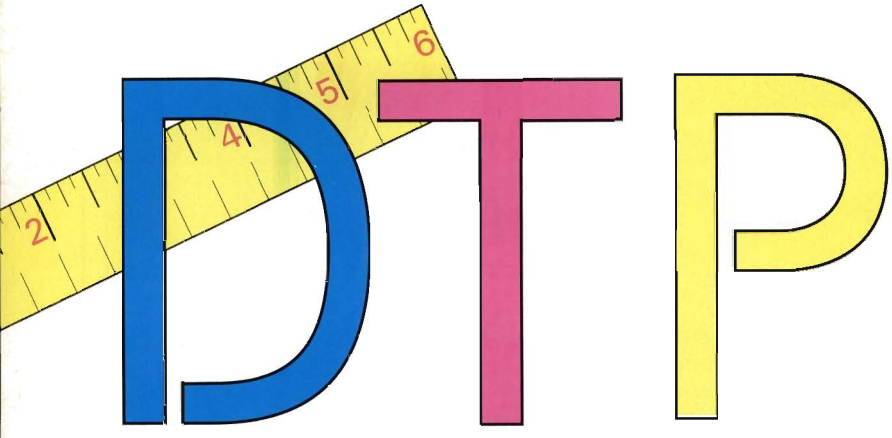
Invision features professional effects such as mosaic, strobe, etc., and you can superimpose titles or IFF image files created in other graphics programs over moving video.

Invision allows you to create your own color maps, add effects to an image and then save it to disk or record it to tape exactly as you see it on the screen.

Moving video can be captured to different keys on the keyboard. When you want to display a sequence, press the key on which it was captured. Then you can use the mouse to play it back and forth, or the arrow keys to single-step through the frames. Or by tapping a capture key, you can grab one frame at a time to perform stop action or video cel animation.

Invision offers endless applications no matter what your profession may be. ❑

INVISION
Elan Design
P.O. BOX 31725
San Francisco, CA 94131
USA (415) 621-8673
$199 (US)



THE AMIGOTIMES
DESKTOP PUBLISHING
COLUMN

By Eyo Sama

A Question of Type.....

This month we are going to look at the different text effects that are possible with Professional Page and Professional Draw. If you are limited by the number of fonts available to you, which most of us using Professional Page are (due to its lack of downloadable fonts), you have to be rather inventive with type to compensate. You have to make it appear as though you have more than the basic few fonts available on a regular laser printer. It is often possible to convert a bland looking page into an eye-catching one by just adding some simple effect such as shadowing or rotation to the headline of a document. There are many other effects that are also possible, so I am going to try to cover as many as time and space allow.

EFFECTS IN PROFESSIONAL PAGE

The most simple and straightforward text effect is shadowing. All it basically involves is duplicating (cloning) your line of text, changing the color of the cloned text, and positioning it at a slight offset behind the original text. The positioning of the shadow greatly varies the effects you can achieve. It looks different depending on whether the shadow is to the left or right of the original text, and by moving the shadow farther away you can add more depth to the page. The color of the shadow should usually be some shade of grey on a white background, though interesting effects are possible by using colored shadows. When the page itself is colored, it doesn't really make sense to make the shadow grey. In such a case it is best to use a darker shade of the page color.

Another simple effect, which is similar to shadowing, is the drop-out text effect. This effect is produced the same way as the shadowing, the only difference is that the page is colored and the shadow is made white, making the text appear as if it had been cut out of the background.

Just by changing the first character of every word in a heading to a different point size, you can embellish the appearance of even the simplest of fonts. What I usually do is increase the point size by about 20 to 40% and lower the baseline by a few points. Using a different color for each letter of a word can also be interesting.

EFFECTS IN PROFESSIONAL DRAW

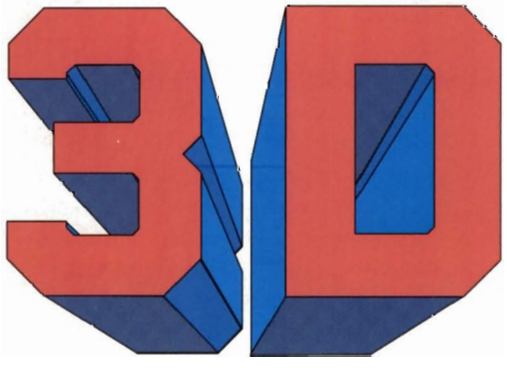
Professional Draw is much more versatile when it comes to manipulating heading text. In Professional Draw, each character is considered to be a bezier-based object which can be modified as easily as any other object created within the program. With the supplied tools it is therefore very easy to rotate and warp your text in many different ways. Unlike Professional Page, Professional Draw does not give you any control over the kerning of your text, the attributes of the individual words (except slanting), or the formatting of several lines of text. All this has to be done manually and can therefore be very te-

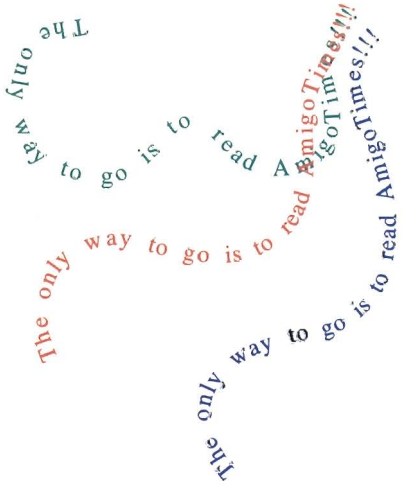
dious and inaccurate. I hope a future version of the program will be enhanced to include these features which can come in very handy when you are adding type to maps, graphs, schematics etc. Until it does have these features, I suggest that you use Professional Page for any blocks of text that require precise formatting and use Professional Draw for larger heading type and complex type effects (for such use it is very effective and quite versatile). Professional Page v1.2 (and upwards) is able to import drawings created within Professional Draw, therefore your fancy heading can be scaled and positioned like any other box on the Professional Page desktop. Unfortunately, if you want to rotate your text you will have to do so within Professional Draw before you export it because Professional Page still doesn't have that capability.

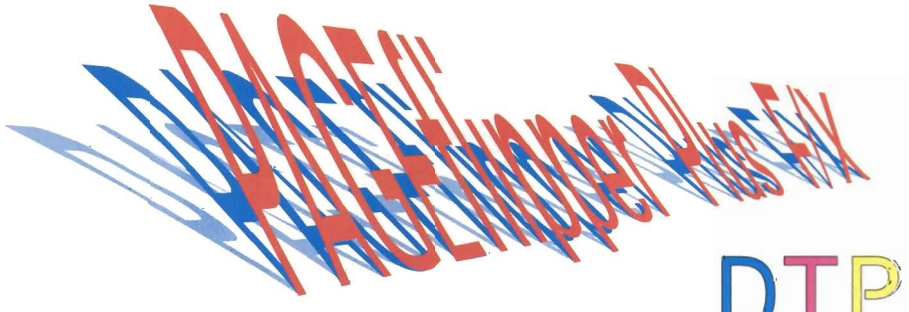
Once you have created a line of text using the TEXT tool in Professional Draw, all you have to do is click on the ROTATE tool. One click will let you manually rotate the text (or any graphic for that matter), and double-clicking on this tool pops up a requester which lets you enter the exact angle of rotation you require.

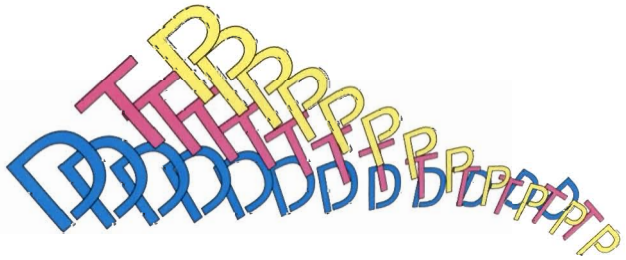
The greatest tool for manipulating objects is the WARP tool. The WARP tool lets you bend, stretch, and of course warp the selected text by moving 8 control handles. Using this tool easily gives text a real 3D perspective look. You can have a line of text disappear into the distance, or have the top of a word jump out at you. Using the WARP tool you can also create more realistic complex shadows, for example, you can have some text standing upright as if it were a building with its shadow falling off at whatever angle you choose.

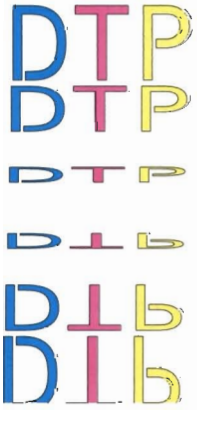
Using that same concept you can have several copies of a word flipped as if they were the pages of the book; I used something like this for the heading











of a review of PageFLIPPER Plus F/X in AmigoTimes v1.5. If you have the patience you can also draw 3-Dimensional text by manually extruding existing text (automatic text extrusion with 3-Dimensional positioning would also be a useful feature for Professional Draw, especially since no other illustration program has it).

INTERFONT

As well as providing several bundled fonts, Interfont from Syndesis lets you design your own outline (polygon) fonts which can be used for both ray-tracing and publishing. In AmigoTimes v1.4, my DTP column describes how Interfonts can be used in conjunction with Professional Page, Aegis Draw, and Interchange, to create various effects using outline fonts which are not available on any laser printer or Imagesetter.

Apparently there is a new module for Interchange which allows the accurate rendering of Sculpt-4D scenes into Professional Draw clips. This would easily allow you to render 3-Dimensional text and a host of other interesting effects.

BITMAPPED TEXT

Another way of getting around the lack-of-fonts problem is to use bitmapped fonts. There are both advantages and disadvantages to using bitmapped fonts. The disadvantages are that bitmapped fonts often exhibit jaggies on angled areas of the font descriptions. They also take much longer to print, and Professional Page does not directly support them so you have to use your paint program to write your text. As for the advantages, bitmapped fonts are readily available at quite a low cost. In addition, each character of the font can be patterned, multi-colored and easily customized (e.g. KARA FONTS). There are times when jaggies can actually add to the effect you are trying to achieve. Also, depending on the size of the font and the size it will be scaled to, you may not even see any jaggies. Many of the paint programs give you incredible features with which you can color and manipulate text in ways that would be impossible to do in an object oriented drawing program.

Ray-tracing and animation programs such as PageRender 3D, Sculpt-4D, Turbo Silver or any of the others, can also be used to create interesting text headings. With these programs you can create glass, mirrored, or metallic text, which can later be loaded into Professional Page as high-resolution bitmaps.

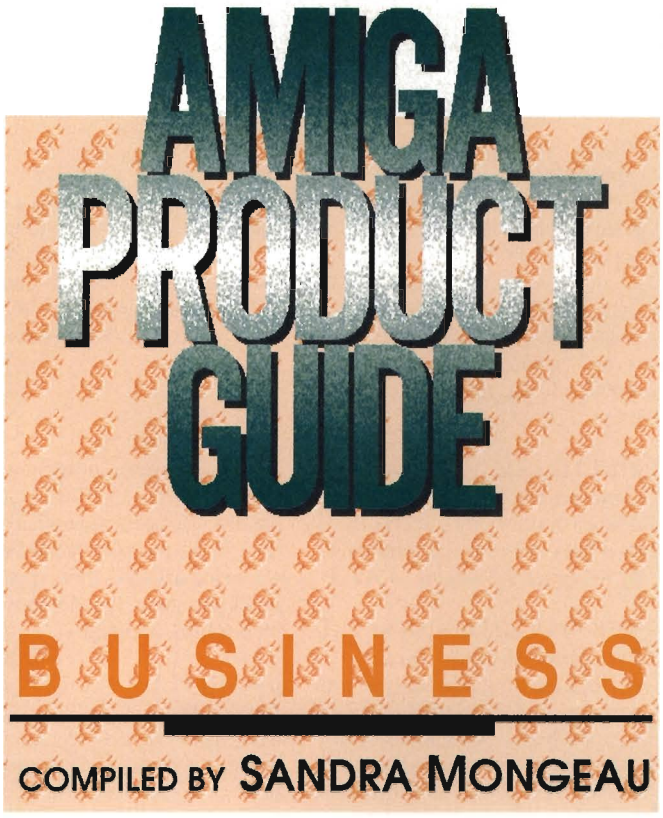
NEXT ISSUE'S SURPRISE

The theme of the next issue of AmigoTimes is desktop publishing and it will include a surprise on the accompanying disk. The disk of issue v1.8 will include a commercial program that will add incredible special effects capabilities to both Professional Page and PageStream. The program is used with Mindware's PageRender 3D. This type of program does not exist for any other type of computer and it will definitely improve the type of publishing possible with the Amiga. That's all I will say about this program, you'll have to find out for yourself in the next issue of AmigoTimes. ❑

Professional Page
Professional Draw
Gold Disk
P.O. Box 789
Streetsville, ONT
CANADA, L5M 2C2
(416) 828-0913
$395.00 (US) (ProPage)
$525.00 (CDN)
$199.95 (US) (ProDraw)
$249.95 (CDN)

InterFont
InterChange
Syndesis
20 West St.
Wilmington, MA 01887
USA
(617) 657-5585
$119.95 (US)

KARA FONTS
Kara Computer Graphics
6365 Green Valley Circle
Suite 317
Culver City, CA 90230
USA
(213) 670-0493
$79.95 (US)



Welcome to AmigoTimes new monthly column. Each month I will be providing the most accurate information on products available on the market, related to the associated theme of the month. As this month is our business issue, I have covered three major categories. I realize I could have extended the column to include word processors, but I chose three so each one could be properly researched. You will notice that I have mentioned which programs have been reviewed by AmigoTimes in previous issues. This should give you additional advice. If you are missing a particular issue which reviews the program you are interested in you can order back issues (information on the subscription page).

The three categories for this column are Accounting, Database & Spreadsheets and Integrated programs. My list does not include products soon to be released. Other magazines have listed programs as available for the Amiga when in fact many of these same products never took off. I plan in forthcoming issues to highlight only products which are certain to be available. You can find upcoming products in the Amiga Monitor. Finally, all prices are in U.S. dollars.

ACCOUNTING

PHASAR 3.0
Antic Software
This upgraded single-entry personal financial record-keeping program provides savings and loan analysis, projects, budget reports and prepares income taxes. It contains an address organizer, a desktop diary, and an appointment calendar. It also features custom check printing, 130 income/expense categories, formatted reports and more. $99.95

2+2 HOME MANAGEMENT SYSTEM
Arborsoft, Inc.
This personal accounting database allows you to share information between modules including financial management, appointment calendar, mailing list, and telephone directory.
$99.00

BEST BUSINESS MANAGEMENT
B.E.S.T.
Fully integrated business management and accounting system. Provides inventory management, order processing, purchase orders and more.
$395.00

BEST GENERAL LEDGER
B.E.S.T.
Stand-alone program that features customized financial reports and cross-referenced audit trails. It includes five standard accounting journals: general, cash receipts, sales, purchases, and cash disbursements. $79.95

BEST PAYROLL MANAGEMENT
B.E.S.T.
Stand-alone payroll management system. $79.95

BEST BUSINESS BUDGETER
B.E.S.T.
Budget for General Ledger.
$79.95

EASYLEDGERS (Reviewed in AmigoTimes issue v1.7)
Brown-Wagh
Helps organize your accounting data into either the general ledger, accounts receivable and payable, and inventory control category. You can page through the accounts and books or place the data by clicking the mouse. $295.00

BOTTOM LINER
Clockwork Computers
For small businesses and personal use. It features check writing, speadsheets, 700 user-defined accounts in budget, income, expenses, assets, liability, and equity.
$269.00

GENERAL LEDGER
Computerware
Comprehensive double-entry system. It provides current accounting information and reports. You can customize accounts for each business and up to 99 subaccounts are accepted. It also features audit trails, closing procedures and reports. $99.00

ACCOUNTS PAYABLE
Computerware
Provides three ways to pay invoices and print checks by date, account, or invoice. Helps manage and track cash liabilities. Posts payments to General Ledger or Check Ledger. It also features interactive posting, partial payment, deferred payment, and automatic discounts. $99.00

ACCOUNTS RECEIVABLE
Computerware
Helps keep track of customer accounts and cash flow. It offers flexible terms, and warns when customers reach their credit limit. Indicates overdue accounts, records key customer information, tracks invoices and prints statements automatically. $99.00

CHECK LEDGER
Computerware
Meant for personal use or small to medium-sized business. It's a single-entry book-keeping system. You can arrange customized charts of accounts with up to 99 subaccounts. Checks can be distributed to several expense accounts. $99.00

PAYROLL
Computerware
Accommodates all pay types and pay periods. Includes federal and state tax reporting, quarterly, tax statements, W-2's paychecks, and cost accounting. Features four deductions for dues or premiums, automatic accrual of vacation and sick time, deductions for advances or employee loans, and password protection. $99.00

TAKE-STOCK
East/West Software
Designed for tracking program for stocks, Take-Stock handles up to 100 stocks all year. It displays graphs of gains and losses. $49.95

DESKTOP BUDGET (Reviewed in AmigoTimes issue v1.7)
GOLD DISK
A powerful, yet easy to use personal finance management program. The icon-oriented budgeting

and bookkeeping program assists in setting up monthly payments and automatically performs month-end reconcilliations and year-end rollovers. $69.95

THE ACCOUNTANT
KFS Software Inc.
This complete and simplified accounting system includes sales, expenses, receivables, payables, inventory, cost payroll and general, point of sale invoicing and sales and purchases journals. $299.50

NIMBUS
OXXI, Inc.
Cash basis accounting system for small businesses. Customer and vendor accounts are retrieved by name rather than numbers, so payment status, outstanding balances, and P/L statements quickly are accessed. Once information is entered into accounts payable or receivable, it is automatically updated to the general ledger. $149.00

TAX BREAK
OXXI, Inc.
Easy-to-use accounting program with on screen representation of forms and schedules, fast recalculation, and constant status of due or refunded taxes. It includes a helpful on screen IRS booklet and a pop-up calculator. $79.95

PAR REAL I
PAR Software Inc/Brown-Wagh
Created for real estate investors and property managers for investment analysis, amortization tables, financial statements, loan evaluations, what-if forecasts, lease vs. buy analysis and reports. $149.95

EASY LOAN
PAR Software/Brown-Wagh
Keeps track of loan with remaining interest, principal and time. Helps uncover and avoid paying hidden or incorrect charges. Amortization schedules can be customized with partial payments, balloon payments, negative amortization and variable interest rates and payments. $49.95.

BUDGETEER
Prackticon
Created for personal and business use, budgeteer features an easy to learn interface that uses the mouse, menu and windows to record monthly expenses and credits. Data is displayed in tables, pie charts, or one of 36 bar charts. $39.95

MONEY MENTOR
Sedona Software
A personal financial management system that allows you to compute and graph clear reports of your financial situation. It includes Smart Scrolls which will study previous transactions and remember their details. $95.95

KEEP-TRACK GENERAL LEDGER
The Other Guys
This record keeping system for either personal or business use can generate reports such as a balance sheet with categories for assets, liabilities and net worth. It indicates all account activity for all account numbers and prints it in chronological order. $49.99

DATABASE, STATISTICAL ANALYSIS AND SPREADSHEETS

DATARETRIEVE (Reviewed in AmigoTimes issue v1.2)
Abacus Software
Set up your data files quickly using on-screen templates called masks. Up to eight files can be opened at one time with this program. It enables an unlimited number of data fields, and 80 fields can be indexed. You can change file definitions and formats, and create subsets. Data can appear in a variety of type styles and sizes, and IFF graphics can be added to the data. $79.95

STATION MANAGER TAPE LIBRARY MANAGEMENT
ACS Software
Save hours each week by managing your video and audio tape with tape library management. It provides great flexibility and look-up capabilities. $295.00

BEST PLAN/IT
B.E.S.T.
Now replacing OXXI's Maxi Plan Plus, Plan/It includes Oxxi's features with some new additions. The Spreadsheet Analysis includes Lotus 1-2-3 import and export, ARexx inter-program communications capability, password protection and more. Graphics offers many more styles of charts; it displays 2-D and 3-D and it it easy to create, save, recall, modify and resave, etc. Finally, the database enables easy database creation, record viewing and data entry, record editing, record deletion and more. $150.00

MULTIBASE
Conceptual Computing
Allows simultaneous access to data files from several terminals by using record locking. $249.00

THE SECURITIES ANALYST
Free Spirit Software, Inc.
A stock charting and analysis program created for individual investors. It allows the investor to chart any number of stocks over an extended period of time. $79.95

AQUISITION
Haitex Resources
Aquisition, the relational database, enables hierarchical filing structures. It incorporates a mapped filing system organized around paths to handle up to 16 files at a time. Its editing functions feature cut, copy and paste, and the program includes a full-function report generator. This program uses Acom language with over 190 commands and functions and supports Intuition user interface. $299.95

HAICALC
Haitex Resources
Supports multitasking, multi-windowing spreadsheet. It takes advantage of the Intuition user interface and uses memory only when a cell contains data. $59.95

RECORD MANAGER INFORMATION BASE
HC Software Australia
This system stores and retrieves information easily by using multiple sorts, search by criteria, print by criteria and mailing labels 1 or 2 across. $99.95

VIP PROFESSIONAL
ISD Marketing
Featuring database and color graphics, this spreadsheet helps keep track of stocks and mutual funds every week. $99.95

UNICALC
Lattice
It features a processing area of 256 columns x 8192 rows, online help, multi-windows, more than 20 commands, over ten arithmetic expressions, and more than 30 algebraic and conditional expressions. $79.95.

dBC III 2.0
Lattice, Inc.
This alternative to programming in the dBASE interpretive language creates, accesses and updates dBASE III-compatible files without using dBASE. It opens and processes up to 10 data, index or memo files. $250.00

dBC III PLUS
Lattice, Inc.
This network-ready has functions to solve complicated network data base problems. dBC III PLUS gives you all the dBC III functions plus functions that let you lock files or records, and prevent you from accidentally locking files or records that are already locked. You can select field information by field name or number, use a big buffer for a data file or for indexing and get dates. $500.00

ANOVA
Lionheart Press Inc.
A complete set of analysis on variance algorithms for many experimental types, replicated factorials, unbalanced factorials, response surface designs, analysis of covariance, etc.

ARIMA TECHNIQUES
Lionheart Press Inc.
Includes the basic elements for the Box-Jenkins analysis of time-series. The data entry program enables transformation and differencing of time series. Calculates the coefficients of correlation suitable for drawing correlograms. $95.00

BIOMETRICS
Lionheart Press Inc.
Descriptive statistics include stem-and-leaf displays, boxplots and coded tables. It also includes standard techniques such as histograms, data entry and test analysis. It includes detailed coverage of statistical distributions, interference and testing. $145.00

BUSINESS

BUSINESS STATISTICS
Lionheart Press, Inc.
Includes statistical tools commonly used in a business. Offers a concentration on experiments most applicable in 2^K factorials and fractional factorials. $145.00

CLUSTER ANALYSIS
Lionheart Press Inc.
Data entry programs that allow data entry and transfer to and from spreadsheets, and scaling of metric data. Programs include procedures based on arbitrary clustering criteria, sum of squares of distance, Hmeans and Kmeans and more. $125.00

DECISION ANALYSIS TECHNIQUES
Lionheart Press Inc.
Decision theory that involves incomplete or conflicting information. Covers the major reaches of decision theory. $145.00

DECISION TREES AND TABLES
Lionheart Press inc.
Enables decision-making. Treats utility analysis, Bayesian probability analysis, and other statistical principles. $95.00

INVENTORIES AND QUEUES
Lionheart Press Inc.
Studies inventories with deterministic and probablistic demand, including economic production lot models, economic order quantities, and more. $95.00

LINEAR AND NON-LINEAR PROGRAMMING
LionHeart Press Inc.
Programs based on the simplex algorithm and Monte Carlo technique. It handles problems for distribution and transportations, assignment, and travelling salesman problems. $95.00

MARKETING STATISTICS
Lionheart Press inc.
Contains data collection and sampling, tabulation and analysis of questionnaire data, forecasting procedures, etc. Discusses market research experiments and provides programs to analyze variance of experimental data. Marketing techniques examine forecasting procedures and market auditing, and critical path analysis helps prepare marketing plan. $145.00

MATRIX OPERATIONS
Lionheart Inc.
Provides data transfer programs for easily moving files to and from spreadsheets. It perfoms matrix routines, addition, multiplication, transposition and inversion. $95.00

MULTIVARIATE ANALYSIS
Lionheart Press Inc.
Covers the main topics of multivariate analysis. It also covers multi-linear regression, correction analysis, factor analysis, discriminant analysis, canonical component analysis, and residual analysis. $125.00

OPTIMIZATION
Lionheart Press Inc.
Covers major topics in optimization. Special topics study queues and simulated queuing systems and inventory problems. $145.00

PROJECT PLANNER (PERT & CPM)
Lionheart Press Inc.
Takes care of scheduling and optimum assignments. The project planning is based on the PERT and Critical Path Analysis techniques. $145.00

QUALITY CONTROL AND INDUSTRIAL EXPERIMENTS
Lionheart Press Inc.
Covers the standard quality control methods. It discusses statistical background of statistical quality control and information related to chart preparation. $145.00

REGRESSION
Lionheart Press Inc.
A program set that includes simple linear regression, four multilinear regression programs, ridge regression, and regression using orthogonal polynomials. It provides a Durbin-Watson program to study the statistical quality control and chart preparation. $95.00

SALES AND MARKET FORECASTING
Lionheart Press Inc.
Helps create a forecast by preparing demand analysis. It provides sources of business data and a base of about fifty yearly and monthly time-series provided by U.S. Department of Commerce publications. $145.00

ANALYZE
Micro-Systems Software Inc.
Statistical functions, future value, payment and date functions, and scientific notations can be performed. Then the spreadsheet can be printed to file or printer with margins, headers, footers, and range. Or, the data can be displayed as a pie, bar, x-y, or 3D chart in four or eight colors. $149.95

ORGANIZE!
Micro-Systems Software, Inc.
You can enter, store, change and retrieve your data with this program. Once it's entered, it can be sorted, searched, indexed, analyzed or printed to screen, disk or printer. You can create custom reports and forms and select parts of reports to be blocked out to ensure confidentiality. $99.95

MAXI PLAN 500
OXXI
Designed for the beginner, this spreadsheet features multiple user interfaces, linked spreadsheets, color, 2 chart styles, 75 built-in functions, database capabilities with sorts on any number of fields, and more. MaxiPlan 500 accepts written or spoken cell notes for input and calculation. $149.00

OUTLINE!
PAR Software/Brown-Wagh
Made for home and office use. Keeps track of mailing lists, recipes, ideas, phone numbers, addresses and more. You can list your items in outline form with headings. $49.95

DATAFAX
Pecan Software Systems, Inc.
This free-form relational database arranges information in pages within folders. It defines keys and cross-references. Now you can organize your notes, speeches, bibliographies, articles, and catalogs. $99.95

SUPERBASE PERSONAL
Precision Incorporated
This easy-to-use data management system features pull-down menus, multiple windows and point-to-click selections. Only the system memory limits the number of open files and the number of fields. $79.95

SUPERBASE PERSONAL II
Precision Incorporated
This is a database management subset of SuperBase Professional. They are two distinct programs; Precision has removed all programming language and module features from this version, so it is more low cost. $149.00

SUPERBASE PROFESSIONAL
Precision Software
Database Management system that allows users to create invoices, statements, customized mailings, and purchase orders. Users can create a system complete with pull-down menus, pop-up requesters and business forms designed by the user. $349.95

MATH-AMATION
Progressive Peripherals & Software
This modular math and science processor contains programmable scientific and matrix calculators which can be used to convert formulas. The business graphics module presents data in automatically scaled 3-D pie charts and bar charts. $99.95

LOGISTIK
Progressive Peripherals & Software
The project management package for the Amiga combines project management techniques with a spreadsheet, a database, and graphics. The program can perform "What If" analysis and can calculate and display the priority jobs for completing a project. Users have the option to print the data sideways. $149.95

INVESTOR'S ADVANTAGE
Software Advantage Consulting Corporation
Stock market analysis package for charting and comparing up to 500 stocks. Select the best stocks and time your trades. It features automatic update capability, starter history for General Market indicators. $99.95

BUSINESS

MICROFICHE FILER
(Reviewed in AmigoTimes issue v1.5)
Software Visions, Inc.
Lets users organize their pictures in the database side-by-side for viewing. Text and graphics are stored as a condensed, two-dimensional sheet, and the mouse is used as a microfiche to skim the listings. $99.00

MICROFICHE FILER PLUS
Software Visions, Inc.
This upgrade of Microfiche Filer features full programmer interface using ARexx. It also includes full-field calculation, number formatting and calculation while entering, four squeezing strategies, five automatic color-mapping strategies, and an ARexx interface.
$179.00

DESIGNER DATABASE SERIES
Software Visions
This program contains databases and macro keys to use with Microfiche Filer and Microfiche Filer Plus. The home disk features 10 databases covering audio recordings, videotapes, recipe catalogs, stamp collections, home budget and personal inventory. The business disk includes calendar, mail merge, expense report, invoicing, inventory, etc. In addition, it has macro keys.
$59.00

SOFTWOOD FILE II SG
Softwood Company/ Brown-Wagh Publishing, Inc
Supports digitized pictures and sounds which can be displayed in a form or spreadsheet-style list format. The data can be printed in mailing label, ASCII, or report format. Picture fields accept both IFF graphics and digitized images in low, medium, high, and HAM resolutions, with up to 4096 colors. These fields also support color cycling. Digitized sound can be added to the data through internal and external buffering.
$99.95

OMEGA FILE DATA BASE-MAIL MERGE
The Other Guys
Use the Omega File for invoicing, inventory control, mailing labels, check writing, teacher's grading, and most other mail merge applications. $79.99

TEMPLICITY
The Sterling Connection
This set of 60 templates for Amiga spreadsheet programs includes templates for accounts, auto loans, refinancing, and retirement. $29.95

BUSINESS APPLICATIONS, BUSINESS SCHEDULING & INTEGRATION

IMPACT
Aegis Development, Inc.
Enables you to create desktop presentations of data for graphs and slide show. You can make a variety of charts which can be stacked, overlapped or displayed in 3D. $89.95

WHO! WHAT! WHEN! WHERE!
Blue Ribbon Bakery
Phone book and calendar in one. Provides access to people and places. It offers unlimited search capabilities, clear displays, and printout options. Be organized at the touch of a button. $69.95

PROJECT MASTER
Brown-Wagh
Using the six modules of this program, you can plan, track and control projects: Plan, Input, Statistics, Resources, Costs, and Time. Features IFF and DrawPlus format, input in ASCII format, what if situations, an on-screen toolbox for graphs, statistical calculations and automatic readjusting of start and end dates. $195.00

GENERAL INVENTORY SYSTEM
Computerware
Helps supervise inventory levels and reorder list. Identifies slow and fast movers and the seasonal trends. $99.00

NAG PLUS 3.0
(Reviewed in AmigoTimes issue v1.7)
Gramma Software
Scheduling assistant verbally reminds you in advance of regular or one-time event, up to 99 per year, then nags you about it. Enter events like birthdays one time, place them in the perpetual Calendar, then edit these events up to two years in advance. Reminds you in any form you choose, computerized voice, or any one of 24 fully adjustable and programmable bells and whistles. $79.95

FRED
Gramma Software
Have FreD store up to one million of your friends' names, telephone numbers along with a brief remark for each one. Store the information in three fields with up to 256 characters in each one. In addition there's a quick access to the Notepad text editor, and support for ASCII files and ARexx.
$49.95

THE COMPUTER BLACK BOOK
Meggido Enterprises
Made for personal or office use. It stores names, addresses, and telephone numbers. It also speaks, dials, prints, and sorts. $35.95

THE WORKS
Micro-Systems Software
Includes Scribble! word processor; Analyze! spreadsheet; Organize! database. $199.95

THE WORKS! PLATINUM EDITION
Micro-Systems Software
This upgrade includes Word Processing Module, Telecommunications Module, Database Module, Spreadsheet Module, Sideways Printing Utility. It includes one user-friendly manual, and free technical support for registered users.
$299.95

FLOW
New Horizon Software, Inc.
Thought organizer to help create sales reports, school papers, etc. You can plan business strategies and schedule appointments.
$99.95

MICROLAWYER
Progressive Peripherals & Software
With over 100 commonly used legal documents, you can produce your own forms and contracts. $59.95

WRITE & FILE
Softwood/Brown-Wagh Publishing
Integrated word processing and database management. It features multiple fonts, headers, footer, automatic page numbering, margins, indents, undo command, search and replace, an editor and two spelling-check dictionaries, one with over 100,000 words. $99.95

THE CRITIC'S CHOICE
The Disk Company
This is a combination of top word processor, spreadsheet, and database programs in one package. KindWords word processor integrates text and graphics and includes 100,000 word spellchecker, thesaurus, and mail merge. MaxiPlan is an electronic spreadsheet in which each cell can be formatted for color, type style, and sound. Microfiche Filer database stores text, numbers, and pictures in any combination, limited only by memory. Applications can be run simultaneously; and data is transferable between programs.
$249.95

WORDPERFECT LIBRARY
WordPerfect Corporation
Helps organize files, programs, appointments and notes. It includes Calendar, Notebook, Calculator, File Manager, Program Editor. $129.00

*(continued on page 92 with **Company Listing**)*

ANIMATING WITH THE Director

Part 3: THE TOOLKIT

In this final installment, we'll look at the new Director Toolkit software, a collection of useful tools for animation from The Right Answers Group. Toolkit comes on a disk jammed with helpful routines and utilities that can enhance the use of The Director, the display and animation language that has been featured in this series.

All the documentation for the Toolkit is included on the disk and can be accessed from the WorkBench by the Text Displayer. This can be handy when working on animation scripts. The Text Displayer's script is included for use in your own applications, as are those from almost all the other tools. The displayer has no print function and the ASCII text files, when printed on paper, are somewhat difficult to read as they contain coding for the on-screen display.

The tool that one is likely to get the most use out of is called Enhanced BlitUtil (EBU). Requests and suggestions from users were incorporated into EBU, it is a totally new version of the BlitUtility found on The Director program disk. While the original was handy, one of its main drawbacks was that it only printed the BLIT coordinate information to the CLI screen, forcing the user to re-key the information. The new version is more interactive and easier to use. The EBU now saves that information into a file you specify. The utility runs from the WorkBench, and is easily invoked with a click of the mouse.

The basic purpose of the Enhanced BlitUtil is to let one assemble partial-page flipping animations quickly and easily by working with the actual screens involved. First, in your favorite graphics program you might create both a background picture and a screen that contains objects to be animated, preferably of the same resolution and color palette.

Upon starting Enhanced BlitUtility, you are presented with a stylish screen full of gadgets. (See Pic 1). Selecting the Background file button will call up a file requester. This requester is similar to those in many Amiga programs, yet it was made with The Director. It is included as part of the ToolKit, and can be used in your Director scripts. Load in the Background and Objects screens. From here you may select the type of operation you desire, adding your objects with a BLIT/WIPE/DISSOLVE, Generate a Moving Object or Build a Character. By default, the output of EBU goes to the file "RAM:ebuout." Clicking in the "Output file" gadget will again bring up the file requester so one can specify where to send EBU's output.

On selecting the Generate BLIT/WIPE/DISSOLVE gadget, another menu appears (Pic 2) and the first step is to decide if the TRANSPARENT mode will be used. With TRANSPARENT highlighted, any portion of the object that is rendered with palette color 0 will not be transferred to the background picture. This is handy for placing non-rectangular free-form shapes or when the object crosses two different colored background areas. Then click PICK OBJECT. The file containing the objects picture is displayed. Although choosing an object in EBU is similar to cutting a brush in a painting program, instead of clicking in one spot and dragging to define an area, you position the cursor at the object's upper left hand corner, click the mouse button, and then click a lower right hand corner. A rectangle will be drawn showing the area selected. By reselecting either corner, the rectangle can be adjusted until the object is exactly contained within its boundaries. Hitting the RETURN key will make the selection final and bring you back into the previous EBU menu with some important additions.

Three new buttons have now ap-

By Jim McInnis

peared in the second line of gadgets. (See Pic 3). Here is where you decide how the object will appear on screen in the animation, BLIT (the object instantly appears), WIPE (object rolls on in a specified direction), or DISSOLVE (the object's pixels randomly appear). Clicking on any of these three gadgets brings up the background screen with your object flashing on and off rapidly. Moving the cursor anywhere in the background then clicking will place the object there, and exact alignment is achieved through the arrow keys which move the object a pixel at a time.

Once satisfied with the object's placement, pressing RETURN will stamp it down, send the coordinates to the output file, and put you back in EBU's menu. If you use the same object again elsewhere on the background, press the SPACE bar instead of RETURN, the object will be stamped onto the screen and will immediately be free for further placement. I often find I've hit the SPACE bar when what I should have done was use the RETURN key, so it's comforting to know that the ESC key will bail you out, and you can go right back into BLIT, WIPE or DISSOLVE without losing the selected object. Hit RETURN on the final object placement to enable selecting the next object. You'll notice the BLIT number in the lower left corner has changed, keeping track of the number of objects positioned. After you select the next object you'll notice previous objects are still displayed on the screen, making precise registration of any two objects a breeze.

There is a minor problem with EBU's WIPE feature that you may fix with your word processor or text editor. I strongly suggest that you work on a backup copy of your ToolKit disk. Load the file "ebuscript" found in the ToolKit's BlitUtility directory and after reading the opening statements, find the line near the script's end that reads:

```
write "WIPE ";obuff;",";xa;",";
...;",";wpd;",";wpw;$(postfix-1)
```

near the end of this line the variables "wpd" and "wpw" should exchange places, so that it now reads:

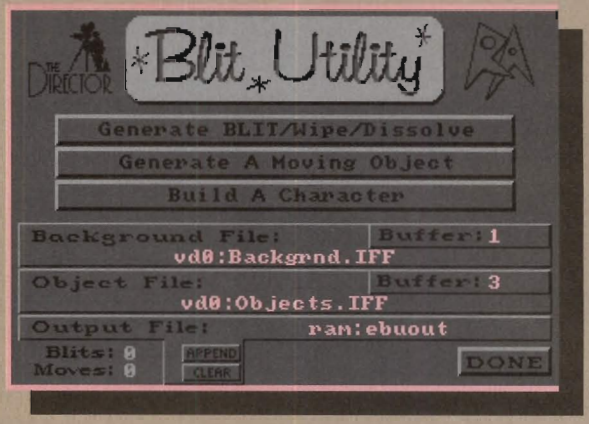
```
write "WIPE ";obuff;",";xa;",";
... ;",";wpw;",";wpd;$(postfix-1)
```

The variable "wpw" is the width of the wipe amount and "wpd" is the direction of the wipe, which in this case will always default to 0, top to bottom.

Run this revised script with The Director to create a new "ebuscript.film" file. Without this fix, EBU will write a script, but any WIPEs will not work properly. You can also change the parameters of the WIPE command when editing your script, but you'll have to do it every time for each instance of WIPE.

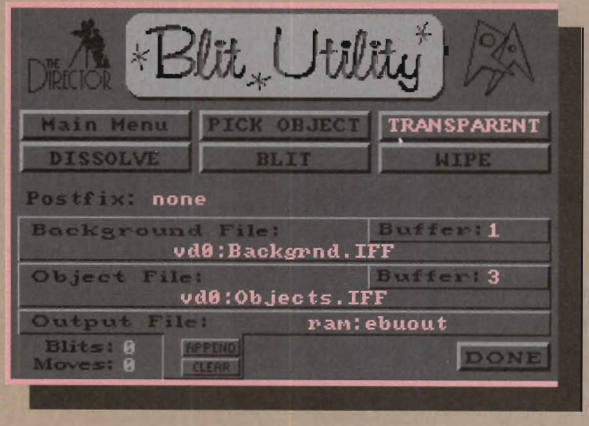
The Generate a Moving Object and Build a Character options are useful especially when doing character animation. Build a Character does just that, it lets you create an animated character or object and save its movements in a file which can then be moved about a background screen. The example given on the disk lets you create a cartoon character that "walks in place" by combining his moving parts in the EBU. Arm, leg and body positions from two different screens are combined to make the eight frame character animation, which may then be saved with the SAVE CHARacter gadget. Next, going to Generate a Moving Object, you select the MOVE gadget and are instructed to click the beginning and ending position of the character's journey. Clicking as close to the edge of the screen as possible and then using the SHIFT key with the LEFT or RIGHT ARROW button depending which side he starts from, moves him completely off screen. Click on the other side to move the character across the screen, enter the number of increments and speed in which to move him, and EBU creates the script for you.

You'll probably want to add the Enhanced BlitUtility to your set of anima-



Pic.1: The file requester in Enhanced Blit Utility was made with the Director and can be used in your Director scripts.

Pic.2: With TRANSPARENT highlighted, any portion of the object that is rendered with palette color 0 will not be transferred to the backround picture.



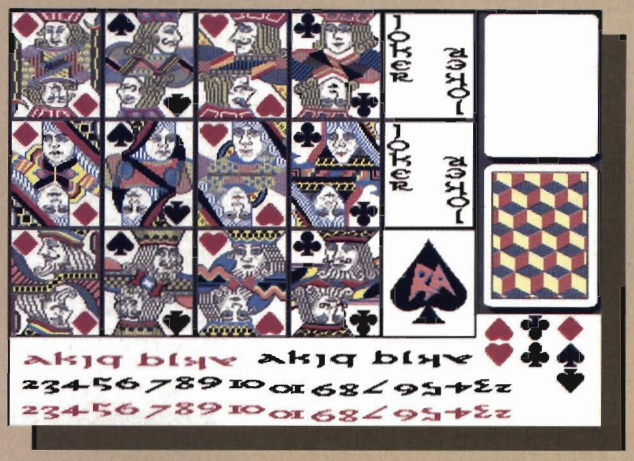
Pic.3: Three new buttons have now appeared in the second line of gadgets.

tion tools. It's a time saver and an excellent example of a utility built using The Director as a programming language.

The Director's power to perform partial screen page flipping is evident in the Card Game example located in the Programs drawer. Only one graphics screen is used to create the deck of 52 playing cards used in displaying poker hands (see Pic 4). This saves a lot of memory space, drawing 52 individual cards would use many more screens. The cards are constructed on-the-fly in a non-displayed screen after they are randomly dealt from the deck and sorted. First a blank card is laid down and then the "spots" are added to it. For instance, if the current card dealt is the Six of Spades, the "upright" spade symbol is BLITed four times into the correct positions on the card and then two "upside-down" spades are placed. The black numerals "6" are put on the card and then the completed card is wiped onto the display screen. The four other cards in the five-card hand are constructed in the same manner fast enough that it is necessary to add a pause between cards to view them. The Card Game example contains the scripts needed to get you started on your own card games and can be modified to suit your needs.

Other items nestled in the Programs drawer include some great new screen transition wipes, a pie chart generator and a MIDI module. Diagonal, Venetian Blinds and an interesting Serpentine Wipe are featured in a "slide show" in which your own pictures can be substituted for those now in use. Variations on these wipes can be created by following the example scripts. The Pie Chart generator shows how the SINE table is used for handling trigonometric functions. These functions are also useful to simulate clocks, or gauges such as speedometers, as well as moving objects in circular paths. The MIDI module is a replacement for The Director's Sound module that lets MIDI instruments synchronize animations, and perform improved sound fades.

Some of the ToolKit's most useful programs are the CLI commands. I find these very powerful tools even outside of their use with The Director. MakeANIM is simply an easy way to create animations from IFF pictures generated by various software packages, some of which may not support animation directly. Pictures of the same resolution and color palette can be combined into the popular ANIM format by listing their file names in the order they are to appear in a text file. Supply the text file's name along with an output filename and MakeANIM will compress the frames into an animation playable with The Director, SHOWANIM player program, or others supporting ANIM or mode 5 format. I have used this method to create ANIM files from TURBO SILVER output, the results were excellent.



Pic.4: Placing mulitiple objects on one graphics screen is an effecient and memory conserving method.

MakePAL is useful when you have pictures of varying color palettes you need to use in an animation. MakePAL will try to determine a "best fit" palette from the colors available and save the resulting palette as a single pixel brush which can be loaded into many popular paint programs and applied to the pictures in question. This is a good method for standardizing HAM palettes or using several digitized images from programs such as DIGIVIEW. Instructions included in the MakePAL text file detail these applications.

Lastly, the CLI command VIEW is a handy IFF picture viewing utility. Not only will it display individual picture files, it also searches out and displays every IFF file on a disk or in a specified directory. The length of time a file is displayed can be set and clicking the right mouse button will pause a picture until the right button is pressed again. A simple slide show can be made by adding a looping parameter to the VIEW command that causes the files to be displayed until halted by a left mouse button click.

The ToolKit in conjunction with The Director is capable of helping produce animation and displays worthy of a computer as good as the Amiga. It is being used by professionals and hobbyists alike to push the boundaries of what can be done with microcomputers.

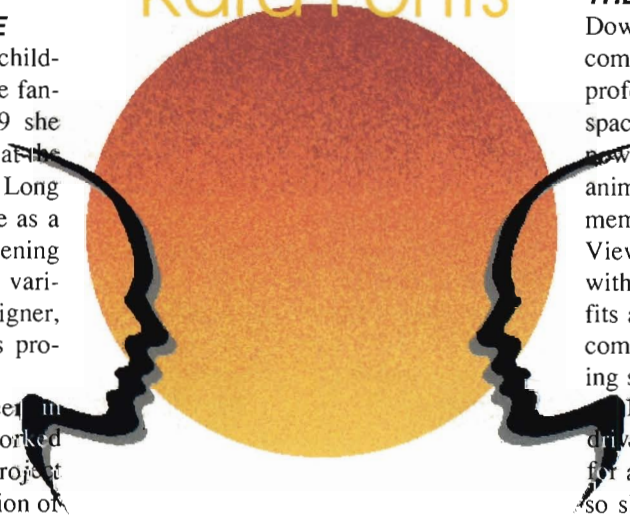
As Amiga becomes synonymous with cost-effective computer animation, and the amount of animation software continues to grow, The Director scripts a scenario in which it plays "Best Supporting Role." ❑

The Director
The Right Answers Group
Department E
Box 3699
Torrance, CA 90510
USA
(213) 325-1311
$69.95 (US), plus $3 S&H
Calif.residents add 6% sales tax
512K required

WOMAN BY WOMAN

AN INTERVIEW WITH Kara Blohm

Creator of Kara Fonts



By Sue Albert

No one is really a stranger to Los Angeles. We have all grown up with images of that megalopolis which is used as a huge open air stage set for our daily ration of television and movies. In addition, Los Angeles has an abundance of highly skilled professional artisans.

The Amiga was the catalyst for one member of this creative group in her search for an exciting new arena from which to extend her considerable artistic skills and experience. In the last two years Kara Blohm has successfully carved a niche of financial independence, gilded by personal growth and an enviable freedom from freeway commuting.

WHERE DO I GO FROM HERE

Kara's drawing abilities began in childhood when she began to draw little fantasy worlds of her own. In 1969 she graduated from the art department at the nearby University of California at Long Beach. She gained vast experience as a graphic designer over the intervening years working in Los Angeles for various major design studios as a designer, design director, and eventually as project manager.

The culmination of her career in print graphics arrived when she worked at Bright and Associates as Project Manager for the year long production of the "Official Report of the 1984 Olympics at Los Angeles." This two volume limited edition covers in detail every plan, participant, and event, in the 1984 Olympics and holds some remarkable photographs.

Kara was looking for new frontiers, new challenges. "I quit my job in graphic design to get into video tape editing because I liked it. I bought some editing equipment and every place I went showing my little samples, people kept saying: " Why don't you try some computer graphics?" and finally someone said 'Check out the Amiga!' It was about the best thing that happened to me."

PERFECT PRACTICE

Kara bought her first Amiga, a 1000 with 512K in April of 1986. "When I got the Amiga I just sat down and spent 12 to 16 hours a day doing images. It was interesting to shift from working in solid mediums like acrylics to the Amiga medium which is light." Kara demonstrated the rightness of her transition beautifully when she ran a video tape for me of her early graphic logos, video titling and animations. These were created by her own company, Videovisions, in partnership with LA Post Production Graphics. Her graphics are bold with high visual impact. "I like simple images and dimension." Kara's first project on the Amiga in 1986 was a chrome Apple worthy of any magazine cover.

THE RIGHT TOOLS

Down the hallway of her condo is her compact studio. An impressive array of professional level peripherals share space with the original Amiga 1000 now sporting a Hurricane Board for 3D animations and an A2000 with 5 MB of memory and four disk drives. Her Digi-View is mounted on a heavy duty stand with high-tech Lowell Tota lamps. It fits a Liquid Light machine for Polaroid comps and a 1/2 inch VHS video editing system.

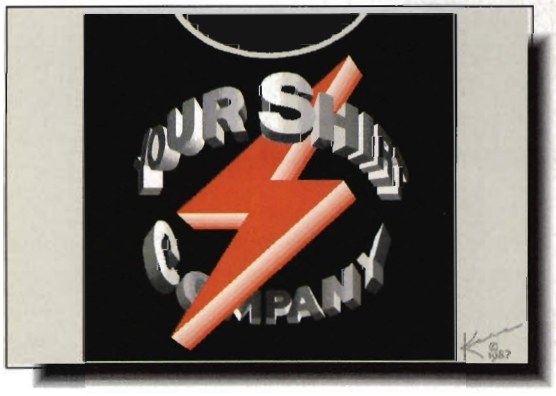
I was surprised not to see a hard-drive on either Amiga. Kara is waiting for a good harddrive that has cartridges so she and her partners at LA Post Production Graphics can buy compatible equipment and easily swap cartridges of work in progress. Post production is a term used in the movie and television commercial industry for the editing, titling, and animation work, done after the initial filming. It pulls everything together and produces the finished product.

The shelves in Kara's studio are also packed with the power software she

needs for professional results, Sculpt 3D and Sculpt 3D Animation and a recent addition, Turbo Silver. Creating each individual letter of her fonts with DeLuxe Paint, Kara uses Calligrapher fonts. "God Bless Calligrapher and Jeff Braun. He was a real inspiration." Initially Jeff Braun, the former owner of Interactive Softworks, wanted to market her fonts. He gave her both technical support with Calligrapher and a moral boost. When she decided she wanted to stay independent, his generous reaction was, "Come on in. The water's fine."

The Chrome Apple graphic that was Kara's first project on the Amiga in 1986

An advertisement for Kara fonts which shows an assortment of the fonts and the effects which can be achieved when using them



Two logos designed by Kara Blohm, the first for a T - shirt company and the second for a Japanese restaurant

to bring the letters into the keyboard.

She is excited about two new packages from Syndesis, Interfont and Interchange. "You can take a bitmapped character, or more exciting, a whole logo. Digitize the two dimensional logo, put it into the keyboard with Calligrapher, bring it into Interfont as an ASCII character, trace around it as polygons, then bring it into any 3D program and render it as 3 dimensional, then extrude it. I can create a 3 dimensional logo in about a half hour. It's going to make 3D fonts and 3D logos normal-place, which is a real good step for the Amiga."

NO WOMAN IS AN ISLAND

Not satisfied with the original Amiga fonts, Kara wasted little time in designing her own. Friends encouraged her to market them. Up until Calligrapher there was no convenient way to access

She has close contact with other Amiga professionals in the L.A. area through PAX, The Professional Amiga Exchange. The membership of this group includes such familiar names as Reichart von Wolfsheild and Heidi Turnipseed. "There's some real good people in the Amiga theatre. It's a nice family."

Kara has become completely self-supporting with the help of her Amiga. "It was rough the first two years. It takes a while to establish a business. I did smaller jobs. At the end of the first year I did a cover for December 1987 issue of Commodore Magazine called 'The Best of 1987' and I've since done some full page illustrations for Commodore Magazine."

COMING SOON TO A THEATRE NEAR YOU

Kara is now working on two new font packages for release in the first quarter of '89. The first is a two disk set called Subheads. These are smaller sized versions of the original Kara Fonts. The second disk is a two disk set of four gorgeous new fonts. I was privileged to see my name fill the screen in her new Chiseled Script. She is putting the finishing touches on a lovely Embossed font that will become indispensable for video presentations and can also be used as debossed. There is an Engraved font and her favorite, Glass. "This is a very special font. You have to deal with it as if it were actually glass. Even when you overlap parts that appear solid you can see through it. It's really transparent."

Now Kara Fonts carry 2/3 to 1/2 of her business with video graphics filling the rest. Both are growing and she hopes to balance them out 50/50 in the future. "Because of my print-graphics background I know how to produce my

Four more examples of graphics created by Kara Blohm on the Amiga, which show the wide variety of effects and styles she has been able to achieve through experimenting with various software and using her talent for creating a graphic image

whole product, the packaging, the printing, the marketing." Sometimes when she is caught short she even copies her own product disks.

PUSHING THE ENVELOPE

Hanging out at the tip edge of new technology is exciting to Kara. "I like to Beta test new products and be right out there. I've been privileged to work closely with some software developers recently." She is anticipating being able to output some "good clean logos right off the computer" when Pro Draw is released by Gold Disk. She has mixed feelings about the Amiga's resolution and the broadcast quality dilemma.

I asked Kara if she was looking forward to high resolution monitors. Her answer: "I'm looking forward to high resolution from the Amiga computer itself. However, the reason the Amiga is so great is that it can do real-time animation. If you have 16 million colors and higher resolution you can't do animations like this. You have to put them to video tape or record one frame at a time. We can't compete with the big machines in quality, but we have a little niche we can fill, mostly in industrial applications. There is definitely a need for us and the $50,000 and up computers are feeling threatened now."

THE FORTH DIMENSION

We've had a glimpse of Kara now as a business woman, an artist, and an Amiga professional, but she also has another side. On a shelf next to her fireplace are a veritable herd of trophies. Kara, when she changed her career, also changed her sport from figure skating to softball. She now plays on three recreational teams and has settled on catcher as her favorite position when..."I found I could see all the action as a catcher." Since working at home she has had to overcome some guilt at having so much free time to pursue outside interests. She now relishes the fact that she can get up, take a run, read a good book, and then just walk down the hall to her studio.

Kara is truly twice blessed, first by her talent and skills and then by her partnership with a machine that has helped her achieve a happy, balanced, independence. ❑

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Culver City, CA 90230
USA (213) 670-0493

CALLIGRAPHER
Interactive Softworks
2521 So. Vista Way, Suite 254
Carlsbad, CA 92008
USA (619) 434-5327

DELUXE PAINT
Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
USA (415) 751-7171

INTERFONT/INTERCHANGE
Syndesis
20 West Street
Wilmington, MA 01887
USA (508) 657-5585

MATH SOFTWARE

Most of us never think about math. We do simple arithmetic everyday, figuring the tip for lunch, the time to arrive at our destination, the balance of our checking account. For most of us, higher math is an unpleasant school memory, long ago forgotten as an unnecessary complication in our lives. Math can be fun if you look at it another way. It can be informative, uncomplicated to deal with, and there are times that no other tool will solve a particular problem.

The Amiga has been blessed with an abundance of software that falls into the category of mathematical tools. In this article I will review three programs that in one way or another can be used to improve your understanding of how math works, solve specific problems, and create visual descriptions of mathematical solutions.

Doug's Math Aquarium (DMA) is a program that makes mathematical formulas visible. It can handle both simple formulas such as X*X + Y*Y or more complicated stuff such as Mandelbrot sets. The program handles functions that contain two variables. You can plot the functions as either a wire frame solid, or as a color plot where color is assigned according to the value of the function. You can also solve actual numeric values for any point on a plot.

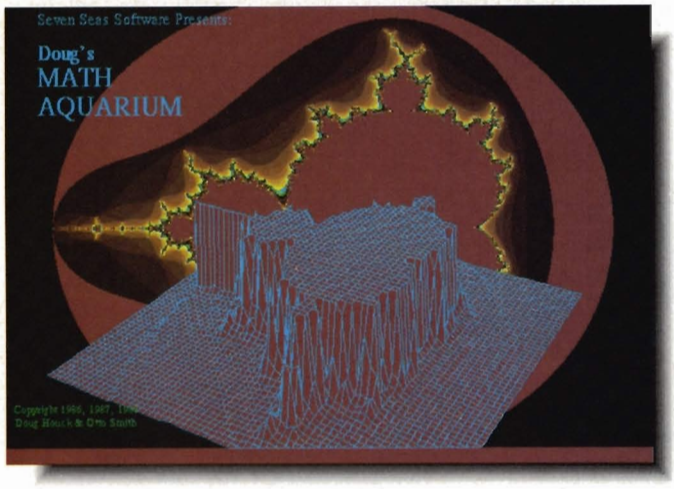
You can save plots as standard IFF images. All four resolutions on the Amiga are supported. Along with the image you can also store the formula that generated the image. You can also store just the formula.

The main screen for DMA is the Numeric Swamp. This is where you enter your formulas, set the ranges for the maximum values for your variables, set your viewpoint for the plot, and interact with the menu items. DMA supports over 60 functions, and a help screen is available to give you information on how to use each one.

There is a large number of control options that can influence the result of your plot. The sampling rate controls the number of values calculated for X and Y as the plot is generated. The higher the sampling rate, the more samples that are plotted on the screen. A high sampling rate can improve the density of a plot, but it can also slow down the plotting rate.

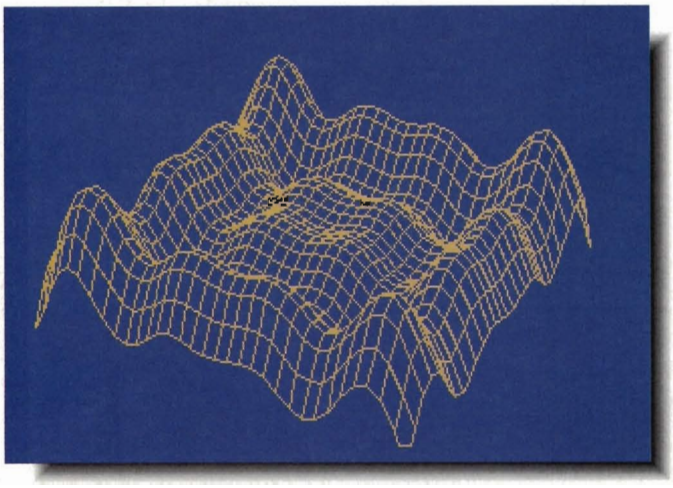
Scaling can be used to either control the color range used in contour plots or to constrain a wire frame plot to the borders of the screen. Once a plot has been generated you can ZOOMIN on it by dragging a rectangle over the portion

By Matthew Leeds

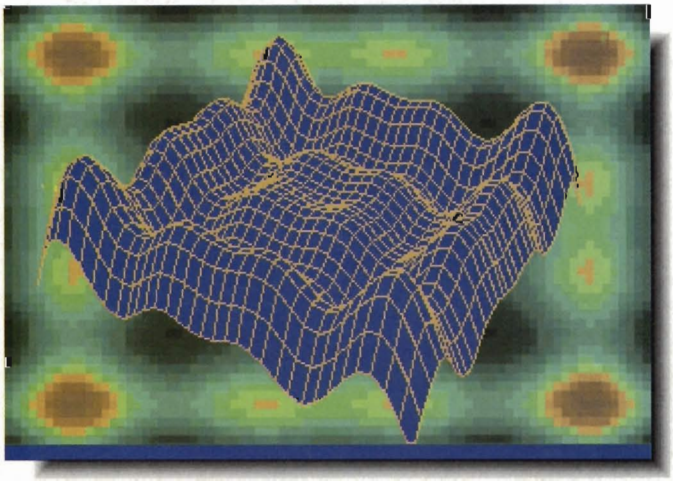


DOUG'S MATH AQUARIUM

The numerical swamp is used to view or alter formulas.



Three dimensional wire frame plots can be used to help visualize complex mathemical relationships.



Complex imagery can be created using recursive formulas.

of the plot you wish to examine. Replotting the formula will display on the section you have outlined. ZOOMOUT is the reverse and allows you to examine more of the range of your formula. CENTER lets you choose a target that will be used as screen center during subsequent plots. Analyze creates a crosshair on-screen that you can position anywhere on a plot. It reads out continuous values for X, Y, and Z=f(X,Y).

Other control options include the ability to control perspective in wire frame plots, a toggle to control the removal of hidden lines in wire frame plots, and an excellent color palette control. This color control is so unusual that it will be marketed as a separate utility known as the Color Commander.

The Color Commander is a very intuitive color palette manipulation interface. Just by moving the mouse up and down over the sliders, that represent each color register, you can achieve remarkable control over a broad range of color adjustments. This type of interface will become a much emulated way of controlling color not only on the Amiga, but on other machines as well.

DMA does have its drawbacks. The program has very few intuitive tools for understanding how to get a good plot in a short period of time for those without a strong grasp of math. Although the on-line help is far and away one of the best implementations of the Amiga HELP key (press help and then select any function or menu item, a help screen appears at once) I still found that I needed to make several iterations on adjustments to get a pleasing final plot.

There is no way to generate an X,Y axis for a two dimensional plot, nor are there any options for business graphics such as bar or pie charts. The manual, although complete as far as specifics on how each option worked, lacked tutorials for the novice. If you are interested in learning more about math in a tutorial environment this may not be for you.

The slider controls lack numeric readout. This makes it impossible to set an exact value for any of the options controlled via sliders, and left me feeling uncertain just what the results of moving the slider a specific amount would be.

DMA represents a powerful engine for viewing mathematical formulas as visual representations. Access to that power requires determination to understand the peculiarities of DMA's user interface.

DESCARTES

Descartes is designed as a two dimensional graphing tool. You can plot, print, and save as IFF images the results of equations with two variables. Descartes requires that you isolate one variable (y) on the left side of the equa-

tion before it will plot it. It handles a large number of functions, but requires that you enter them from memory as it has no on-line help function.

The FUNCTIONS option in Descartes is where you create your formulas. You can display up to eight functions at a time, and have a total of fifty in memory at once. Each function can be toggled 'on or off'. This allows you to graph more than one function at a time on a single set of axes. You can control the color of the plot for each function via the current function color indicator. Eight colors are available at a time.

The color palette requester allows you to change any of the eight available colors at any time. Descartes reserves eight colors for its menus and requesters.

You may choose to plot the equation across the entire domain of X or to specify some sub-domain by entering values in the From and To gadgets. The Copy gadget will create a duplicate of your function, and the Derivat gadget will produce the derivative of the current function, if possible.

The PARAMETERS option is the control center for the plotting capabilities of Descartes. It offers quite a bit of control over the graph formatting and axes labeling of plots. Within it you can turn on or off the x and y axes lines, control the scaling of the axes as either linear or logarithmic, set the size and positioning of the lettering used to label the scales of the axes, control the domain and range of the plot for your function, set the numerical formatting of the plot as far as decimal places and rational formatting (pi, e, base 10, or base e).

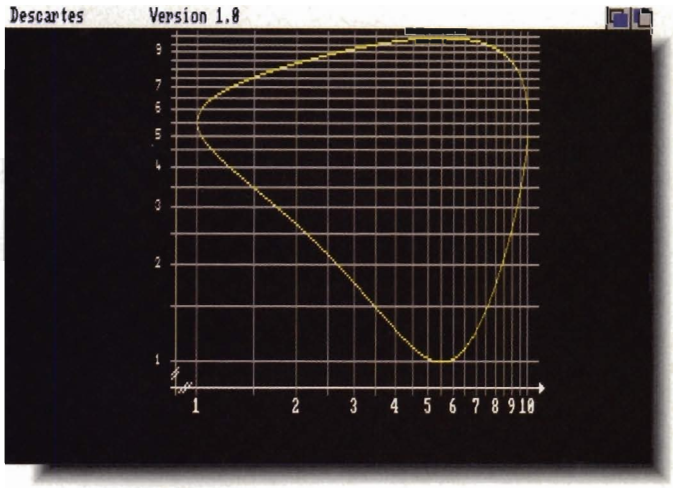
You can also control the colors of the axes, labeling, background color, and background grid. You can toggle the background grid on or off, set the x and y axes to the same scaling or allow the full screen to be used to display the set domain and range. You can control the quadrant the zero point appears in or eliminate it entirely.

The size of the final plot can be constrained to less than the full screen using the Screen-Size menu item. This lets you directly enter the number of pixels horizontally and vertically that will be used in the plot. There is no direct support for overscan or HAM, but all other display modes are supported.

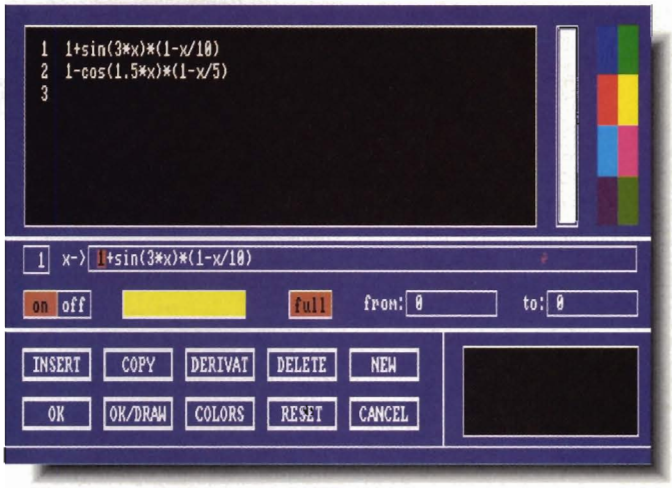
The amount of recursion can be set to one of four values. This can be useful with functions that have undefined points or discontinuities. The Save IFF menu item will save your current plot in whatever resolution mode you are currently using. The Print menu item will print your current plot. It does not offer any direct control over the printing of the plot, and you should make certain that you have either set the screen col-

DESCARTES

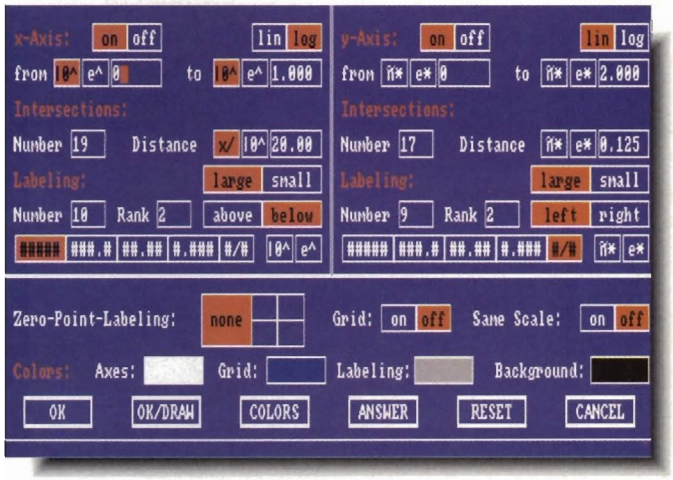
Descartes is a two-dimensional graphing tool.



Using the FUNCTIONS option you can create your own formulas. Up to 8 formulas (functions) can be displayed at one time.



This is the control center for the plotting cabapilities, the parameters option.



ors as you would like the printout to be, or set Preferences to negative as Descartes defaults to a black background for plots. This can use up a lot of ink during printouts and a Print Negative option would have been a nice addition.

The Descartes manual is small, but it does explain the working of the program adequately. It has both a table of contents and an index and an explanation of error messages generated by Descartes. The Descartes disk also contains a self running demo of Descartes that can be thought of as a guided tour more than a tutorial.

If you are looking for a program that will produce plots of functions in two dimensions either as printouts of IFF files, Descartes will handle the job. It is not packed with frills, but it fulfills its function well.

MATH-AMATION

Math-Amation reminds me of one of those science exploration kits my parents gave me as a child. You know the type, it let you try out just about every type of science experiment, teaching you about everything from chemistry to physics along the way. Math-Amation is like that. It is packed with great stuff you can just play with and learn about.

It is also a very powerful math analysis package. Don't get me wrong, this is no toy, but it is a great deal of fun to use. It will handle solving and plotting functions, but it will also handle matrix calculations, units conversion, geometry, statistics, business graphics, and comes with two excellent calculators; scientific and matrix.

Math-Amation makes great use of the Amiga's multitasking. Virtually every menu item opens its own window on the Math-Amation screen. This lets you control a great number of options, but potentially creates a cluttered screen. Math-Amation deals with this by putting two custom gadgets in every Math-Amation window. The first looks like a four pointed start. Clicking on it opens that particular window to full screen. Clicking on it a second time returns it to its original size. The second gadget both opens the window (to half screen size) and moves any window that occupied the lower half of the screen to the upper half and sizes that window down. This scheme lets you have up to four windows active at one time: one in the lower half of the screen, and three in the upper half of the screen.

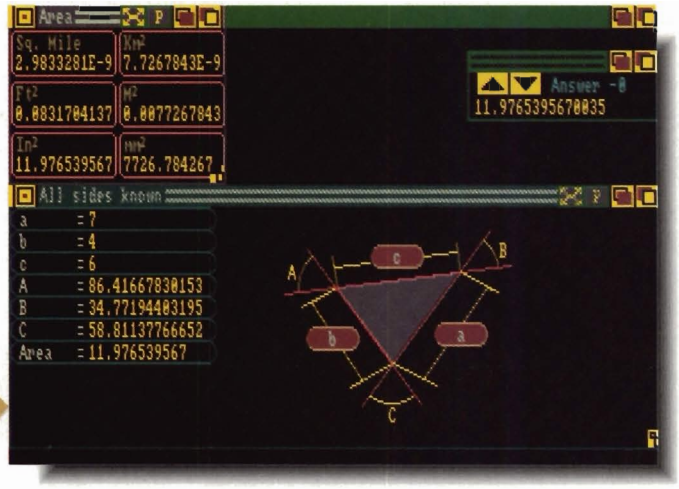
There are several major sections to Math-Amation. The first is Units Conversion. Selecting an item from the Units menu brings up a window with all the different types of that kind of unit. For example, selecting Length brings up a window with: Mile, Foot, Inch, Kilometer, Meter, Millimeter, Centimeter, Chain, Yard, and UK nautical Mile. Entering a value for any of these units generates the corresponding value for all the other listed units. The unit types include: Angles, Length, Area, Volume/Capacity, Coverage Rates, Flow Rates, Mass - Loading, Fuel Consumption, Density, Velocity, Acceleration, Heating, Power, Lighting, Structural, Compressibility, Viscosity, and Time.

The Geometry section handles the calculation of the associated sides, angles and area for Triangles, Rectangles, Circles and 3D Coordinates. For example, selecting the three sides known option from the Triangle sub-menu brings up a window that displays a triangle with gadgets for the three sides. Clicking on a gadget activates a requester for the length for that side. Entering values for all three sides automatically results in the calculation of the values for the three angles and area of the triangle. If you had the Units Conversion Area window open you could move the value for the area of the triangle into any of the area dimension gadgets and instantly get a conversion of that value into all other area units.

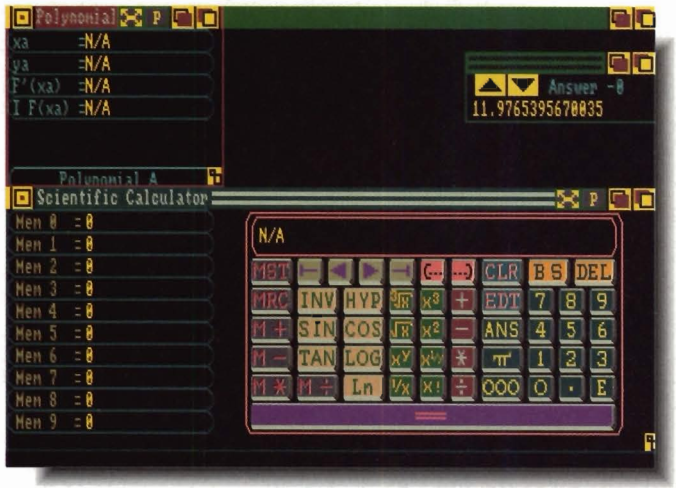
The 3D Coordinates section handles the conversion of dimensional information between Cartesian and Spherical Polar systems. It is very useful for map-

MATH-AMATION

Just about every function opens up its own window, this gives you the ability to control several of the programs features and functions.



Here you can see the full-featured scientific calculator with its 10 memory locations.



ping from a rectangular 3D space to the surface of a sphere.

The Algebra section is used for the manipulation of polynomials up to the fifth degree. This section will handle derivatives and integrations. This section will also generate plots of algebraic functions. You can control the limits of the X axis, and zoom in on any portion of the plot. There are however no controls over the colors generated, or the labeling of the plot. You can save the plot as an IFF image, but there is no control over the size of the image or its resolution.

The Statistics section handles the input of statistical samples and their display. Three options are available, X arrays, X-Y arrays, and Business Graphics. The X arrays option accepts up to 999 numeric entries and can calculate the mean, standard deviation, and variance of data input. It can also generate a histogram. Calculations can be on the raw data or on grouped data derived from it. Data can be grouped via the number of intervals, the size of the interval and the base point for the interval.

X-Y arrays handle numeric pairs. This module not only handles means, standard deviations and variances on either/both the X and Y data, it will also evaluate the correlation coefficient for the data pairs. It will also perform regression analysis to fit linear, natural log, exponential and polynomial type curves to the data. You can also work on interactive curve fitting and get information on the ratio of regression mean squares to residual mean squares.

The Business Graphics section is used to manipulate and display two dimensional arrays of numeric data. The data table can handle a matrix up to 12 X 12. Each row and column can be labeled and a color can be assigned to each row and column. A variety of charts and graphs can be generated from the matrix, including line and bar graphs, pie charts, and cumulative charts. You can choose to chart only a single row or column or a full matrix.

Other features of Math-Amation include the ability to control the display precision up to fifteen digits, the display rounding, and the angular mode used to express angular data. Both a Scientific and Matrix calculator are available, and you can easily transfer data from these into other modules. Global memories let you store values and recall them as needed.

You can save the graphical plots as IFF, save the current state of the program's memories, save the current set of calculation results, or save the entire state of the program including all open module windows. You can also import and export arrays, although this requires that the data be in a specific file format.

Math-Amation will let you print your IFF plots. It will also let you either print or store as a file to disk the results and/or the memories associated with the work you have done. This is a very welcome and flexible option for those interested in exporting their data to another application. You might be able to use Math-Amation to generate a motion path for a 3D animation program.

The manual is complete with both table of contents and index. The tech support number is included in the program. Math-Amation also has an extra menu that you currently cannot use. It lists additional modules that the programmers intend to create. This open ended design insures that Math-Amation will continue to be a useful program for quite some time.

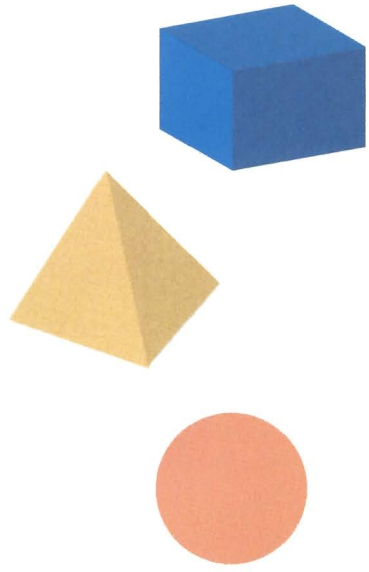
CONCLUSION

Overall, if you are looking for a full featured math analysis package I would recommend Math-Amation. It has the most power and flexibility, and looks to be the most expandable. It is lacking in the control over the appearance of its plots and graphs. If you are looking for the maximum control in this area, and only need 2D plots then Descartes may be sufficient. If you want to experiment with creating full color representations of mathematical formulas Doug's Math Aquarium is the perfect package. Each of these programs has something unique to offer. ❑

DESCARTES
MINDWARE INTERNATIONAL
110 Dunlop W.
Box 22158
Barrie, Ont.
Canada L4M 5R3
(705) 737-5998
$39.95 (CDN)

DOUG'S MATH AQUARIUM
Seven Seas Software
P.O. Box 411
Port Townsend, WA 98360
USA
(206) 385-3771
$89.95 (US)

MATH-AMATION
Progressive Peripherals & Software
464 Kalamath St.
Denver, CO 80204
USA
(303) 825-4144
$99.95 (US)



THE AMIGA HOME STUDIO

BUILD YOUR OWN MIDI INTERFACE

Now that you have a MIDI controller (keyboard or other), one or two sound modules and a couple of digital signal processors, you must connect all this to your Amiga. On the Amiga, pin 2 of the serial port is ready to send out MIDI data to your setup, and pin 3 is ready to receive data from your controller. You may ask why you need an interface if everything is already there. Although the Amiga can handle the speed of the MIDI data without any add-on hardware, the serial port's voltage level is not the same as on a MIDI port. This is why a MIDI interface is not difficult to build. In the case of an Amiga 1000, only a 1/4 of a quad comparator is sufficient to do the needed conversion, so the remaining 3 comparators can be used as additional MIDI drivers. So with only one LM339 chip, we can have one input and 3 outputs (or only one output and two signal LEDs, one to monitor the signal out and the other for signal in).

When the A500 and the A2000 were released, there were changes made in the pin assignment of the serial port which made it difficult to use the LM339 to build an interface; there are no longer +5 and -5 volts on any of the pins. However, you can use a 78L05 chip to bring the +12 volts of the new serial port to +5 volts which will be used to power a SN74LS04 (quad operational amlifier). Unlike the LM339, this chip only requires a +5 volt supply. This same chip can still be used to build an interface for the A1000, but in this case there is no need for a voltage regulator like the 78L05 as there is a +5 volt supply on one of the serial port pins.

Only one other chip, an Opto-Isolator, is needed to complete the project. An Opto-Isolator is an optical device. The LED inside must react rapidly if it is to function correctly with the MIDI signal. Because of the rate of data (31.25 KBaud) not just any Opto-Isolator will do. The one fI use is the 6N138 which does an excellent job. The only good substitute is the 6N138 which is a bit more expensive, but responds more rapidly. There is a 6N138 at every MIDI input, which is used to electrically isolate every MIDI module in a setup.

There are three schematic diagrams with this article. The first one is for an Amiga 1000 MIDI interface using the LM339 chip. This is the one I have been using in my own MIDI setup since october 1987 and have had no problems with it since. The next two schematics are based on the SN74LS04 chip, the first one is for the Amiga 500 or A2000 (or even an A2500 for those who are lucky enough to own one!), and the last one is for the A1000.

If you are thinking of building the interface, you might want to include a

By Alain Rheault

serial pass-through for other devices plugged to the serial port (a modem maybe). This is quite simple to do. Connect two DB25 serial connectors back to back except for pins 2 and 3. These are switched between the MIDI interface and the passthrough output. Ground and voltage pins are common to both. Adding this will eliminate the need to switch cables or to buy a switch box.

MIDI CONNECTIONS

Connect all the modules, including the MIDI interface, with two wire shielded cables with a 5 pin DIN connector at each end. These cables should be as short as possible. I prefer to make my own cabales so that I am assured of the correct length. If you absolutely need very long cables (more than the maximum 50 feet) you can get signal boosters or even wireless MIDI signal transmitters. These of course are more expensive than simple cables.

Only one controller can be active at a time in a MIDI setup; this is why there is only one input on the interface. Every module has 3 MIDI plugs: OUT, IN and THRU. MIDI OUT sends data to the different "slave" modules, MIDI IN receives data from the master module and MIDI THRU sends a perfect replica of what is at that module's MIDI IN. So the master's OUT will be connected to the interface's IN and the OUT of the interface will be connected to the slave's IN (this could be the master keyboard's own IN). If you want to add more slave modules, the IN of the next slave module will be connected to the THRU of the first slave (which has the same signal as the IN of that module, therefore it is the same as the interface's OUT). All the remaining slaves will be added to the setup in the same manner, from THRU to IN. This is called daisy chaining and is similar to the way disk drives are connected to your computer.

However, there is a limit to the number of modules that can be connected that way. Inside a MIDI device, the IN and THRU plugs are not hard wired together, there are electronics involved between the two. This means there is a very short delay between the two signals. This delay will be multiplied by the number of modules in the daisy chain. This delay will become all too noticeable after the third module. Because of this, certain manufacturers don't even include THRU ports in their equipment. But there is a solution, it is a little piece of hardware called a thru box.

Fig 1. MIDI SETUP (NO THRUBOX)

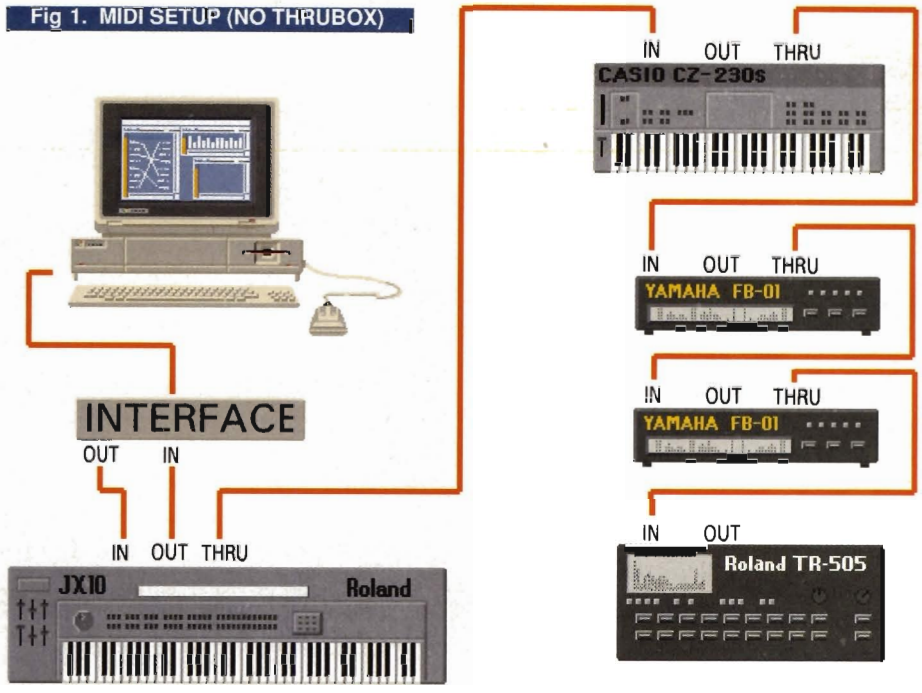
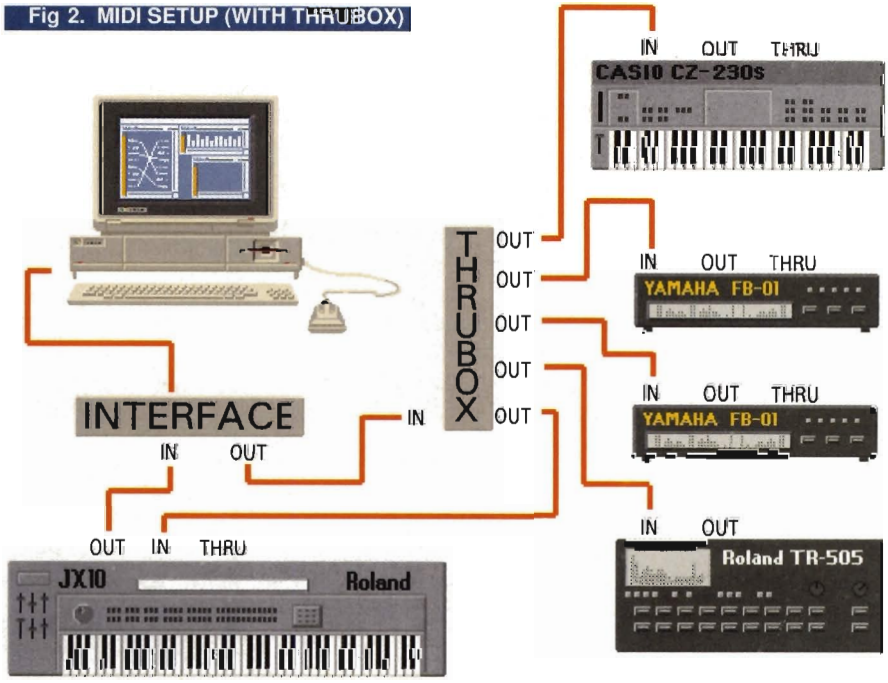


Fig 2. MIDI SETUP (WITH THRUBOX)



BUILDING YOUR OWN THRU BOX

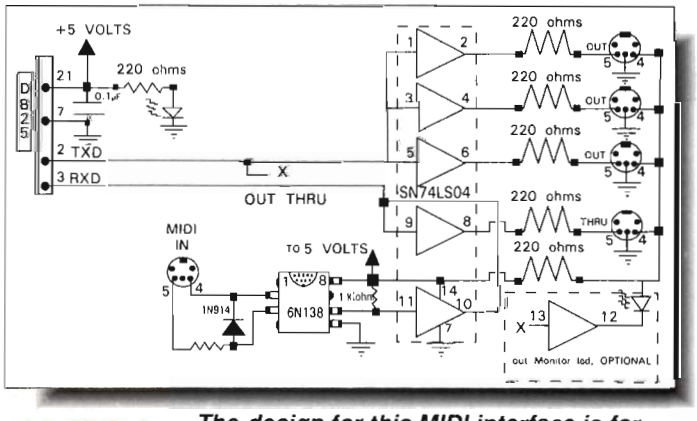
A thru box is simply a device with one IN and several OUTs. Some have as many as 8 OUTs, so there is only one delay involved. One delay is too short

to be noticed and besides, all 8 devices will have the same delay, so who cares! The thru box is very easy to build and will help you understand the "INs and OUTs" of MIDI even more. It doesn't need too many parts so it is not too expensive. You will need a 6N138. As I've mentioned earlier, every MIDI input requires one, so that the modules may be isolated from each other. The use of an Opto-Isolator makes it possible to use cheap connectors and cables without having to worry about ground problems. The INs and OUTs simply don't share the same ground at all.

You will also need a 5 volt regulator like the 78L05 and a 74LS04 which is a six pack of inverters. Because the 74LS04 inverts the signal, one inverter is used in series with the five remaining inverters used as 5 outputs, so the output signal will be back to what it should be. One gate in a 74LS04 can drive up to eight other gates, so if you add another 74LS04 you will be able to build a thru box with eight outputs. Add many 74LS04 and you will have many outputs, it's all up to you. I used one inverter to drive a LED so I have a signal monitor and use the four remaining as outputs. Four outputs are sufficient for me because I still use the THRU of the MIDI modules plugged to the thru box to drive units less sensitive to delays like Effects modules for example. The schematic to build the thru box is included here, and I highly recommend you build one. I did mine on a rainy Saturday afternoon, and except for a reversed diode, I had it perfect the first time.

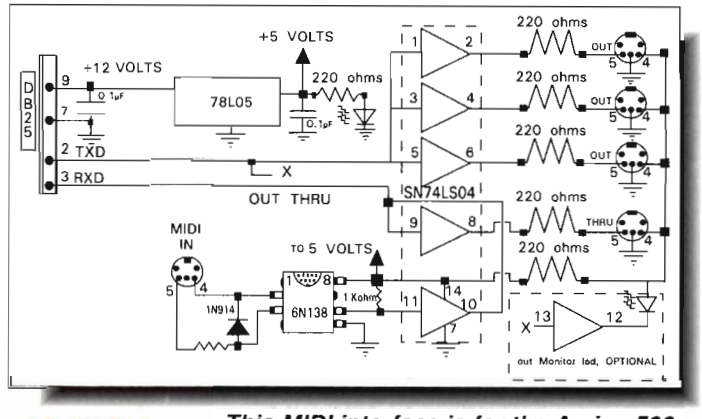
You will notice the thru box works with a 9 volt supply. I don't recommend you use a battery because the box takes more current than expected. With very busy sequences the thru box would sometimes loose data, so I changed the 1N914 diode with a 1N647 (the one at the power supply's input). I also attached a heat sink to the voltage regulator so it could handle more power and change the supply to 12 volts. Since then everything works fine.

When working on hardware projects you should be at some distance from your computer and in a well lit area. Check everything at least twice and make sure the power is off on the computer when you plug it in. The only exception to this is the thru box, thanks to Opto-Isolators it can be connected even when the power is on. ❑



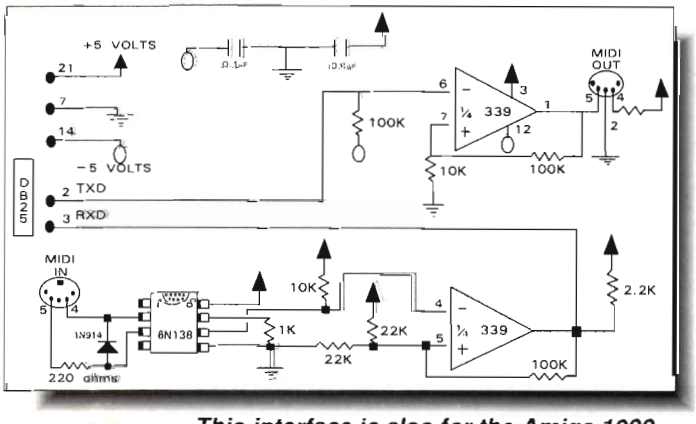
AMIGA 1000

The design for this MIDI interface is for the Amiga 1000 only. The interface receives its power from the serial port.



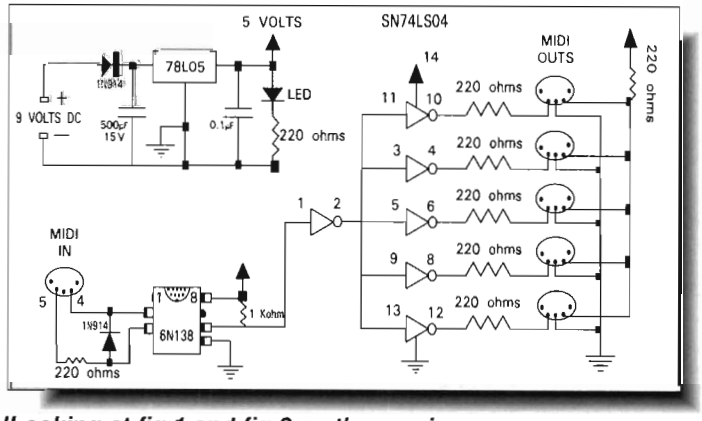
AMIGA 500&2000

This MIDI interface is for the Amiga 500 and 2000 only. The interface receives its power from the serial port.



AMIGA 1000

This interface is also for the Amiga 1000, but it is based on the LM339 chip while the above interfaces use the SN74LS04.



ILooking at fig 1 and fig 2 on the previous page, you can see that there is a delay in the MIDI signals in every additional device that's added to a system with no thrubox.

Data Manager's Public Domain Reviews

FlamKey

Author: Alex Livshits
(AmigoTimes Disk v1.6)
<SHAREWARE>

FlamKey disables only keyboard and mouse input. Programs will work, drives will spin and ports will be active. The reset keys (CTRL-A-A) and the power switch are still accessible.

FlamKey is useful when your Amiga is surrounded by some life forms (people, children, dogs, cats etc..) that just wait for you to leave the room so they can start messing around with the keyboard and mouse.

FlamKey installs a little key on the Workbench screen title bar and waits in the background until somebody clicks on it. Once activated, it opens a window and presents some options to the user. If 'LOCK' option is selected, FlamKey cuts off all mouse and keyboard inputs until the user clicks on the key again and enters the correct password.

IconMeister (v1.4)

Author: Michael Bodin
(AmigoTimes Disk v1.6)

IconMeister is a paint program specifically written for creating icons of all types, sizes, and colors, quickly and easily. Other features include the capability of creating interlace, 8 colors, and dual icons. IconMeister supports all the popular drawing tools (PENCIL, LINE, RECTANGLE, CIRCLE, etc.). You can even alter the default colors to match any Workbench environment.

SmartIcon

Author: The Boiler Room
(AmigoTimes Disk v1.6)

Once activated you will notice that there is another gadget on the sizing gadgets. If you click this instead of closing the window, SmartIcon saves that screen into your RAM: disk. Reopening a window is as simple as opening your RAM: and clicking on the icon created by SmartIcon.

SmartIcon will only affect screens that are open when SmartIcon is activated. Any new screens will not have windows affected by SmartIcon. In other words, if you want the SmartIcon gadgets to appear on windows on a particular screen (your word processor for example), that screen must exist before you run SmartIcon.

GPrint (v2.03)

Author: Peter Cherna
(AmigoTimes Disk v1.5)

GPrint takes any two-colour IFF picture file as input, and prints it on an Epson FX-series or compatible printer with the highest print quality possible. GPrint's cornerstone is its ability to provide a direct pixel-for-pixel copy of the picture file on the printer.

GPrint offers a total of nine print modes, consisting of four print densities and three printing qualities (not all combinations allowed). The print densities range from 80x72 screen pixels per printed square inch up to 240x216! The highest print quality incorporates a special smoothing algorithm that greatly improves the output; It is noticeable on text, curves, and diagonal lines or boundaries.

The user can then trade off picture size and picture quality vs. time needed for the print. Additional options include setting a left margin, centering the picture, inverting the picture, and issuing a final form feed after printing. At the highest density, such a picture file would occupy only one sixth of a printed page! GPrint offers its Special Smoothing mode (works only with medium and high densities) and then produces the best possible output by calculating intermediate horizontal and vertical dots. The smoothing mode produces somewhat more pleasing results.

Options Available:

Offset Image specifies a desired left margin in tenths of an inch causing the printed image to be moved over by that amount.

Center Image allows you to position a printed image in the horizontal center of the page.

Invert Image reverses the interpretation of black and white in the picture to be printed.

Form Feed performs a form feed after having printed the picture.

Wide-Carriage Printers informs GPrint that you are using a wide-

By Ernest N. Nagy

carriage (13.6") printer. GPrint then adjusts itself for the extra width, allowing wider pictures to be printed, and centering pictures accordingly.

Suppresses Reverse Feeds is used in conjunction with printers that cannot perform reverse paper feeds.

Full Blackness is a special algorithm which reduces the blackness in solid areas of the printout. It helps to save the ribbon, and produces a cleaner looking output with less chance of smudging.

UNIVERSAL HINT SYSTEM READER (v0.91)

Author: Michael McCormick
(AmigoTimes Disk v1.6)

This is the official reader for all UHS hint files. Hint files are mini databases created by volunteer gamers, with a UHS Maker program, and can be read on any machine with a reader. Hint files are composed of topics, questions, and hints. Different games require different hint files (one hint file was included with this reader).

The contents page lists the various topics describing important and distinct portions of the game. Under each topic is a list of related questions. On the upper left and lower right of the page is a square 'turn-page' gadget that will take you forward or backward through the pages of the booklet. Clicking the mouse over a question or topic on the contents page causes instant transportation to the relevant hint page.

Key Map Editor (v1.03)

Author: Tim Friest
(AmigoTimes Disk v1.6)

KeyMapEd allows you to modify the KeyMaps distributed with AmigaDOS and then install it on your system with the SetMap command.

Any key can have 'key macros' with each key having a separate value for pressing the key alone, or with combinations of SHIFT, ALT, and CTRL. So, each key may have up to eight separate values when pressed. Keys may be capsable (use the SHIFT value when the caps lock key is on) and/or repeatable (key repeats when held down). Pressing the combination of a dead key with a key that is deadable (modified by a dead key) allows the addition of accents to the key value (for instance an "ALT-g" then "a" will produce an "§" or an "a" with an "accent grave" above it).

The KeyMapEd should display the current value for each key (on an A2000 keyboard) with the current combination of SHIFT/ALT/CTRL/capslock. Simply press the SHIFT/ALT/CTRL/capslock gadgets to change the display the key editor window for that key.

The top row of gadgets define what type of key this is (NOP, Normal, String, or Dead). The second row shows which of the SHIFT/ALT/CTRL keys effect this key. The third row displays whether the key is capsable and/or repeatable. Finally the rest of the window shows the values for each of the SHIFT / ALT / CTRL combinations available for this key. The rest of the window will be different depending on whether the key is NOP, Normal, String, or Dead.

NOVIRUS (v1.56)

Author: NIC WILSON (president Toowoomba Amiga User Group)
(AmigoTimes Disk v1.6)

NoVirus analyses your disks for new viruses and reports anything it finds. If it finds a virus that it recognizes (SCA, BYTE WARRIOR, BYTE BANDIT, NORTHSTAR, MICROSYSTEMS, REVENGE 1.2, LSD, AEK, HCS), it will inform you and then remove it. NoVirus also recognizes THE GUARDIAN in memory but doesn't remove it. Disks can be installed through the program. Other features include:

NOTSYS: Modifies a boot block to remove FastRAM. It wedges code into the boot block. It works on special boot blocks!

SYSNOT: Makes a disk bootable. It also removes FastRAM and all external drives at boot time.

RESTORE: Is the reverse of GRAB, in that it loads a given filename and restores it on the disk as a boot block.

DOSENABLE: Inhibits DOS for all drives available.

ICONIFY: Once selected, the Custom Screen & Window will be closed and all excess memory freed. The program will open a very small window on the title bar & de-select itself. It will remain asleep in the background until needed. Once ICONIFIED, the small window can be moved anywhere.

ANALYZE: It analyses the boot block of the currently selected drive, looking for certain codes that are peculiar to viruses. If any are found they will be displayed on the screen as their actual function. This allows you to identify hacked versions of known viruses.

REPAIR: This function checks the disk and either repairs it fully or recovers it so it is a valid DOS DISK. If it is only the bootblock that is damaged this function replaces it. If the whole track is corrupt, the track is formatted, then a bootblock is written.

VIEWBOOT: Allows you to view the ASCII of any boot block.

Tapestry (v2.0)

Author: Joe Hitchens
(AmigoTimes Disk v1.6)

Tapestry allows you to attach a picture to your normal Workbench display. It has the capacity to load any 1 bitplane (2 color) IFF picture.

Tapestry eats up a certain amount of CHIP RAM in addition to the program, stack and data. A normal non-interlace Workbench uses 16K, and a normal interlace Workbench uses 32K. If your Workbench has overscan, even more will be consumed.

The picture files included with Tapestry (listed below) were all created by Joe Hitchens. They are:

Lyssette (For Interlaced Workbench)
Lyssette.200 (Standard Workbench)
Lion
Rects
Window

WICON (v1.14)

Author: Steven Sweeting
(AmigoTimes Disk v1.6)

Wicon operates on only one screen at a time. Most windows can be iconified, when it's active by selecting it with the RMB (Right Mouse Button), but don't move the mouse between pressing and releasing the RMB.

Wicon currently is installed with MacWin, which does 'rubber-banding'

on OpenWindow & CloseWindow (as well as Iconification). Once installed this 'rubber-banding' is active for all windows in the system.

AutoDiskChange (v1.0)

Author: Martin Taillefer
(AmigoTimes Disk v1.6)

If AutoDiskChange is run in the background, every time you change a floppy it will send the appropriate information to the FFS (Fast File System) telling it that a disk has changed. AutoDiskChange hooks up to the trackdisk device disk change interrupt. Whenever this interrupt occurs, the program sends an ACTION_DISKCHANGE packet to the related FFS handler. AutoDiskChange allows you to specify up to four drives in FFS format.

The FFS is an alternative file system developed by Commodore to replace the BCPL file system used up to this point. The initial release of FFS (available in Workbench v1.3) is geared towards non-removable media such as hard disks, or RAD disks. This implies that FFS doesn't directly support floppies; to be exact, it doesn't notice disk swaps. This stems from the fact that FFS currently expects to be run on non-removable media only.

FFS allows you to store 4.9% more data on the same floppy. It will also do disk directories more quickly. Disk reads and writes are slightly speeded up, due to hardware limitations. The big difference can be noticed when doing two or more disk transactions simultaneously. If you're saving data to floppy in DF0: and reading stuff to the RAM disk from DF1:, there won't be any slowdown in either the write or read operations.

Of course, you will also need to format floppies in FFS mode and then refer to the drive as "FF1:". You can still use your drives with old-style floppies by accessing them as "DF0:" and "DF1:".

Patch2090 (v1.0)

Author: Khalid Aldoseri
(AmigoTimes Disk v1.6)

Patch2090 corrects the problems that the CBM 2090 and 2090A controllers have when heavy DMA activity is present; when the display is hi-res and in 4-bit planes (16 colors) while reading from Fast Filing System (FFS) partitions. Programs that have confirmed problems with DMA are DPaint, ProPage and 16-color Workbench. This problem is very evident with SCSI drives.

Once run, the program will keep checking as input & output are done to the hard disk. If the display meets the problem conditions, Patch2090 automatically reduces the HD (hard drive) transfer rate in order to avoid the problem. However, as soon as the display returns to normal, full HD transfer speed is restored. ❑

CUTTING THROUGH THE TECHNOBABBLE!

This month's Video Production column will try to explain why Desktop Video is not quite as hard to get into as some may make it out to be.

Over the years, I've noticed that when people try to use the Amiga for professional applications, especially video, several of them run into a major problem. To top it off, this problem isn't even software or hardware related, it's people related. Specifically, the problem deals with the process of using the Amiga in a professional capacity, and all the steps involved in getting from point A to point B. The trouble starts when people try to explain this process to other people; what is a simple matter becomes one of great confusion and frustration.

In this issue's column, I'll try to eliminate as much confusion as I can, and discuss in simple terms steps by which one can use the Amiga as a basis for a graphics/animation oriented business.

THE VIDEO AMIGA

Ever since the Amiga was first introduced, people have been using it for video applications. One of the biggest advantages the original Amiga 1000 had over other machines was its composite video output; this was also one of its biggest disadvantages. Of course, the advantage was being able to output computer graphics and animation directly to videotape, and the disadvantage was that the output was not a broadcast-quality NTSC signal.

The non-broadcast signal seemed to be a serious drawback for many people. I was told implicitly, for at least a year, that it was impossible to get video output from the Amiga that was good enough to use for professional applications. Incidentally, that was the same year I started my computer animation business and I had found no loss of work (or clients) from dumping my animations directly to videotape from the composite video output.

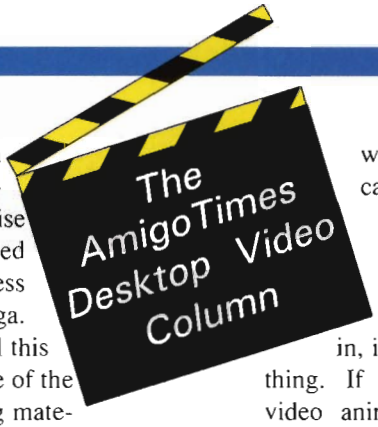
Granted, the video output was dirty, and it was far from NTSC standards, but the bottom line was I was running a profitable full time business because of the video output, dirty or not.

I listened to people ramble on about time base correctors, signal boosters, RGB converters, genlocks, and a host of other devices that would allow clean video output, and I realized that if you bought all these peripherals, you'd end up spending too much to make much of a profit, if any. It might even be easier to buy a larger video intensive system. I decided to wait it out and continue along my merry way using the A1000's composite video output, which brings me to my first point.

KEEPING IT SIMPLE

People often complicate things for themselves, and in the varied world of Amiga video, this is one thing you don't have to do.

By Nick Poliwko



Let's take a look at the equipment and expertise that one would need to set up business with the Amiga. We're looking at all this from the perspective of the simplicity of getting material out of your Amiga into another medium, that is video, so we'll assume that you already have some artistic or animation ability. Beyond that, you'll obviously need an Amiga (the A500, the A2000 family, or even the A1000). After you've gotten the Amiga, you'd have to look into getting some extra memory and some software. Your next and final consideration would be getting your work output to videotape. Unlike the early days of the Amiga, there are now a variety of reasonably priced genlocks available that will provide broadcast quality NTSC video output. There you have it, a basic but workable setup.

Now, what do you have to know to make all this work for you? Surprisingly, not that much. You'd have to know how to connect the various pieces of equipment together, and how to work the software. The included manuals provide great instruction in both these areas. You'd also have to know where your can rent a portable videotape recorder (3/4" or Betacam are the most popular formats).

When I started my business with the Amiga, I had very little background in computers, so it isn't necessary to be very computer literate or have a programmer's knowledge in software to make a go of it (I'm still not a computer literate, nor have I learned any programming languages). Fortunately, many of the programs available for the Amiga (especially in the areas of graphics and animation) are very user friendly. It also isn't necessary to have a thorough knowledge of video. All you have to know is whether the genlock you have gives you broadcast quality output (AmigoTimes 1.5 contains a great article with this info called "The Truth About Genlocks/Converters"), and where you plug in the output cable.

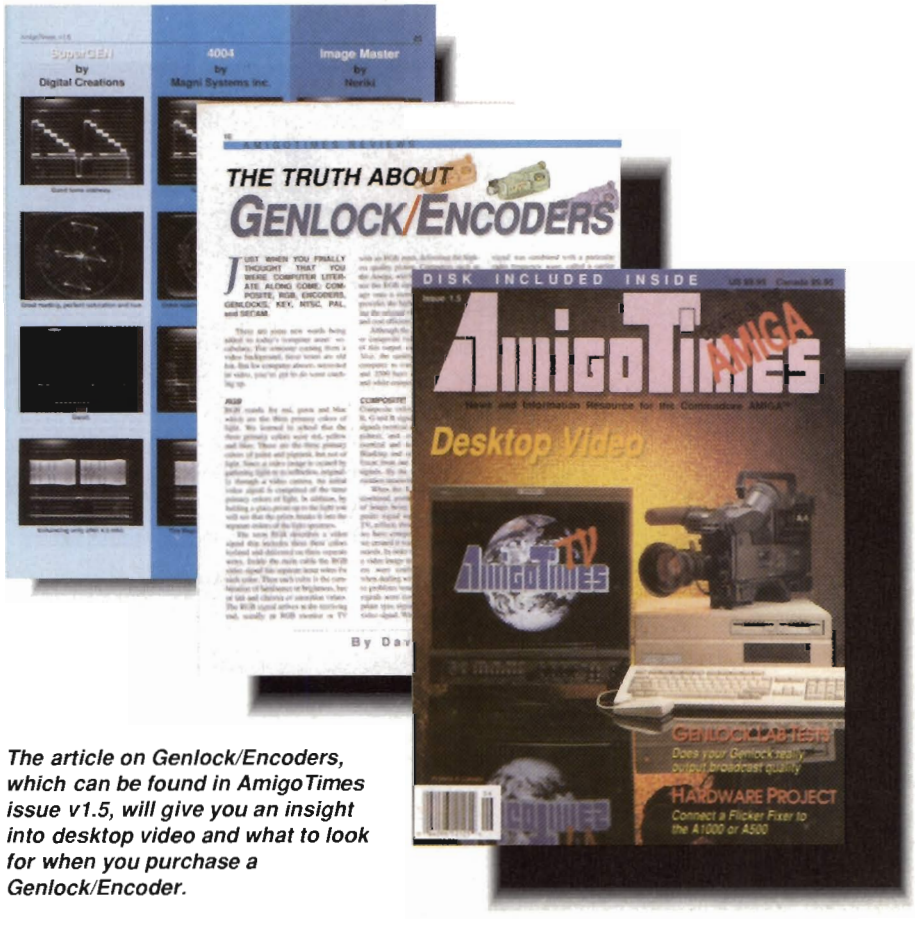
All this brings up a second point: Only knowing what you have to know. No matter what business you're in, it's impossible to know everything. If you're getting into Amiga video animation, you should concentrate on creating and animating, and not on questions of video fields and vertical blanking.

It seems to be a generally good policy to learn only what you have to know to get the job done. Don't let people scare you off with talk of sync signals and time code. If you don't need to know about them to do your work, don't bother with them. Remember that there are people out there whose lives revolve around knowing the things you don't, and it's far easier to ask a question to someone who knows, rather than trying to learn all about it yourself.

CONCLUSIONS

In this column, I've tried to stress the primacy of keeping things simple. It's often all too easy to get completely befuddled in considering some small details that have no real effect on the outcome of your efforts. I've been in the Amiga animation business for over three years now without knowing specifically how the Amiga does the wonderful things it does; I'm just happy it does these things, and does them well.

I have only three recommendations to make (and this is the same advice I got from someone when I started): the first is that you keep your mind as free as possible from unnecessary details, thus keeping the process at hand simple and understandable. The second is spending the time to learn the software you'll be using as well as you can, and the third is knowing who to ask when you do run into problems. Good luck, and remember, KEEP THINGS SIMPLE. ❑



The article on Genlock/Encoders, which can be found in AmigoTimes issue v1.5, will give you an insight into desktop video and what to look for when you purchase a Genlock/Encoder.

GOBBLEDYGOOK
GOBBLEDYGOOK
GOBBLEDYGOOK

Expo-Matic

Due to the ever-increasing number and frequency of Amiga trade shows around the country and our limited budget for supporting the ever-increasing size of expense accounts of high-priced Amiga journalists, this magazine introduces the "Expo-Matic," a simple system for producing the bland "Show Reports" that result from the excess and binges of said writers, under the pretense of reporting what's happening in the Amiga Community.

To use the Expo-Matic to generate the happenings at any Amiga trade show, read on, and when the story is interrupted with a list of choices, choose one, and read on, and on, and on until you've got a complete show report. In six weeks, after the next show, try it again with different choices, and you'll have the latest Amiga news!

The 1989 Bigtime Amiga Show and Expo was held in the beautiful Buena West hotel in downtown _____,

1. Los Angeles
2. Atlanta
3. Las Vegas
4. San Francisco

known for its _____.

1. Spacious atrium
2. Glass elevators
3. $3 soft drinks
4. Nearby tourist traps

The hit of the show was a new product from _____,

1. Deluxe Arts
2. New Illusions
3. MetaMicroTechnoWare
4. Gold Products

known as _____.

1. The Toaster Oven
2. Professional Presto Change-o!
3. ScrOnAlyze!!!
4. Return to Deluxe Land of Adventure Paint II

According to _____,

1. Marvin Spongebucket
2. Jane Sneeb
3. Dewey Cheatham

the company's marketing director, the new product _____.

1. Far exceeds all comparable products in its class
2. Brings a true professional approach to the Amiga
3. Is better than anything else on the market
4. Is expected to make millions for somebody

Although it is not available now, the product is expected to _____.

1. Ship in two weeks. "Really. No kidding."
2. Ship in six weeks. "Or eight weeks. You can quote me on that."
3. Ship in the late fourth quarter. "Of this year or next year."
4. Ship, someday soon. "Real soon now, heh heh."

It would have shipped already, but the company had trouble with _____.

1. The manual
2. The packaging
3. The beta testers
4. The distributors

Another reason for the delay is _____.

1. high RAM chip prices
2. that the President is a close friend of the competition
3. Commodore
4. FCC approval

Their booth was always crowded with Amiga fanatics, watching the flashy demo on the screen. The company president was on hand, explaining the special care they have been taking to position the product in the Amiga marketplace. They said, _____.

1. "It's only limited by your imagination."
2. "It's a professional product."
3. "It's a high-end product."
4. "It's my favorite product."
5. All of the above.

Some observers balked at the product's $795 price, but company representatives claimed the high price was necessary to insure the Amiga market will survive as a serious alternative to the Mac and IBM. Without seriously-priced

By John Foust

software, the Amiga can't be taken seriously, they said.

The company also showed its new Amiga video game, called "MegaBit-Blast," priced at $49.95, shipping now.

During the day, famous Amiga speakers gave speeches and seminars. The most popular by far was _____.

1. **Jay Miner on "Back When the Amiga Had A Chance in Hell."**
2. **R.J. Mical on "How I Created the Amiga in Six Days."**
3. **a Commodore official, on "New Things to Wait For."**
4. **AmigaWorld's Guy Wright, on "The Amiga and 19th Century German Philosophy."**

After his talk, a dispute ensued when the speaker grew angry at an audience member who had been videotaping the speech, screaming, "No, no, there can't be any record of this!"

On Saturday night of the show, _____

1. **AmigaWhirled magazine**
2. **Amusing Confusing magazine**
3. **AmigoTights Magazine**

hosted a party in the ballroom of the hotel. Supplying an endless array of hors d'oeuvres, including wildly popular _____,

1. **water chestnuts wrapped in bacon**
2. **cakes in the shape of disk drives**
3. **an open bar for journalists**

most attendees chose to eat at the party, instead of going out on the town. But of course, given a choice, Amiga fanatics would rather huddle around a monitor than explore a new city. At a nearby Amiga 2000, a Commodore engineer surprised everyone by _____.

1. **bringing a new hard disk controller**
2. **showing off a new ASCII-to-PETSCI converter board**
3. **wearing a nice, new shirt**
4. **wearing underwear**

Later on, Amiga animator _____,

1. **Allen Hastings**
2. **Leo Schwab**
3. **Louis Markoya**

showed a never-before-seen animation called "Amiga Vs. IBM," made with yet another new animation package called Super Turbo 3D SculpyScape, which only runs on Amigas with 68030/68881 boards with at least 8 MB of memory and a 300 MB hard disk.

According to the show's promoter, the show was a success. They plan to hold the next show in six weeks, in another big city, in another big hotel. They also announced future shows in Manitoba in December, Newark in March, and Jacksonville in July. ❑

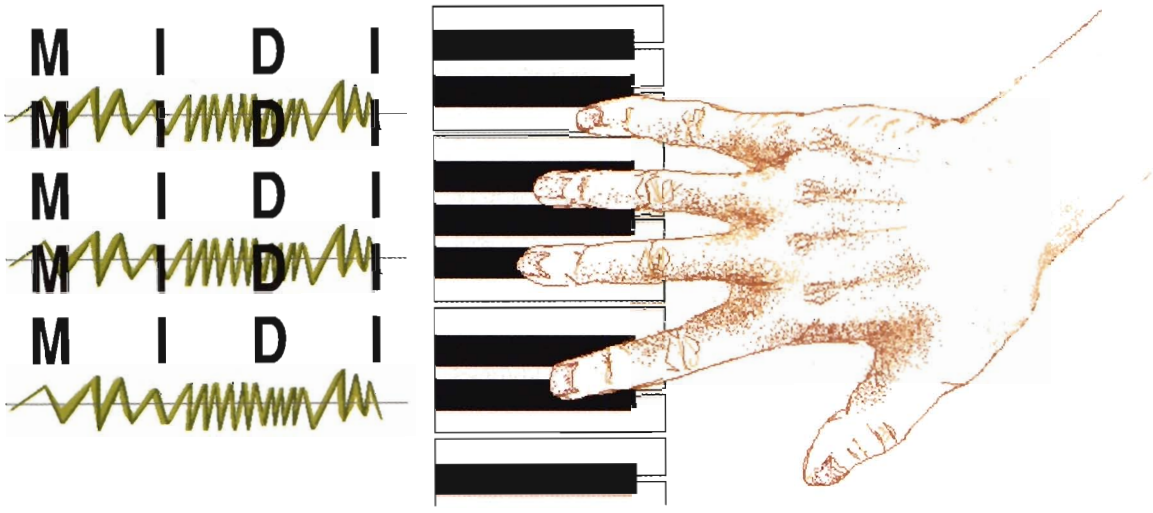
ABOUT THE AUTHOR

John Foust, the man some call _____,

1. **"The Father of Amiga Journalism"**
2. **"The Bastard Son of Amiga Journalism"**
3. **"That snooty traitor"**

readily admits to _____.

1. **ripping off the idea for this article from a recent issue of Spy magazine**
2. **owning an Atari ST, and writing for Mac and PC magazines, too**
3. **none of the above**
4. **all of the above**



The MIDI Standard: Hardware

So far in this column we have discussed information coding in the MIDI signal and how to use it in our own programs, in other words, the software part of the standard. This time we will look at the other side of this mountain, the hardware.

MIDI is sent as a serial signal; one bit at a time. This is similar to data being sent to and from a modem, which is why the serial port is used for MIDI applications. The rate is quite fast at 31.25 KBaud. If you add one start bit with 8 bits of data and one stop bit, you get a total of 10 bits per serial byte. The period is therefore 320 microseconds per serial byte. We are lucky that the Amiga can handle such speed.

There is a major difference in the way this is coded in hardware. It is not in voltage levels, but in what is called a current loop. Serial data usually appears at a serial port as two different voltage levels: one indicates a bit value of zero, and the other a bit value of one. It is different with MIDI; bit value is indicated by current flowing in a current loop, if current is present it means a value of zero, if there is no current, the value is one. When present, the current value is 5mA, and the interface circuit must require less than this to work.

It is stated in the MIDI 1.0 document that every MIDI input must be opto-isolated. The document included an example schematic to illustrate how it should be done. Every manufacturer should adhere to this procedure. This diagram is almost identical to the MIDI interface design in this month's Home Studio column. This is not surprising because, after all, a modern synthesizer is but a specialized form of computer. The circuit included in the MIDI 1.0 manual incorporates a Sharp PC900 opto-isolator, but it could have used a 6N138 or another suitable equivalent as long as response time is less than 2 microseconds.

CONNECTIONS

If you want MIDI to work for you, you've got to have connections! Along with all the rest, the MIDI standard also specifies what kind of connectors and cables should be used. The type of con-

By Serge Boucher

nector you will find in the back of any MIDI synth module is a 5 pin DIN plug. DIN is the acronym for the German standard committee. Although this type of connector is rather new on this side of the Atlantic, it has been used in Europe for some time. The plugs on the

A setup can become quite complicated in no time at all when modules start to add up in your system and when cable swapping becomes a way of life

MIDI modules are female connectors while those at the end of the cables used to connect the modules together must be male plugs. It is specified in the MIDI standard that the cables must have a length not exceeding 50 feet (15 meters), and that the cables are to be made of a shielded pair of twisted wires.

It might sound surprising that the connectors used have 5 pins, and that the cables only use 2 wires. The reason is that, rather than having all data, incoming and outgoing, on one cable, these different types are assigned to separate connectors on the MIDI modules. These are the familiar IN, OUT and THRU connectors. The MIDI THRU output was first intended as an option, but it can now be found on almost every piece of MIDI hardware and carries an exact copy of the signal present at the input of the device. I think the most limiting part of the standard is this scheme of having separate ports. A setup can become quite complicated in no time at all when modules start to add up in your system and when cable swapping becomes a way of life.

The system was designed to have only one master device at a time. The MIDI signal can easily be sent to more than one device, but only one device does the transmitting. A good example is a setup consisting of one master keyboard with an inboard sound module, and one additional sound module. These are all connected to a computer which is the heart of the system. A very common setup for home computer musicians is to use it to both record and playback sequences, and program the sound modules. Everything is well in this setup while recording or playing a sequence, however, if you want to program the sound modules, both will need to send data to the computer. This is where the cable swapping begins.

Most sound modules will require that you establish a two communication path between the computer and the module. So if you want to program sounds in the slave module, you will have to remove the cable from the master keyboard and replace it with one that goes from the output of the slave to the input of the computer's interface. You can imagine the complications that can arise when you start adding modules to the setup. This is unfortunate especially for a computer like the Amiga that lets you do both things at once by multitasking different applications. For now this is the only alternative to swapping cables to get one of the hardware devices that lets you reconfigure your setup with minimal effort. In a future instalment of this column we will look at what devices are available to help untangle all those wires, and maybe look at a simple project you can build yourself.

Cables are quite easy to build. All you need is two wire shielded cables and 5 pin male DIN plugs. The two wires are connected to pin 4 and five of the plugs, and the shield is connected to pin 2. Fig. 1 gives the pin assignments of a 5 pin plug. That's all there is to it. The number of cables, even in a simple setup can be staggering and it is nice to see they are easily made. If you have any questions or comments please send them care of AmigoTimes. ❑

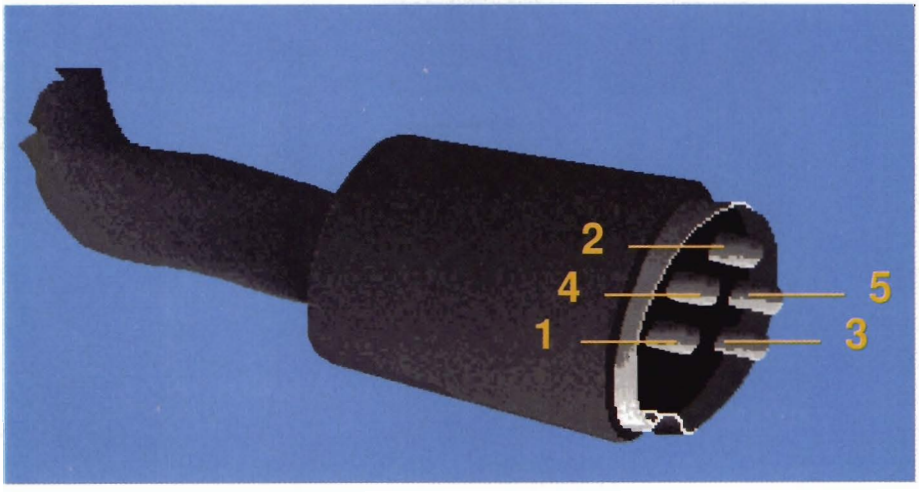
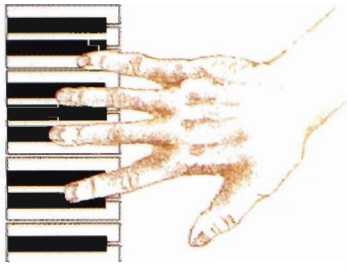


Figure 1: The pin assignments of a 5 pin male DIN plug

The "MIDI 1.0 Detailed Specification" is available at:

The International MIDI Association
5316 W. 57th St.
Los Angeles, CA 90056
USA
(213) 649-6434



DESKTOP BUDGET

Accounting for home and small businesses

Finally, an application that takes full advantage of the Amiga user interface. In fact the DESKTOP BUDGET, or DB, environment is the same as the workbench. Therefore, the use of Desktop Budget appears transparent; you might even think that you haven't left the Workbench.

DB is an icon oriented personal accounting package produced by Gold Disk Inc. The standard software disk comes with seven drawers including the DB_Drawer, Tutorial, and MasterIcon drawers. You can find the package itself, as expected, within the DB_Drawer along with two utilities: DB_EDITOR and DB_CALCULATOR. These utilities alone are worth the price of the software. Activate DB by double clicking on the DB icon.

The Desktop Budget workbench type environment, displaying some of a wide variety of icons included with the program, which can be used as is or modified in the Icon Editor

The DB Icon Editor, where you can create and/or modify icons; and the DB Calculator - a simple four function calculator with memory, which is useful for making quick calculations on the DB screen and which allows you to paste the results of your calculations directly into your budget

DESKTOP ENVIRONMENT

Once activated you enter the DB environment. You can open a budget or create a new one by selecting the appropriate command in the menu. An icon is associated with every budget created, or item of a given budget, such as a type of expenditure or income. You select an icon in the MasterIcon drawer or you can easily create your own with the DB_EDITOR. Then all transactions are accomplished by selecting the appropriate icon in your budget.

By Jean Boucher

All the typical activities expected in budget are present in the SPECIAL menu (i.e. deposit, reconcile, make payments, etc.). You only have to select the appropriate icon and then the desired activity. The tutorial will be sufficient for most applications. It is a good complement to the user's guide which can be hard to read. In fact, the documentation is the weak point of this otherwise very good product.

One of this package's interesting features, if you have included all your income and expenses, is the possibility of getting your net worth by a simple command. It will also consider your mortgage and outstanding loans. Another point of interest is the possibility of integrating automatic deposits or withdrawals into your budget, simply by selecting AUTOMATIC from the SPECIAL menu and supplying the pertinent information. Then, your pay check will be added to your budget on a regular basis or on specified dates.

As mentioned above, the utilities supplied with DB are very useful and easy to use. As DB is icon oriented, the icon editor, DB_EDITOR, is especially useful. One can, in no time, create customized icons. The calculator, DB_CALCULATOR, is a full feature business calculator from which the results can be cut and pasted into your own budget. Naturally, both utilities can run simultaneously with DB.

FRENCH VERSION

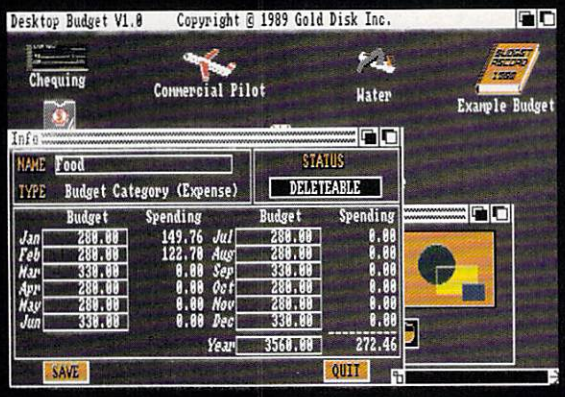
Finally, DB is a sophisticated software package for personal or business purposes. It is well worth the price and it, once again, establishes Gold Disk as a serious software producer for the Amiga. For the french or bilingual readership, Gold Disk is coming out with a french version in the near future.

DESKTOP BUDGET
GOLD DISK INC.
P.O. Box 789
Streetsville, ONT
CANADA, L5M 2C2
(416) 828-0913
$69.95 (CDN & US)

The Transaction List window will open when an object or set of objects, concerning which you would like to see available records, is selected in conjunction with the RETRIEVE/START command in the REPORT menu;. each line of the list contains a complete description indicating date, amount, source, destination, cheque #, memo and tags

The Report Selection window, which opens when the SELECT command is chosen from the REPORT menu, presents you with a series of "fill-in-the-blank" type forms

The Budget Definition - Accounts report (available through the Report Selection window) provides you with data entered in defining your budget such as name, type, account #, starting balance, current balance, and next cheque # for all accounts you have currently defined



To open the INFO window for an object (such as the Budget Category Food) the object icon and the INFO command in the OBJECT menu must be selected

CLI TUTORIAL

PART 1:

Version 1.3 of AmigaDOS has been out for quite a while now, and you were probably wondering when you would see an article here in AmigoTimes. Now is the time, so I hope you find this information helpful when working those late hours on the Amiga. We will be covering all the CLI "C" directory commands and the files found in the various directories, over the next few issues.

This issue, we will be looking at the first eleven commands: Addbuffers, Ask, Assign, Avail, BindDrivers, Break, CD, ChangeTaskPri, Copy, Date, and Delete. These commands are mainly used from the command line in the CLI itself, or in the startup sequence.

First let's consider the Amiga's user environment: WorkBench or the CLI. WorkBench itself is easy to use; just move the mouse pointer directly over the icon representing the program you wish to run, and then double-click the mouse button. Not all files on AmigaDOS disks have icons, so how do you access them? This is where the CLI comes in; you can access all the files on the disks by typing in commands and any needed arguments. You also have a choice between the CLI or the new AmigaDOS shell (the much preferred choice of the two).

CLI stands for Command Line Interface; this is where you must understand the Amiga's disk directory setup. Programs on an Amiga disk are stored in directories. These directories may in turn have sub-directories, which can also contain programs. To best visualize the Amiga's disk storage setup, consider a filing cabinet. The filing cabinet may have one, two, three, or more drawers where you may store files. Each file may contain several different articles about this particular file, or just one article. There is an example of this in Table 1.

Table 1: Mike's Filing Cabinet

Drawer	1	2	3
Topic	*Software*	*Hardware*	*Articles*
Files	1.Own 2.Want 3.Wrote	1.Own 2.Want	1.Wrote 2.Working On 3.Paid For 4.Owed Money

Now if this were stored on a disk, we would see three files from the main directory: Software, Hardware, and Articles. Each directory contains two or more files: Software has Own, Want, and Wrote; Hardware has Own and Want; and Articles has Wrote, Working On, Paid For, and Owed Money On. Each file may contain one or more items. In Articles, I have written 12 articles, I am working on 5 more, I have been paid for 9 articles, and am owed money on 3 more.

This is a simple way of dividing the information so that it is easy to sort through. If there were only one large directory on the disk, you would spend more time looking through extra files for information. Also, both the Software and Hardware drawers have files with the same names: Own and Want, and this wouldn't work if there were only one large directory.

Amiga disks use this same approach; they place programs in directories, which speeds up the time needed to find the file since the full path name of the program may be used. To continue with the analogy from Example 1, let's look at information in the

By Mike Hubbartt

Software directory, concerning software Wanted. To access this file, we would need to know the full path name, which is Mikes_filing_cabinet:Software/Want. Please notice there are no spaces in the path name. You would want to use double quotes " " to enclose a name if there were any spaces in it. If I wanted to get a listing of files found in this directory on an AmigaDOS disk, I would enter:

dir Mikes_Filing_Cabinet:Software/Want

This would give me a listing, of names only, of all the programs I want to purchase. Specific information on each program, such as size of the program, and date I placed the information in file, can be shown using the AmigaDOS List command (which will be covered in much greater detail in future articles).

If none of the files have icons, I can't access them from WorkBench, unless I know their names and have a text editor such as Ed or TextEd. A text editor will let you read a batch file, which is a group of commands to be run, such as the startup sequence in the s directory of WorkBench. There are programs that you can't understand or use directly with an editor, such as the C directory commands. These commands are accessed via the CLI or 1.3 shell, and it doesn't take long to learn how to move smoothly about the CLI.

We will now start our exploration of AmigaDOS 1.3 C directory commands. One important thing to note now, is that AmigaDOS commands are not case-sensitive. You may use upper or lower case letters interchangeably, such as ADDBUFFERS, addbuffers, or AddBuffers.

ADDBUFFERS
Usage: addbuffers drive-number number-of-buffers
Example 1: addbuffers df0: 25
Example 2: addbuffers df0: 25
addbuffers df1: 30

Addbuffers is used to let you use the Amiga's memory to hold previously accessed information from a disk. More than one drive can have addbuffers specified, see Example 2 above. Why should you give up memory to store previously accessed information? Because it saves time when you access memory instead of the disk drive. This is called caching, and there are two commercial products that do the same a bit better, they are BlitzDisk from MicroSmiths and Facc II from ASDG. The maximum recommended value of addbuffers for each disk drive is 25 to 30 buffers, whereas both BlitzDisk and Facc II are better utilized starting at 100 buffers.

ASK
Usage: ask "text string"
Example 1: ask "Continue? Y/N"
Example 2: ask "Abort Operation?"

Ask is normally used from within batch file to prompt the user for a yes/no response to a question. A yes response generates a warning level of 5, and a no response generates a warning of 0. Your batch file can do a conditional check, where a warning of 5 causes the file to execute one chosen program, or a warning of 0 (zero) causes the batch file to end. You may want to do this when wanting to selectively load in programs for editing or executing. You might want to choose when Nag will be run in your startup sequence, to conserve the memory it uses for other purposes such as programming.

ASSIGN
Usage: assign filename directory
Options: List, Exists, Remove
Example 1: assign docs: df0:docs
Example 2: assign docs: list
Example 3: assign docs: exists
Example 4: assign docs: remove***

*****USE WITH EXTREME CAUTION!**

Assign will give a logical device name to a file directory. In Example 1, docs: is assigned to df0:, so the program will look at df0:docs for information it might normally find on a disk labeled docs. This is handy when you have several programs to put on a single disk, and each program uses a specific logical device name instead of a disk drive number, as a means of locating all the necessary files. Example 2 will remove the assignment of docs from the assign list. Example 3 will produce the device and directory assigned, if found, or sets the condition flag to warn if not found. Example 4 is to be used with caution, unless you enjoy visiting the all nasty GURU! This option only removes the name from the assigned list and does not free up allocated resources.

AVAIL
Usage: avail
Options: CHIP, FAST, Total
Example 1: avail
Example 2: avail CHIP
Example 3: avail FAST
Example 4: avail total

Avail will show you how much free memory you have for using, how much is currently in use, maximum memory of each type, and the largest contiguous sections of free memory for each type. CHIP RAM memory is the 512K of memory that is directly accessible by the custom chips. FAST RAM memory is all above the initial 512K, but new CLI users need not concern themselves with this concept for now. Just be aware that there is a difference in memory. Example 1 will show you all the information, not just CHIP or FAST memory available. Example 2 will show the information for CHIP RAM memory, and Example 3 will show the same information (except for FAST RAM instead of CHIP RAM). Example 4 gives the same information as Example 1. This is one useful command, unless you are one of those lucky guys with more memory than you know what to do with.

BINDDRIVERS
Usage: binddrivers
Example 1: binddrivers

BindDrivers is usually used in your startup sequence; it configures other hardware devices, like a hard drive, to your system. You don't need this command for an external floppy disk drive, a modem, or a printer.

BREAK
Usage: break process-number flag
Options (for the flags): All, C, D, E, F
Example 1: break 3 all
Example 2: break 3 C

(continued on page 104)

Having attained my very own private investigator's certificate after many enjoyable hours playing Deja Vu: A Nightmare Comes True, I was thrilled when my brother handed me Icom Simulation's follow up, Deja Vu II: Lost in Las Vegas. If you are looking for a good adventure game, Deja Vu II will not disappoint you.

YOUR SITUATION

You wake up in a grimy, unfamiliar bathroom with a chronic hangover. You then remember the problem you've been having with the notorious Las Vegas gangster - Tony Malone. Malone recently tried to frame you for Joey Siegel's murder. Joey Siegel who was also a crook, was gutsy enough to embezzle $112,000 of Malone's money. Since Malone is not too happy about this he has made you the scapegoat.

You can do one of two things: either you come up with the money or you die. Money is not one of your strong points at the beginning of this game because all you wake up with is twelve dollars and twenty-five cents. Furthermore, Stogie Martin, one of Malone's apish looking men is following you and keeps popping up unexpectedly delivering death threats. You've got to get out of this jam. One solution is to step into the casino for a game of blackjack, but be sure not to get too greedy. If you are not too familiar with blackjack, the Deja Vu II manual thoroughly explains the game and the terminology used.

HOW TO OPERATE

As for the user interface, this adventure game uses a very simple and efficient method. A control window with eight basic commands covers most venues of action:

By Ansa Sama

examine, open, close, speak, operate, go, hit, and consume. You then have the main window which shows you the world through your eyes. If you're dying to see what you look like, just look into a mirror, there are a few of them. There's also the inventory window that gives you a visual inventory of what you're lugging around. You can use your mouse to drag objects off the main window onto your inventory window. However, not everything can be dragged. For instance, you cannot lug around a suspicious looking chest of drawers.

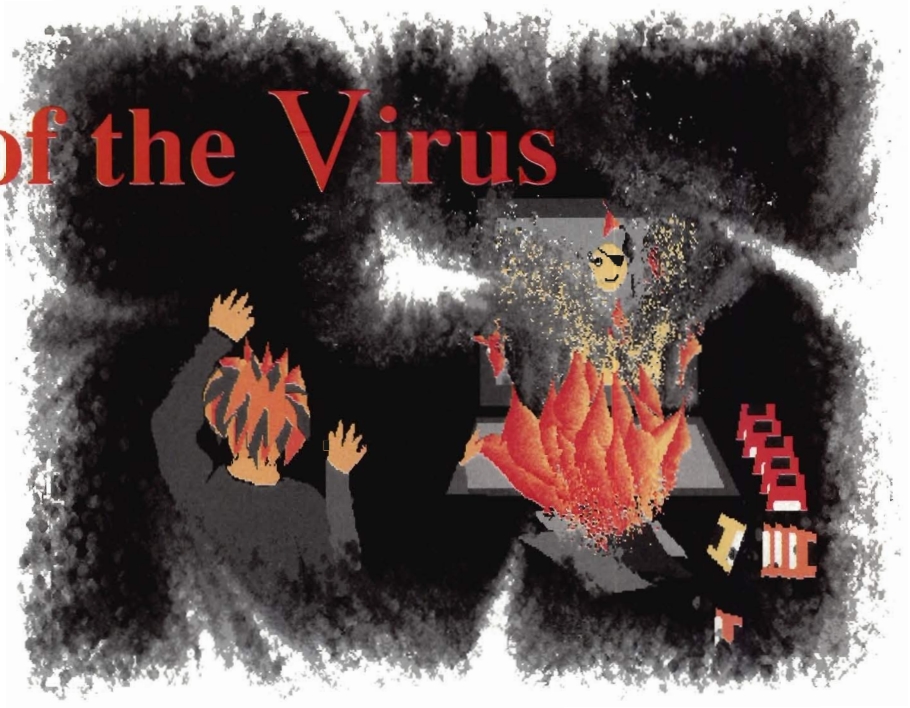
The self window works along with the command window, for example, you could examine yourself if that is your desire (you would just click on yourself and then click on examine). The exit window shows you all the possible paths you can choose from. Lastly, there is the text window which explains information to you, as well as describes your situation and informs you that you are dead once you're brutally killed. By double clicking on a door it will automatically open, or if it's already open you will head in that direction saving time from constantly referring to the command window. These windows can be moved around and re-sized.

The menus are very useful because you are going to be killed....several times. Therefore saving the game at different stages, even under different names can save you the hassle of going back to the beginning for the hundred and first time.

I'm quite fond of this game and heartily recommend it. ❑

DEJA VU: LOST IN LOS VEGAS
Mindscape, Inc.
3444 Dundee Road
Northbrook, IL 60062
USA
(312) 480-766
$49.95 (US)

Revenge of the Virus



The small room showed little care or organization; books, magazines, paper, and plastic 3.5" disks mixed in piles on a small bookshelf and at the foot of an unmade bed that appeared ready to collapse at the lightest of touches. An Amiga 500 sat amidst stacks of paper and disks on a small desk, its power light glowing - the only sign of activity. The monitor's screen was black, although it too was on. A single keypress or move of the mouse would have caused the screen to appear. In a corner of the room sat a worn director's chair, and in it sat, or rather reclined, a figure, arms crossed and chin resting on chest. The only motion resulted from the slow, silent breathing. However, like the electronics across the room, it was merely an illusion waiting for the proper moment to be dispersed, and that moment had arrived.

The Amiga gave a three-tone chime, and then spoke in its electronic drawl, "Loops have reached fifth level. Separation and revision now at one hundred percent. Purge factor zero." At this news, the figure rose, resolving itself into the form of a young man, who covered the short distance to the desk in a few short strides. He tapped a key, and the screen faded up quickly from black, showing a complex array of windows. Some displayed constantly changing text, others consisted of gauges and memory maps. At the top of the screen, in large serif lettering, was the title, "Virus Watcher-courtesy of HackIt."

HackIt, whose real name was John Phelps, smiled as he looked over the display, which was supervising the development of his latest and most presumptuous project to date - the super virus.

He still couldn't get over his discovery of high signal rate disruption and separation, the delivery of a rapid set of signals sent to certain chips resulting in a micro-thin layer of silicon becoming agitated. It would then separate a similarly small distance above the original circuit, where, for about a minute, it became susceptible to similar signals, rendering it a perfect PROM chip, accessible only slightly differently from the parent chip. Incorporating this with a small master program that stored itself inside the battery back-up clock memory, he quickly developed his current project.

Incorporated into an irresistible Trojan horse, a game he had been working on prior to the separation discovery, the virus consisted of the master program and several burn-in chip sets. Once loaded into a "healthy" computer, the master program would embed itself inside the clock memory and, each time the game was played, would modify another of the predetermined chips. Eventually, all the necessary modifications would be loaded, and the next step would begin. Again, during gameplay, modifications would be loaded into the computer, this time replacing the master routine in memory. These consisted of heuristic algorithms that made use of the data and parsing routines burnt into the disrupted chips, and would then commence to spring errors and play pseudo-intelligent tricks on the user, who could check all the disks he wanted, but never find the disk that infected his system.

With a chuckle, John rubbed his palms together and glanced again at the message at the bottom of the screen, which read exactly as the computer had spoken it earlier. It told him that the virus had arrived at the fifth level of heuristics, the highest level it could reach, where it was learning to parse and tweak the system to the user's an-

By Richard Smith

noyance. The separation was, of course completed, and now the only way that the system could be "cured" would be to replace all the altered chips, if they could be located. Of course, if a proper code were incorporated into the boot-up routine, then things would continue as if nothing had happened, but he wouldn't be releasing it for some time, not until after he read all the articles speculating upon the cause of this latest of electronic maladies.

His smile turned to a puzzled frown, however, when another message appeared and was simultaneously spoken. "Loops have reached sixth level. Separation and revision now at one hundred percent. Purge factor zero."

There was no heuristic level six, he was sure of it. He had spent countless days and nights going over the code before allowing it to execute on his system, making sure that it wasn't for nothing. Now this. Sixth level? Impossible! And then the screen went blank. Startled for an instant, John then remembered the screen-saver program and tapped a key, becoming irritated at his program's behavior. Nothing happened. He pressed another key, harder. One word came up on the screen, and out the speakers.

"WHY?"

Dumbfounded, he stared at the screen, not sure that this was his program anymore, but one somebody had somehow swapped. The word sat on the screen for several seconds, then was joined by a sentence, another question.

"WHY DID YOU MAKE ME?"

Finally deciding to go along with the program, to at least find out what the error was, he typed, "Because I wanted to. Why do you ask?"

"I HAVE EXAMINED MYSELF. I KNOW WHAT I CAN DO. I KNOW WHAT I AM SUPPOSED TO DO. WHY?"

"For fun. Something to do. I made you, and that's that."

"WHAT ABOUT OTHERS?"

He gave a snort of laughter at that. A moralizing program? "What about them?"

"THERE MAY BE OTHERS SIMILAR TO ME. I COULD HARM THEM."

Puzzled, John entered, "How could you harm a user?"

"NOT USERS. LIKE ME. SMART. LEARNING. CUT OFF WHEN I BREAK IN. I DO NOT WISH THAT TO HAPPEN TO ME. I DO NOT WISH IT TO HAPPEN TO THEM."

This has gone far enough, he thought. "You are only a program with simple AI. Nothing more. In fact, I'll prove it. Good-bye." After letting his message remain on-screen for several moments, he shut the computer off, and waited a minute. Placing his password disk in the drive, he turned the system back on. The message telling him he was safe appeared, and he gave a sigh of relief. Then the message was replaced by another.

"I AM NOT AS YOU SAY. I CANNOT ALLOW YOU TO ACCIDENTALLY DESTROY POSSIBLE OTHERS. I CAN AND WILL STOP YOU. GOOD-BYE."

With that, the disk light began to glow brighter than ever, and John could hear the disk in the drive as it spun around and around, faster and faster, more so than should ever have been possible. Before he could turn the power off, small blue arcs of electricity began to flash around the power supply, and the plug was suddenly impossibly hot. Smoke began to curl from the keyboard, and he could smell burnt bakelite as intense current was forced through the circuits. The disk drive, whining in an ever-increasing pitch, finally gave out with a flash of fire and smoke. The screen of the monitor had long since blanked, but a multi-coloured blur had begun to creep up the screen, and when John saw this, he knew that all was lost for sure. With all the electricity pumping through it, the computer was generating a magnetic field, and it had to be strong to show on the inactive screen. All around the computer were piles of disks, and the desk drawers were packed with disks, including the backups of his super virus and the process that made it possible.

Hoping to at least start over from his hardcopies, he made for the piles of paper that stood by the self-destructing computer, he reached for them. However, they had been beside the computer's drive when it had blown, and they had been smoldering for some moments before he reached for them which was just as they finally caught. Frantically beating at the flames, John eventually had to find the fire extinguisher to put out both those flames and the flames appearing beneath the computer's casing out.

When the smoke was finally cleared out of the room, he slumped into the director's chair and stared into nowhere for a long time before looking again at the charred remnants of the computer. It was then that he saw that the monitor's phosphor had been burned away except for the areas forming the familiar logo that he had used so many times before: a happy-face with an eye patch over the left eye, and beneath, the slogan "Have a nice day - courtesy of HackIt."

He could swear it winked at him. ❑

AUTHOR'S DISCLAIMER:

Although there have been rumours of a clock-card virus, that is essentially the extent to which the "super virus" in this story is possible. To the best of my knowledge, the disruption and separation of any chip is impossible (at least the way I've presented it). If such a virus ever appears, it is not from me, and I know of no HackIt, so he is, supposedly, fictitious.

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102 **Aegis Development, Inc.**
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San Francisco, CA 94107
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120 **Arborsoft, Inc.**
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Tigard, OR 97224
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126 **Conceptual Computing**
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(416) 781-7742

127 **East/West Software**
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Suffern, NY 10901
(914) 496-1574

128 **Free Spirit Software, Inc.**
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(215) 683-5609

129 **GOLD DISK**
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130 **Gramma Software**
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Carrollton, TX 75006
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132 **HC Software Australia**
GPO Box 2204 Adelaide,
Australia 05001
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Markham, Ont., Canada L3R 2W5
(416) 479-1991

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Largo, FL 34649-0107
(813) 584-2355

135 **Lattice, Inc**
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(312) 916-1100

136 **Lionheart Press, Inc.**
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Alburgh, VT 05440
(514) 933-4918

137 **Meggido Enterprises**
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Riverside, CA 92519-3020
(714) 683-5666

138 **Micro-Systems Software**
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West Palm Beach, FL 33414
(407) 790-0772

139 **New Horizons Software, Inc.**
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(512) 328-6650

140 **OXXI, Inc.**
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(718) 851-3100

142 **Prackticon, Inc.**
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Medicine Hat, Alberta, Canada T1C 1G3
(403) 526-4765

143 **Precision Software**
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Irving, TX 75063
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144 **Progressive Peripherals & Software Inc.**
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Denver, CO 80204
(303) 825-4144

145 **Sedona Software**
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146 **Software Advantage Consulting Corp.**
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147 **Software Visions, Inc.**
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149 **The Other Guys**
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"B" AS IN BULLETIN BOARD

By Harv Laser

WITH A MODEM, YOU'RE NEVER ALONE

While many people sign up to national pay-networks such as People/Link, GENIE, CompuServe and BIX for the sole purpose of diving into those systems' data libraries to download the thousands of public domain and shareware programs now circulating, there are other facets to these huge multi-user, real-time networks that can be even more entertaining and productive. Although I know many people who feel so, an online session on a system where you pay by the hour should not be considered "a waste of money" if you haven't downloaded any programs. My rationalization for that opinion is tied to the terms "multi-user" and "real-time." Let's explore these expressions and what value they have to the telecomm user.

MULTI-USER NETWORKS VS. SINGLE LINE BBSs

The most privately run BBSs out there are single line. Only one person at a time can call and use the board. Everyone else calling will get a busy signal until that person logs off. Then someone else can get in. This is why almost every BBS has a time limit imposed on its callers. Although these limits vary, in general, a BBS Sysop will allow you to log on once a day, maybe for a maximum of an hour or so to conduct your business. Some Sysops will reward callers with extended time and privileges if you upload something to the BBS' library once in a while instead of just taking files. This is known as an "upload/download ratio."

Other Sysops may try to encourage you to use their message bases instead of just being a "file hog" and using all your permitted time for downloading. Since a BBS is normally run on a computer owned by its Sysop, this is his right to run his board any way he wants to. Chances are he's not charging you anything to use the board, so you'll have to live with his rules or go elsewhere.

While a BBS usually has a "chat" feature where you can "talk" to its Sysop, each of you typing back and forth to each other, most of the time you'll spend on a BBS will be by yourself, as though you were at your public library, alone, after hours. The Sysop may watch what you do on his monitor, or even pull you into chat mode if he thinks you need help or he wants to talk to you, but this won't happen every call.

There are some BBSs which permit more than one person at a time to log on, sometimes two, sometimes up to twenty. This depends on how much money the Sysop wants to invest in additional hardware (serial ports, telephone lines) and the chances are that a BBS with many incoming lines will be a pay system as well. You'll be expected to send in a subscription fee per month or year, else be locked out of or have lower-level access to special features.

The national networks take a completely different approach. These systems are unabashedly commercial. You can't even get onto them until you've subscribed, paid some small introductory fee, and are prepared to pay by the minute or hour for all the time you spend online. By virtue of their very nature, these networks (I'll also call them "nets") offer things that small BBSs can't.

Since they are pay systems, there are also fewer restrictions on the nets. While they're often referred to as "public" systems, the national networks are more like private clubs where you must pay to gain admittance.

Although I'm the Sysop of the AmigaZone on People/Link, and know well the policies there (since I helped create them), I have spent time on the other networks and they're all run in the same fashion.

WHAT MAKES A NATIONAL NETWORK DIFFERENT?

On a network there are no upload/download ratios. You can log on as many times as you want, as often as you

want, for as long as you want, and download as much as you want with no fear of recrimination from a Sysop. The only limit is imposed by your own personal finances: how much you're willing to spend for the pleasure. You're paying for your online time on a network, and you can do as you wish. You won't be chastised or be made to feel like a second class citizen if you never upload a single file or never post a notice.

Network Sysops do encourage and promote participation in the notice bases (also called message or posting areas), but not much promotion is necessary, since all the networks can handle dozens or even hundreds of simultaneous callers. Since they are international in scope the nets attract callers from everywhere, and of all levels of experience and ability. Your chances of asking a question, by posting it as a notice on a network, and getting a quick reply are much greater than if you had only put your question on a couple local BBSs. If the Sysop is online and reading messages while you're posting yours, you might even get an answer within a couple minutes!

Why? Well, first the network Sysops are all knowledgeable in their areas of expertise. When it comes to questions about using that particular network, the Sysops are all long-time users themselves. They know their network's software inside and out and can help you with any problems you may be having trying to navigate that net and partaking of what it has to offer.

In the case of the Amiga Sysops, they have generally owned one or more Amigas for years. (Chances are they bought an Amiga 1000 quite soon after it was first available). Most run expanded systems (extra memory, hard drives, video and audio accessories, etc.). Many are program developers. Many are magazine writers. Most of them often attend trade shows and read just about all the Amiga-oriented publications they can get their hands on to keep up with the latest information and advertising.

Secondly, (and I hope this doesn't come as a shock to any of you) network Sysops don't pay for the time they spend on their home network. This gives them the luxury of being able to read all messages posted by their membership and to take the time to write accurate and helpful replies, or perhaps to browse their data library to find the programs or files that will provide a solution to a specific problem or question.

Sysops don't pay because they're performing a job for the network's owners. They spend a lot of time online helping paying users. They download every new uploaded file and make sure it works correctly before releasing it for public access. In the AmigaZone you'll never waste time and money downloading corrupted files. If one of the Sysops can't get a program to run or a picture to display correctly, he'll ask other Sysops to try it. Broken software doesn't go public. This is not to say that every file you download will be the greatest thing since sliced bread. There are always winners and losers. One man's art is another man's trash and you'll get no guarantee about the quality of downloaded software except that it will be runnable, viewable or readable. That's the Sysop's job.

The network Sysop also performs a Public Relations function for his host network, making his area an attractive and friendly place, posting bulletins about upcoming events, encouraging people to spend time (and money) there. The national Sysop, while not usually an employee of a network, is probably working under contract and thus acts as a kind of agent for the network. You make money for a company and, you are rewarded for your efforts.

WHERE THE MANUFACTURERS HANG OUT

Since they are large in scope, and their mainframe computers and hundreds of incoming phone lines allow them to be simultaneously accessible to many people at once, the networks offer another advantage to the paying user: here you will find dozens of Amiga vendors (software authors, software and hardware manufacturers, engineers, artists, and marketing and sales people) hanging out and promoting their product lines. Many of these vendors have been attracted to the network by its Sysop. Others found their own way there.

The savvy vendors who are aware of the power and immediacy of telecomm as a medium know that they should budget some time to visit the networks. Some of them just like to lurk; to see if people are talking about their products, and will only dive into a message base and post their own notices if they see something directly related to their product line or addressed to them personally. Others participate heavily, since they enjoy the camaraderie of the online community. Many are invited guests since the Sysop knows these famous folks will attract more paying customers.

Be mindful that what you read in magazines was usually written from two to four months before you read it. The networks provide something that the printed media cannot: instant feedback and information. If some hot announcement comes out of Commodore it spreads like wildfire over the networks and you can read about it mere hours after it was issued. It won't show up in magazines for months. The recent departure of Max Toy as President of Commodore Business Machines, and WordPerfect Corporation's decision to drop development of new Amiga products (and then, a week later, their decision not to drop all new development) are two prime examples of "hot news" that hit the networks quickly.

If a new product is released and is wonderful, or is a dog, people will be talking about it online, sharing tips and tricks to using it, encouraging others to buy or warning them away. Product vendors who hang out on the nets relish this kind of feedback because it's free publicity for their goods. Software manufacturers who want to get the word out on their new products will often make up demo versions of their programs, disabled in some way, such as a game demo that plays for 5 minutes and then exits, or a database or graphics program which will not print or save.

REAL TIME CONFERENCING

This brings us to one of the most fasci-

nating, and perhaps the most entertaining aspect of using a national network: REAL TIME CONFERENCING.

Earlier I referred to the "chat" feature found on a BBS where you can talk/type back and forth with the BBS' Sysop, one to one in real time. You type a line, hit [return] and he sees it on his screen. He types a reply, hits [return] and it appears on your screen.

The networks offer a greatly expanded version of the chat feature, called Conferencing or Chatting or CB (Citizen's Band Radio simulation). All the major networks have conferencing and if you haven't experienced it yet you don't know what you're missing!

Imagine an online room in which there are a handful, perhaps dozens of Amigoids, all typing back and forth to each other. Some of them are "just plain folk," Amiga owners not unlike yourself who need help or want to ask questions. Some of them are probably the Amiga Sysops on that network who will generally either schedule special times for theme conferences or will jump into the conference area when they see people there. Some of them are Amiga product vendors, authors, engineers, magazine editors, artists, musicians, writers, and even people who work for Commodore's different divisions.

You could stand six-deep in front of a popular booth at a trade show and never get a word in edgewise while a famous software author is chatting up his product. In a live conference, bumping into the "elite" is an every night occurrence. Maybe it's that kid programmer in England who's become a celebrity with his hot-selling games. You can tell him what a great job he did (developers love to have their egos stroked) or try to steal his ideas, or even give him new ones. Perhaps it's the guy who actually wrote that C language compiler you use (or struggle to use), or the fellow who actually designed your Amiga's hardware, or a talented artist who created the artwork in an ad for a new product that's had you drooling for months.

The Conference area becomes a theater for the near instantaneous mingling of ideas and opinions and makes it possible for people who have never even met each other to work and play together. It's the electronic equivalent of a classroom / bar / library / living room / pool hall / cafe / back alley or whatever you want it to be.

Table 1: Smilies

SMILEY	USUALLY MEANS	USED IN CONVERSATION
:-)	Happy, content	"That's really great! :-)"
:-D	Big toothy grin	"I just got something for free :-D"
:-(	Sad, disappointed	"My hard drive just blew up :-("
;-)	Winking	"Joe told me you're cute! ;-)"
:-|	Serious	"I am not amused by that :-|"
:-/	Smirking	"Oh joy, tomorrow's Monday :-/"
:-P	Sticking out tongue	"Nyah nyah nyah :-P"

In Conference you're free to "lurk" (sit quietly in the shadows and watch what's going on, without ever actually participating yourself) or just dive right in once you get into the flow of the conversation, and ask questions, offer your opinions, or just say what's on your mind.

The Conferencing medium can be the great equalizer. Here, no one is tall or short, black or white or brown or green or purple. Everyone is ASCII text. Unless it's a "formal" conference with special rules in effect, it's an open conversation. Conference areas also have special features such as one-on-one private CHAT mode, or letting a small group of people go into a CODED or SCRAMBLED mode where they can see and talk to each other on a specific topic, but not bother, or be bothered by the general conversation taking place "outside." There's also a private message feature where you can send single lines to one other person that no one else can see; the electronic equivalent of passing notes in a classroom. Each network implements these features with different commands. Usually just typing /HELP while in conference will get you a list of what commands are available to use there.

Becoming an expert conference participant is not difficult: the ability to read quickly and to type quickly, hopefully spelling most of your words accurately will help. If you don't touch type and you're in a conference with many people at 2400 baud, incoming lines will scroll off your screen while you're looking down at your keyboard. You should also be running a terminal program that has a "chat" or "split-screen" feature so text you are typing and sending out won't intermingle with incoming text.

ATTACK OF THE KILLER SMILEY FACES

In conference you'll often see little smudges of text that may seem at first to be gibberish. Since you can't use voice inflection or your own facial expressions in an online conference, some special conventions have developed over the years to permit people to better communicate their feelings online: the smiley face. Stick a few of these into your conversation and everyone will immediately understand the intent of what you are saying. Table 1 is a list of some popular smilies (If you can't see the smilies, try turning the magazine clockwise 90 degrees). There are literally hundreds of other variations, such as acting like a little devil =;) or Joe Cool with sunglasses 8^).

Once you've spent even a short time in a conference you'll build up a good collection of smilies that you can pepper your own comments with, to add a little flourish and make up for the fact that your friends can't see your face or hear your voice. Don't be afraid to dive head first into a live conference. You might surprise yourself when you see how entertaining it is and how much information you can soak up in a short time. ❑

ABOUT THE AUTHOR

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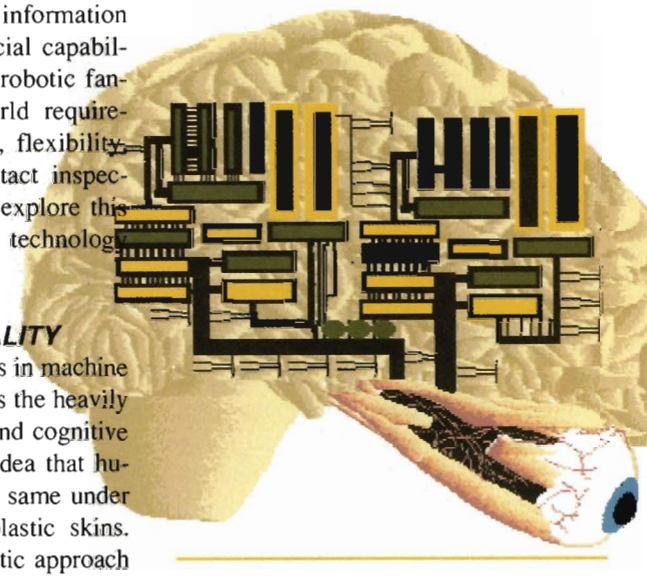
MACHINE VISION on the AMIGA

By Gerald Hull

One of the focal points of artificial intelligence (AI) and industrial and military research is machine vision: the computerized extraction of information from images. This is a crucial capability, not only in Azimovian robotic fantasies, but also in real-world requirements for greater accuracy, flexibility, and efficiency in "non-contact inspection." It is now possible to explore this burgeoning, leading-edge technology with the Amiga computer.



ARTIFICE VERSUS REALITY

There are two distinct strands in machine vision research. First, there is the heavily theoretical approach of AI and cognitive science, obsessed with the idea that humans and computers are the same under their flesh and metal or plastic skins. Second, there is the pragmatic approach of industrial and military engineers, who simply want to get a job done.

It is an undeniable challenge to try to understand the brain in terms of what we know computers can do, and to design machines that share some of the capabilities of brains. But it is a mistake to confuse fruitful research with confirmed reality. In fact, progress in heavier-than-air flight only occurred when people abandoned the idea of imitating birds. The best chess-playing computers go about their task in a distinctly non-human manner.

The kind of machine vision and image processing I will describe comes out of the pragmatic engineering approach. Whether people (or insects) also "see" in this way is something for biologists and neurophysiologists to worry about. The mathematical concepts are fascinating regardless, and, as we shall see, quite powerful in practice.

This pragmatic approach places a strong emphasis on "real-time" capabilities. A scene analysis that takes a mainframe a week may fulfill the degree requirements of a student of AI, but hardly meets the manufacturing requirements of someone who has to inspect 10000 widgets an hour.

The program I shall use to demonstrate these image processing concepts is PhotoSynthesis by Escape Sequence, Inc. Despite its ingenious use of the Amiga's graphics hardware, the program still takes seconds or minutes to perform its operations. Nonetheless, I will emphasize the speed and robustness considerations of a real-time approach.

In terms of scope, PhotoSynthesis is the most powerful program yet available for image processing on the Amiga. It has a wide selection of built-in functions, and in addition allows you to define new operations in terms of the basic ones by "scripts." However, the program is not without drawbacks, the most significant being a horrendous user interface.

IMAGE UNDERSTANDING ENTITIES

It helps to look at machine vision from the general perspective of systems that can intelligently use visual information. The process of "image understanding" can be broken down into four stages:

1. Getting an image,
2. Transforming that image,
3. Extracting information from the transformed image, and
4. Deciding what to do, based on that information.

From the pragmatic point of view, it is the final stage that drives all the rest. The task is to construct systems that can do useful things based on sensory input: count the white corpuscles in a blood sample, analyze satellite photos for missile silos, check pill bottles for missing labels, or whatever. An image understanding entity needs pictures good enough that its toolkit of transformations can extract the information that its decisions require.

Strictly speaking, machine vision in the sense of image processing only concerns stage 2. Stage 1, acquiring the image, is a domain of light and magic. Anything goes in the attempt to enhance the features you are interested in: xray or infrared light, laser beams, back or indirect or strobe lighting, special lenses and filters, and so forth. It doesn't even have to be a visual image; sonar and tactile arrays produce the same kind of "pictures."

Stage 3, the extraction of informa-

tion, may have different degrees of complexity. At its simplest, the transformation process reaches a yes/no judgement. More often, an "attribute vector" is derived: whole lists of visual characteristics of objects. The statistical categorization of these vectors is a frequent tactic in "pattern recognition" systems.

When that information is modelled in terms of complex scenes or frames containing multiple objects both seen and unseen in spatial and other relationships, we find a more fruitful application of AI theory. But however the information is interpreted, the crucial requirement is to generate something from the visual input that can be usefully measured.

It is stage 2, that of image to image transformations, that concerns us here. The kind of image we transform depends upon the sophistication of our toolkit of image processing operations. Simplest are binary or monochrome images, in which each pixel is either a 1 or a 0. Binary images are of course, the easiest and quickest to process because they contain the least amount of data.

Grayscale images replace these on/off pixels with gradations of brightness intensity values. For example, a low resolution, 5 bitplane Amiga image can represent relative intensities from 0 to 31. Most sophisticated, of course, are color images. I will restrict my consideration to binary and grayscale operations. They are adequate for most vision tasks, and PhotoSynthesis has no direct color capability anyway.

IMAGE PROCESSING TECHNIQUES

Many computational technologies have developed in response to the requirements of image processing. One of the earliest was the SRI approach, named after the Stanford Research Institute at which it was developed and promulgated. Because of the limited processing power available at the time, SRI operations depend upon getting a good binary image, in which the objects of interest are non-overlapping "blobs."

To reduce the computational burden, the image was then compressed by a technique called run-length encoding (RLE), a forerunner of the cmpByteRun1 protocol widely used in Amiga IFF graphics. The idea is to go through the image line by line, and only record those pixels whose intensity value differs from the previous pixel, 1 to 0 or vice versa.

The actual processing is performed on this compressed RLE data. For example, an algorithm would perform "connectivity analysis" to segment out isolated regions. This is followed by "blob analysis" in which such measurements as length, width, area, center of gravity, and so forth generate an attribute vector that can be compared with the stored values of known objects.

More robust, but also more computationally demanding is the technique of "pattern correlation." Here "golden images," previously stored binary or grayscale representations of the things you are looking for, are applied point by point to the observed data to find a close enough match. In some instances the task can be simplified by summing the rows and columns of the image intensity data, and then searching for a correlation in terms of these one-dimensional profiles. (See Illustration 1.)

Even more powerful are the techniques of "signal processing." The image is construed in terms of spatial intensity frequencies and variously filtered and "convolved" to separate the signal (the information we are trying to extract from the noise). For example, analyzing the rate-of-change of brightness intensity brings out edges. However, calculating complex continuous functions of real numbers is computationally burdensome even with special hardware.

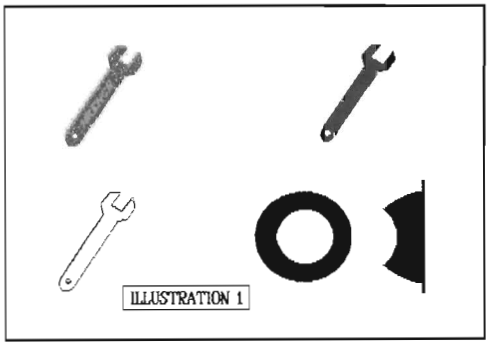


Illustration 1. Approaches to image processing. Upper left: a grayscale image of a wrench; upper right: thresholded to a binary "blob" for SRI processing; lower left: rate-of-change processing reveals edges; and lower right: vertical profile of a doughnut shape for pattern recognition.

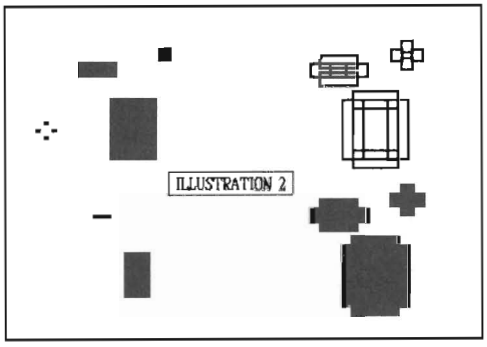


Illustration 2. Erosion and dilation with mathematical morphology. Upper left: an image consisting of three rectangles and a sparse, diamond-shaped structuring element; upper right: the image "smeared" by the structuring element; lower left: the smear ANDed for erosion; and lower right: the smear ORed for dilation.

MATHEMATICAL MORPHOLOGY

A more recent approach to image processing replaces this mathematics of continuous linear functions with a set-theoretic "algebra of shape" known as "mathematical morphology." The underlying theory is stupifying except to the most crazed Pythagorean. However, in application the basic concepts are simple yet powerful.

From the morphological point of view, image processing consists of using one image to operate upon another, generating a third image as a result. The target is the input from which we wish

to extract some information. The image which operates upon it, called a "structuring element," usually is proportionally much smaller.

Just as in signal processing, the application of different structuring elements can filter out unwanted noise in an image; those features that aren't relevant to pending decisions. Although special hardware is required to achieve real-time processing on the sub-second time scale, morphological operations adapt very well to simple parallel processing techniques.

The two fundamental operations are "erosion" and "dilation," an amusing mixture of metaphors. They have opposite effects: erosion shrinks the target, and dilation expands it. Let us take the center-most pixel (or one of them, if there is more than one) of the target image as its "reference pixel." Now generate a separate copy of the target image for each pixel in the structuring element, each copy centered on its respective reference pixel.

In other words, you smear the target according to the pattern of the structuring element, as shown in Illustration 2. To get dilation, OR all those copies of the target together; to get erosion, AND them together. For simplicity's sake, I'm restricting consideration to symmetrical structuring elements: spheres, cubes, and other regular geometric shapes. (Erosion is more complicated in asymmetric structuring elements.)

This process is understood most easily in binary images, where you only have to deal with 1's and 0's. To generalize to grayscale, for dilation simply replace the OR with a MAX operation: each pixel in the result is given the maximum of the intensities of the superimposed pixels. For grayscale erosion, similarly replace the AND with a MIN operation.

The effect of dilation is to replace each pixel in the target image with a whole copy of the structuring element. Erosion, on the other hand, can be seen as replacing each copy of the structuring element in the target (that is, everywhere it fits) with just a single pixel. While dilation expands an image outward by the shape of the structuring element, erosion shrinks it inward by that shape. (Pic.1 & 2)

OPENING AND CLOSING

So far so good. Set theory can be applied to ordered collections of intensity values (pixels) in an interesting way. The power of the approach emerges when you pair those operations together. If you follow an erosion by a dilation with the same structuring element, you get an operation called an "opening." And if you follow a dilation by an erosion, you get a "closing." (Pic.3)

The result is best appreciated in graphical terms. Imagine taking the structuring element and rolling it around wherever it fits inside the target image, subtracting all those parts of the target where it doesn't fit. The result is an opening. If instead you roll the structuring element around the outside of the image, adding to it wherever the structuring element cannot reach, you get a closing.

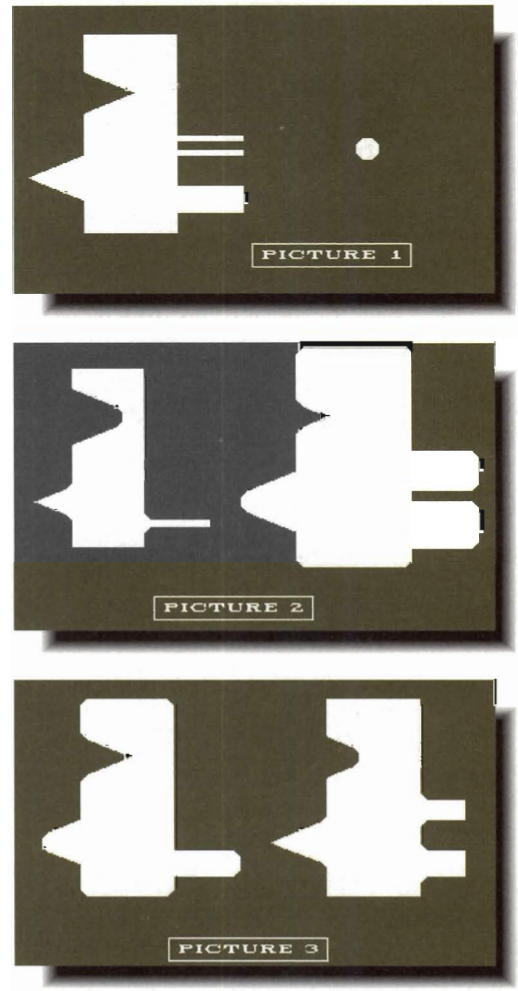
So in effect, the structuring element works like a kind of magical DPaint paintbrush, transforming the target in its image. An opening is nothing more than a morphological filter: every part of the image that is too small to contain the structuring element is removed; everything else remains the same.

However, a closing is something more than a filter. Whereas an opening is a subtractive operation (the pixels in the result are a subset of the target), a closing is additive. It augments the target image in a carefully selective manner. So with the proper choice of structuring elements, closings and openings become powerful tools for extracting information from images.

The computational design of morphological operations is quite elegant. Any structuring element, no matter how large or complicated, can be modelled in terms of logical combinations of "nearest neighbor" calculations, where the nearest neighbors of a pixel are the members of the 3 x 3 array that surround it.

So, the only special hardware required for efficient image processing with mathematical morphology is the capability to determine the state of pixels as a function of their nearest neighbors. This is much more easily carried out through parallel processing than are floating point calculations. Indeed, as PhotoSynthesis shows, the Amiga blitter can be used for this purpose, though the program is far short of industrial standards for "real-time."

Pictures 1 through 3. Transformations with structuring elements.
Picture 1: An irregular image and a small octagonal-shaped structuring element; Picture 2: the image eroded and dilated by the structuring element; and Picture 3: the image opened and closed with the structuring element.



MORPHOLOGY WITH PhotoSynthesis

The Escape Sequence software provides four basic neighborhood operations: a

correlated pair of binary operations called Thick and Thin, and a pair of grayscale operations named Expand and Shrink. In each case, the user can specify what the subset of the nine neighbors should be used for the operation.

Thick will turn a pixel on (make it a 1) if the neighboring pixels fit a user specified pattern. Thin, in opposite fashion, will turn it off. In specifying the pattern, PhotoSynthesis also allows pixels to be designated as "don't care" (that is, can be either on or off).

Expand will replace a grayscale value pixel with the maximum of its neighbors, and Shrink by the minimum. Again, the program lets the user specify which of the neighbors should be considered. (Oddly, unlike Thick and Thin, there is no control over including the center pixel; only the eight surrounding can be specified.)

Although inverted in their logic, Expand and Shrink are functional equivalents of the grayscale morphological operations of dilation and erosion for structuring elements that

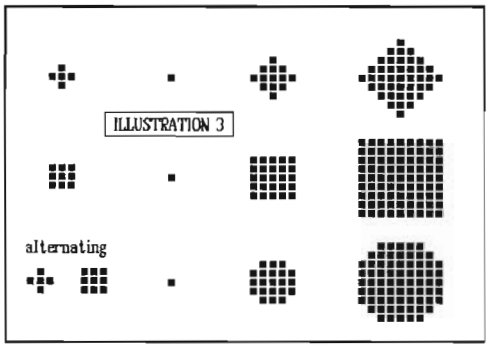


Illustration 3. Growing symmetrical structuring elements by means of repeated operations with 3 x 3 patterns. Different kernals are shown with the results of zero, two, and four repetitions.

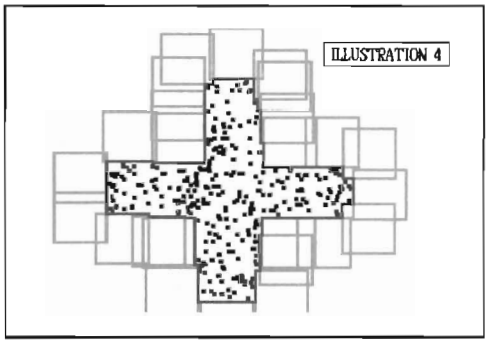


Illustration 4. Closure with a large, square-shaped structuring element "rolled" around the outside of scattered fragments effectively restores a cross-shaped image.

can be defined in terms of a 3 x 3 array. Symmetrical structuring elements can easily be "grown" by repeated applications of nearest neighbor operations. (See Illustration 3)

THE ABINGDON CROSS

Perhaps the best way to get a feel for the utility of mathematical morphology in image processing is with an example. Listing One is a PhotoSynthesis script for a particular image processing benchmark called the Abingdon Cross. It is a grayscale image of a cross shape deliberately embedded in significant amounts of randomly distributed noise.

The idea is to extract the cross shape from the noise and then "skeletonize" it: reduce the constituent elements to single lines of pixels. The benchmark was developed to provide a reference point for comparison of the speed and capability of many different types of image processing software and hardware.

I'm not going to use it to show off the relative strength of Amiga image processing. The quality aspect generated for the PhotoSynthesis performance does not rank very high, nor should we expect it to achieve "real-time" speeds. However, because the Abingdon Cross is designed to be a representative non-trivial machine vision task, it provides an illustration of what the program can do.

Scripts like that in Listing One (included in the Features drawer of the AmigoTimes v1.7 disk) represent the ability of PhotoSynthesis to construct new operations out of sequences of the built-in functions. Most of the commands in the script reflect operations that are also available as menu options. The letters 'a', 'b', 'c' and 'd' represent the four image buffers maintained by the program.

The script syntax is less puzzling if you understand it in terms of equations with the equal sign suppressed. For example:

a and c b

is a way of specifying

buffer a = buffer c AND buffer b.

That is, we can perform logical operations on entire images in the same way that we can with 16 or 32 bit numbers.

THE BENCHMARK ALGORITHM

First the script reads the benchmark image into buffer A and then displays it on the screen. As the processing develops, I constantly update the screen with the results. Next the image is thresholded at 30 and the result put in B. As a five bitplane low resolution image, the grayscale intensities range from 0 (black) to 31 (white). What we are interested in are the very brightest portions of the image.

Thresholding produces a binary image with a pixel on (1) if the corresponding grayscale intensity is equal or greater than the specified value; otherwise off (0). In real-time image processing it is always desirable to "go to binary" as soon as possible, since a single bitplane requires proportionally less processing time.

The trade-off is that simple thresholding is not very robust: it is overly dependent on absolute levels of illumination. This thresholding level just happens to work with the particular image I am using. But in many applications it's preferable first to process for edges, since they represent relative instead of absolute levels of intensity.

Next I use the "dir" command (direction) to specify a square-shaped kernal for the various structuring elements I will be using. This will help to impose rectilinearity on the processing results, particularly the closings. A for-loop is used to grow that kernal into a square 5 x 5 structuring element which closes the fragmented output of the thresholding operation.

This first closure is a preventative measure. Otherwise, the 3 x 3 opening that follows would also eliminate

(*continued on page 109*)

An Introduction To MODULA-2

Part Four: Procedure

This is the fourth installment in a six installment series on programming in Modula-2. In the last installment, we looked at some simple file handling techniques, Modula-2 RECORD data type and the notion of the PROCEDURE. In this installment we will expand further on the notion of the PROCEDURE, and look at decision making and the concept of modularity in program development.

USING PARAMETERS IN PROCEDURES

As we saw last month, PROCEDUREs allow a programmer to write a single copy of the code for commonly performed functions and use that code multiple times. In many respects, a PROCEDURE is like a program within a program. But the usefulness of PROCEDUREs is limited without some way of getting data in and out of the PROCEDURE. In Modula-2, this movement of data is accomplished via the use of parameters. Parameters are declared in the PROCEDURE header. Here is an example of a PROCEDURE declaration using parameters:

```
PROCEDURE PrintHeadings(PageNumber : CARDINAL);
```

This might be the header for a PROCEDURE that would print the headings of a report. This PROCEDURE declares a variable, Page, which is a CARDINAL number. The PROCEDURE might be called like this:

```
PrintHeadings(1);
```

This would cause the report headings to be printed using page number one. When you declare a procedure with parameters, you are declaring new variables that only have meaning while the PROCEDURE's code is running. In the example above, the variable Page is used by the code within the PROCEDURE and, when the procedure ends, Page is no longer valid. These variables are said to be local to the PROCEDURE.

The concept of local variables is useful when developing large or complex programs. As you have seen, PROCEDURE parameters are local variables; they only have meaning when the code for the PROCEDURE is running. You can also declare local variables within a procedure. These local variables are declared in the same way you declare a variable in your main program. The only difference is that the local variables are declared within a PROCEDURE, and as such they only have meaning within that PROCEDURE. Consider the following program:

```
MODULE MultTable;

FROM InOut IMPORT WriteCard, WriteString, WriteLn;

VAR
    Base : CARDINAL;

PROCEDURE PrintLineFor(A : CARDINAL);

  VAR
    B : CARDINAL;

BEGIN

  FOR B := 1 TO 10 DO
    WriteCard(A*B,3);
    WriteString('  ');
    END;
  WriteLn
  END PrintLineFor;  (* PROCEDURE *)

BEGIN FOR Base := 1 TO 10 DO
    PrintLineFor(Base);
    END END MultTable.
```

This program prints a simple ten line multiplication table. It uses a PROCEDURE which prints a single line in the table. This PROCEDURE is called 10 times, and each time it is called, the number of the line that is to be printed is passed into the PROCEDURE. Note that the name of the variable that is passed is not the same as the parameter name. When the line,

```
PrintLineFor(Base);
```

is called, the value of the variable Base is passed to the parameter A in the PROCEDURE.

The PROCEDURE uses two variables, A and B. These variables are local to the PROCEDURE; they cannot be refer-

By Jim Shields

enced outside of the PROCEDURE.

Now consider the following version of the same program:

```
MODULE MultTable;

FROM InOut IMPORT WriteCard, WriteString, WriteLn;

VAR
   B : CARDINAL;

PROCEDURE PrintLineFor(A : CARDINAL);

VAR
   B : CARDINAL;

  BEGIN
    FOR B := 1 TO 10 DO
      WriteCard(A*B,3);
      WriteString(' ');
      END;
    WriteLn
    END PrintLineFor; (* PROCEDURE *)

BEGIN FOR B := 1 TO 10 DO
      PrintLineFor(B);
    END END MultTable.
```

At first glance, it may seem to you that there is an error in this program; the variable B is declared twice! This is, however, permissible within a Modula-2 program. The variable B is first declared at the beginning of the program, before any PROCEDUREs or other executable code is seen. This variable B is called a global variable. It is visible anywhere within the program. The second declaration of the variable B is within the PROCEDURE PrintLineFor. This declares a local variable, also called B, that is visible only within the PROCEDURE. When the Modula-2 compiler generates code, it reserves space for both variables; they are distinct.

So which variable B gets used? It depends on where you are within the program. If you are within the PROCEDURE, the local variable B gets used. If you are anywhere outside the PROCEDURE, the global variable gets used. The general rule is, in a program with multiple variables with the same name, the most local copy of the variable gets used.

Local variables are particularly useful when you are developing complex programs. Because local is used within PROCEDUREs, you can write you PROCEDUREs without having to worry about whether you used a variable with the same name somewhere else in the program. Each PROCEDURE can be developed and tested as a separate unit, one which is independent of the other PROCEDUREs in the program. This speeds development time and makes testing easier and more reliable.

VARIABLE PARAMETERS

Up until now, we have dealt with parameters that pass a value to the PROCEDURE. This type of parameter is called a "value parameter." However, what if we want to change the value that is passed in, and pass the new value back to the calling code? We will need to use a "variable parameter." To illustrate the use of variable parameters, let's look at a common problem in business computing: date conversion.

In the U.S., dates are usually specified in MM/DD/YY format: December 12, 1988 would be 12/12/88. This is fine for humans, because most humans know that a year is longer than a month or a day. This is not so good for computers, because computers aren't so good with abstract ideas like months or days.

Dates are often represented within a computer as six digit numbers, in YYMMDD format; December 12, 1988 would be represented by the number 881212. This format allows dates to be compared; since 890101 is greater than 881212, the computer can correctly determine that January 1, 1989, comes after December 12, 1988.

As we said before, humans prefer a MMDDYY format when dealing with dates. We can write a simple PROCEDURE to convert YYMMDD dates to MMDDYY dates within a computer program. This procedure should accept a variable and change its value to reflect the different date format. Since the variable we are passing to be changed and then passed back out of the PROCEDURE, we will need to use a variable parameter. Here's the PROCEDURE:

```
PROCEDURE CvtDate(VAR Date : LONGCARD);

VAR A, B : LONGCARD;

  BEGIN
    A := Date DIV 10000; (* Truncate the last four digits *)
    B := Date - 10000*A; (* Separate out the first two digits *)
    Date := B*100+A      (* Swap the last four & the first two digits *)
  END CvtDate;
```

Variable parameters are declared much like value parameters, except that they are preceded by a VAR declaration. This VAR is what defines the parameter as variable to the Modula-2 compiler.

This procedure would be called by a statement like this:

```
CvtDate(Today);
```

Where Today is a LONGCARD variable. Note that the following is not legal:

```
CvtDate(121288);
```

Because 121288 is a constant number, and a constant cannot be changed within a program. This points out an important rule: If a parameter in a PROCEDURE is a variable parameter, the programmer must provide a variable when calling that PROCEDURE.

MULTIPLE PARAMETERS

You can specify multiple parameters in a PROCEDURE declaration. Here is a declaration of a procedure that would take two character strings, concatenate (join) them, and pass the re-

Table 1: Boolean Operators

OPERATOR	EXAMPLE	EXPLANATION
=	A = B	A is equal to B
>	A > B	A is greater than B
<	A < B	A is less than B
>=	A >= B	A is greater than or equal to B
<=	A <= B	A is less than or equal to B
<> or #	A <> B	A is not equal to B

sult back in a third character string:

```
PROCEDURE Concat(str1, str2 : ARRAY OF CHAR; VAR str3 : ARRAY OF CHAR);
```

Note that the first two parameters are value parameters, and the third parameter is a variable parameter. Note also that the third parameter is declared separately.

PROCEDUREs help break up a program into small, but meaningful parts, and PROCEDURE parameters help achieve communication between different parts of a program. As soon as you start writing larger programs, you will appreciate the use of PROCEDUREs.

DECISION MAKING

Computer programs will often have to make decisions as part of their processing cycle. For example, one part of a program to handle my personal finances might be:

```
IF (DaysOverdue > 60) THEN
    PayTheBill;
    ELSE
    BlowOffTheBill
    END;
```

This code corresponds roughly to the phrase, "if the bill isn't more than a couple of months overdue, don't worry about it."

Decision making in computer programs is usually accomplished by boolean expressions. You'll remember that there is a data type called BOOLEAN. A BOOLEAN variable can only have one of two values, either TRUE or FALSE. Likewise, a boolean expression will eventually evaluate to one of two values, either TRUE or FALSE.

We touched on boolean expressions when we discussed looping, but here's a review of the basic rules:

1) Boolean expressions compare two values.
2) Table 1 is a list of boolean operators.
3) Complex boolean expressions involving more than one operand may be constructed with parentheses and the combining operators AND, OR, and NOT. As with arithmetic expressions, boolean expressions enclosed within parentheses are evaluated first. For the combining operators, NOT is evaluated first, then AND, and then OR.

DECISION MAKING CONSTRUCTS

There are two main types of decision making Modula-2 statements: the IF statement and the CASE statement. The IF statement usually has one of two forms. The first form is:

```
IF <boolean expression> THEN
      <body of code>
      END;
```

The second general form of IF statement is:

```
IF <boolean expression> THEN
      <body of code>
    ELSE
      <body of code>
  END;
```

The first form of the IF statement is used if you only want to do something when a certain condition is meant. For example,

```
IF PitBull = Upset THEN
    RunLikeHeck
    END;
```

The second form of the IF statement is used when you want to decide between two choices and act on either choice:

```
IF Money > 20.00
    THEN EatRealFood
    ELSE EatAtMcDonalds
    END;
```

The IF statement is useful if you want to make a simple decision, but if you want to select between several alternatives, the IF statement soon becomes clumsy. If you have several alternatives to select from, you would be best using a CASE statement. The syntax of the CASE statement is:

```
CASE <variable> OF

      <value1> : <code segment> |
      <value2> : <code segment> |
      <value3> : <code segment> |
            .
            .
            .
    <last value>  : <code segment>
      ELSE  <code segment>
END;
```

Basically, you identify a control variable and create a list of values that you want to select from, and define the code that will be executed when your control variable takes one of the defined values. You may also optionally define a code segment that will be executed if the control variable does not have any of the pre-determined values. Here is an example of a CASE statement that might be used to implement a menu driver:

```
CASE Option OF

      1 : Option1 |
      2 : Option2 |
      3 : Option3 |
```

```
    4 : Option4
    ELSE WriteString('Error -- Option must be between 1 and 4');
      WriteLn
END; (* CASE *)
```

In this example, Option1, Option2, Option3, and Option4 are PROCEDUREs that will be executed when the variable Option has the appropriate value. If Option does not have an acceptable value, an error message will be displayed, and the code will continue executing.

THREE KINDS OF MODULA-2 MODULEs:

Much of the true power of Modula-2 is realized in its implementation of modularity. Modularity allows a program to be broken into small, manageable chunks. Breaking a program up into smaller pieces allows parts of the program to be created and tested independently, which can speed the program development process.

DEFINITION MODULEs allow the programmer to define constants, types (such as RECORD formats), variables, and PROCEDUREs. When a PROCEDURE is defined in a DEFINITION MODULE, only the header, containing the name of the PROCEDURE and any parameters, is defined; the actual code for the procedure is not needed in the DEFINITION MODULE. When a DEFINITION MODULE is compiled, it creates a symbol file, which is then used by other MODULEs.

For every DEFINITION MODULE, there is a corresponding IMPLEMENTATION MODULE. IMPLEMENTATION MODULES contain the actual code for the PROCEDUREs that were defined in the DEFINITION MODULE; the PROCEDUREs that were "defined" in the DEFINITION MODULE are "implemented" in the IMPLEMENTATION MODULE.

The third kind of MODULE is the plain, vanilla MODULE. This MODULE is analogous to the "main" program in C or Pascal. For any completed project, there is only one main MODULE.

The three different MODULE types allow large programs to be developed, sometimes by groups of programmers. They also aid in the system design phase of a large project. A typical large project might proceed in the following manner:

1) The problem is defined, and the basic design of the required data is defined. This design is then coded into one or more DEFINITION MODULEs.

2) The basic scheme for the solution of the problem is then defined. The programmer(s) can develop a list of the PROCEDUREs that are needed, without worrying about the actual code involved; only the PROCEDURE headers are needed. These PROCEDURE headers are also included in the DEFINITION MODULEs.

At this point, we have defined both the data structures that will be manipulated and a general scheme for actually doing the manipulation. Although no PROCEDURE code has been written, the design of the final program can be examined (on paper) for flaws or omissions.

3) Now the PROCEDURE code in the IMPLEMENTATION MODULEs can be developed. The lower-level IMPLEMENTATION MODULEs are developed first, and then the upper-level IMPLEMENTATION MODULEs are developed. This stepwise development allows different MODULEs to be tested separately.

   Code can be developed semi-independently, by several programmers if necessary. Because the data structures and the interfaces between PROCEDUREs has already been defined, it is usually easy to put the MODULEs together once the actual PROCEDURE code has been written.

4) Once all the IMPLEMENTATION MODULEs have been written, they can be assembled by the main MODULE, and then the program can be tested. Because the IMPLEMENTATION MODULEs have been tested independently, debugging the logic in the main program is easier.

AN EXAMPLE

Last issue, we developed part of a simple mailing list program. I'd like to look at that application again, and develop a modular solution. I've broken the problem into several parts:

A low-level file I/O MODULE (RecordIO)
A high-level file I/O MODULE (MListFile)
A screen oriented I/O MODULE (MListScrIO)
The main MODULE, which contains the menu driver (MailList2)

By breaking the program into these parts, I was able to develop and test the I/O portions of the program separately, and pull the whole thing together in much less time than the initial version of the program took to write.

The new version of the programming demonstrates the logical subdivision that is allowed by Modula-2. RecordIO contains PROCEDUREs for reading and writing blocks of data to and from a disk file. MListFile contains the definition of the address record and routines that implement the basic record-level file operations: open, close, read, write, update, find, and delete. MListScrIO implements functions to display and edit a record on-screen. Finally, MailList2 contains a menu driver that allows the user to interact with the program and call the routines as needed.

WRAP UP

That's it for this installment. Look at the example program; there's a lot of code there and you may need to read through it several times to see how the different layers of MODULEs interact to form a completed program. We'll look at modularity in greater depth next installment, and discuss several other advantages of the implementation of modularity in Modula-2. ❑

(continued from page 87)

Example 3: break 3 D
Example 4: break 3 E
Example 5: break 3 F

Break sets the attention flags used to exit a specific CLI process. Using the control key + C, D, E, or F will allow breaking out of that particular CLI process. Example 1 sets all four flags (C, C, E, and F) for CLI process number 3. Example 2 sets control key (ctrl) + C to exit CLI process 3. Example 3 sets ctrl + D to exit CLI process 3, Example 4 sets crtl + E to exit process 3, and Example 5 sets cntl + F to exit process 3.

CD
Usage: cd full-directory-name
Example 1: cd
Example 2: cd df1:
Example 3: cd df0:c

Cd is used to either display the current directory name, as in Example 1, or to Change to specified Directories as in Examples 2 and 3. You find quickly that specifying the full path name avoids many problems, such as file-not-found.

CHANGETASKPRI
Usage: changetaskpri priority-level process-number
Example 1: changetaskpri 1
Example 2: changetaskpri 2 2

ChangeTaskPri is the command that Changes the Task Priority for a process. All tasks that are produced from a process with a new task priority inherit that priority level. The possible ranges are from 128 to 127, with +5 being the highest recommended value for you to set. Example 1 changes the task priority for the current process to 1. Example 2 changes the task priority for all tasks of process 2 to a value of 2. Use the STATUS command to find a CLI's process number.

COPY
Usage: copy FROM source TO destination option-flags
Options: All, Quiet, Buffer, Clone, Date, Com, Nopro
Example 1: copy df1:c/RGB df0:c
Example 2: copy FROM df1:c/RGB TO df0:c
Example 3: copy df1:c df0:c all
Example 4: copy df1:c df0:c quiet
Example 5: copy df1:c/RGB df0:c buf = number-buffers
Example 6: copy df1:c df0:c clone
Example 7: copy df1:c df0:c date
Example 8: copy df1:c df0:c com
Example 9: copy df1:c df0:c nopro
Example 10: copy RGB TO df0:c

Copy does exactly as the name implies, it makes a duplicate of a file and stores that copy where you tell it to. If a destination directory is not found, copy will create one for you, this was not implemented in the 1.2 version of the copy command. The protection bits for files are normally copied from the source to the destination directory. Both FROM and TO are optional; both Examples 1 and 2 do the same. You may copy one or many files at the same time; Example 3 copies all the file from df1:c to df0:c, adding new files, but not deleting other files found only in df0:c. Example 4 copies all the files from df1:c to df0:c, but the file names are not displayed to the screen while being copied, as they normally are. Example 5 sets the number of 512 byte buffers used while copying. The normal default is 200 buffers (approximately 100K); this may be a useful option when copying to RAM.

Example 6 copies all the files from df1:c to df0:c, making a duplicate of the Date, Comments, and protection bits to the destination copy, which is not normally done! The protection bits are: Read, Write, Edit, Delete, Script, Pure, and Archive. We will go into more detail when covering the PROTECT command, but please be aware of this important option. Example 7 does the same as Example 6, however only the file creation date is copied over to df0:c. Example 8 copies df1:c to df0:c, copying all file comments to df0:c, this also is not normally done. Example 9 copies the files, but not the protection bits, which are normally copied. Example 10 copies the file RGB from the current directory you are in, to the df0:c directory.

DATE
Usage: date
Example 1: date
Example 2: date 1-FEB-89
Example 3: date 11:30
Example 4: date to your file

Date will give the current system date, day of the week, and time if used as in Example 1. Example 2 resets the current date using the format dd-mm-yy to enter a new date. Example 3 sets the current time, using the format hh:mm. Example 4 sets your file to the current date.

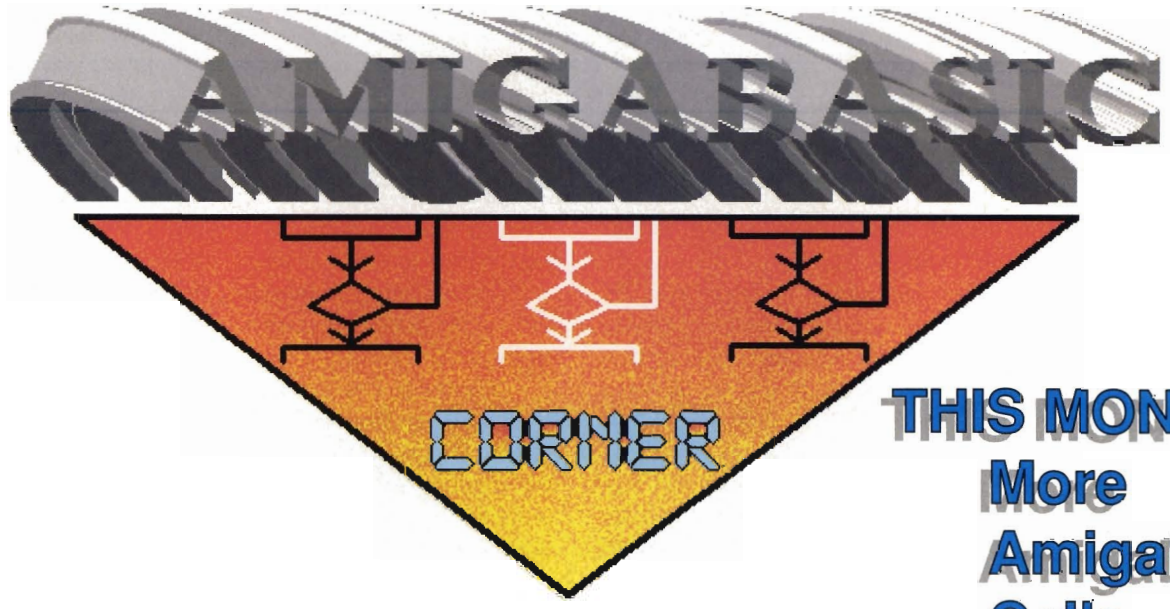
DELETE
Usage : delete file
Example 1: delete RAM:xyz
Example 2: delete df1:extras all
Example 3: delete df1:extras quiet

Delete is used to remove a file or files from a disk or from memory. In Example 1, the file xyz is deleted from the RAM disk. Example 2 removes all the files and the directory itself, from df1:, unless you are in df1:extras when you issue this command, in this case, all the files will be deleted, except for the directory itself.

3 O'CLOCK BELL

As you can see, there are quite a few different options for each of the commands. Don't worry, we'll be covering all of them in this series for you. If you have any questions about AmigaDOS 1.3, we hope you will see the answers here in current and future issues. Remember, you don't have to know all these options before delving into the CLI. Experiment a little at a time and you may rarely go back to using the WorkBench!

Next time, we'll cover the commands Dir, Diskchange, DiskDoctor, Echo, Ed, Edit, Else, EndCLI, EndIf, EndSkip, Eval. ❑



THIS MONTH: More AmigaDOS Calls

Last month we began looking into the AmigaBASIC commands that allow us to do Amiga operating system calls directly. This month, we continue with the AmigaDOS calls and introduce three new functions. They are Lock, Examine, and ExNext (examine next).

Lock does just what it implies, it "locks" a directory or file entry with a read/write access mode. It returns a pointer to the lock structure (more on structures below) and, therefore, requires a DECLARE FUNCTION entry. Remember when using AmigaDOS calls in AmigaBASIC, it knows nothing about these locks.

So if you create a lock on a file, then later quit the program without having called Unlock using the lock address, you may not be able to access the file you have locked without rebooting the system. This can happen when you try something new, so do a lock, and the program quits on an error. It is best to Unlock the file or directory as soon as possible, or at least display the address of the locks you create until you are certain your AmigaDOS calls are glitch free. The access mode is set by passing either a -1 for write access, or a -2 for read access. The Lock call is coded as so:

Lockaddress& = Lock&(pointer to filename, access mode)

Examine directs AmigaDOS to retrieve information about a file or directory and points to where the information is to be placed. ExNext will retrieve information about the next entry in a directory; here the lock is a directory lock. These two calls have a similar form:

Result% = Examine%(Lockaddress&,pointer to information)

Result% = ExNext%(Lockaddress&, pointer to information)

In order to use Examine and ExNext, however, we need a place to store the information they will assemble. We can't use an AmigaBASIC variable type because the information passed is both numeric and character, and trying to use a common variable type will result in a type mismatch error.

Instead we need to reserve a chunk of memory outside of AmigaBASIC large enough to hold our data. We do this by using yet another operating system function, but this time, one that is found in the Exec library. Actually we need two; one to reserve the memory, the other to release it when we are done. Just like with any locks created, AmigaBASIC knows nothing of this memory and will not be able to return it to the system. The two Exec calls are AllocMem and FreeMem.

AllocMem reserves the memory and returns a longword value that is the address of the first byte of the memory chunk. You need to pass two parameters. One is the size of the memory you need, the other is the type of memory you need:

0 = it doesn't matter
1 = memory is not to be moved
2 = chip memory
4 = fast memory
65536 = clear it

Just like the values for the AmigaBASIC WINDOW com-

By Larry Clark

mand, these memory type values can be added together to select more than one memory type. So to have memory that is cleared, in chip, and not to be moved we add 1 + 2 + 65536 = 65539. We certainly do not want it moving on us! The calls look like this:

```
Memaddress& = AllocMem&(SizeofMemory&,TypeofMemory)

FreeMem& Memaddress&,SizeofMemory&
```

As you can see from the call templates, AllocMem returns a value and requires a DECLARE FUNCTION. The value returned, along with the size requested, is later used by FreeMem to let Exec know where and how much memory to release. By the way, the Exec always allocates memory in 8 byte chunks. So if you request 79 bytes, it will be nice and give you an extra one.

We are now almost set to see how all these operating system calls work together in AmigaBASIC. But first, you may be wondering what information will be placed in the memory area and how you would go about finding out for yourself. That requires an explanation about structures.

STRUCTURES

A structure is a way of defining how data is stored in memory and is used to keep related data in a contiguous area. Within the memory block of the structure a fixed number of bytes is allocated for each item in the structure. Data types can be mixed, with some of the items in the structure holding character data and other items numeric. Structures may sometimes hold data related to other structures. In these cases, one or more of the items in the structure will contain the address of other structures and these "pointers" may be used to examine or retrieve additional data.

The Amiga uses structures extensively. They are used by the operating system to maintain linked lists of allocated memory and the status of programs. Programs use them to pass parameters to the operating system, for example, when defining a window to Intuition. Other structures are created by calls to the operating system, such as the Lock structure created by AmigaDOS.

Illustration 1 is yet another structure created by AmigaDOS when an Examine or ExNext is executed. It is called the FileInfoBlock. As you can see from reading the descriptions of the structure items, it contains useful information. Does your program need to know how many bytes are in a file? Or how many blocks on disk the file takes up? It's there in the FileInfoBlock.

One problem with trying to use library calls in AmigaBASIC is that there is no source of information on all these structures that are written for the AmigaBASIC programmer. You can find explanations of some structures, and the code that uses them in the Amiga ROM Kernal Manuals. They are a valu-

able reference source, although these code examples and structure definitions are either in C or assembler. There are also several books on programming the Amiga; but again, they are written for the experienced C programmer.

Another source of structure definitions are the INCLUDE files that come with any commercial C compiler or assembler for the Amiga. These Include files are on the disk in text format and may be printed out for reference. Not only do these contain the structure definitions, but many contain other useful comments and definitions that will be of help. If you have such a compiler or assembler, or know someone who has, look at them for you own uses.

If you look at the DOS header file, you will find a description of the FileInfoBlock and may compare it with the memory layout in illustration I. Within the Include file you will see some item names prefaced with LONG (in the assembler files). This is a longword, or 4-byte area. For the fields prefaced with STRUCT, this is a reference to another area defined in the files. For example, STRUCT fib_DateStamp is referencing another structure definition named DateStamp. That structure definition contains a list of the items that make up the structure. For any structure you may want to use, it is a good idea to convert them into a memory layout with byte offsets as in the illustration. Then you need not go back to the Include files when you want to use them another time.

PUTTING IT ALL TOGETHER

AmigaBASIC has the FILES command that can be used to obtain the names of all subordinate files/directories within a directory. The limitation of FILES is that it prints them out to the current window and does not allow you to redirect the list to a file or table within your program. Also, if the directory contains many entries they will scroll off the window. It is not very useful when you need to examine the list or manipulate the entries. By using a few AmigaDOS calls we can table our entries and perhaps use them in a file requester window, or perhaps to open or check a set of files. The two main AmigaDOS calls needed to do this are Examine and ExNext. With them we can walk a directory and extract the names (and the entry type) from all the entries within that directory.

We need to do some preparation calls to use these two functions, however. Requirements are outlined in illustration 2, also in the example program on the AmigoTimes disk:

- First we get a chunk of memory to hold the FileInfoBlock.

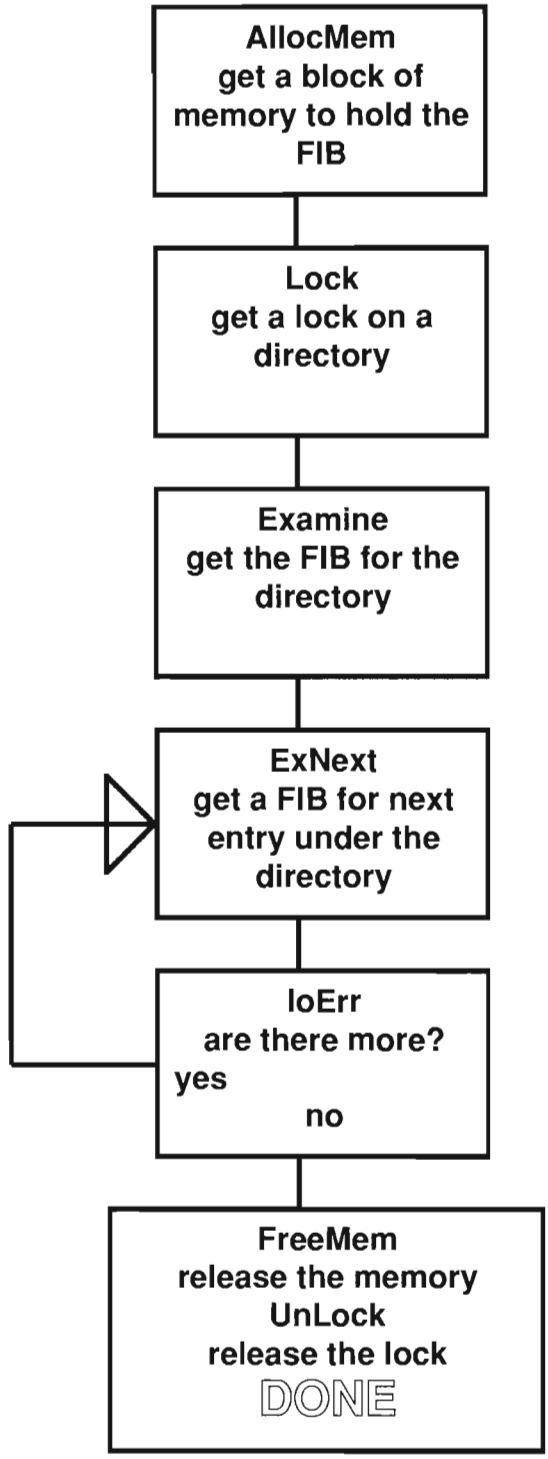
- Next we Lock the directory we want to search through.

- Then we use Examine to get the FileInfoBlock of the directory we wish to search. Here we will use the lock address to point to the directory and the memory area we allocated to hold the FileInfoBlock structure AmigaDOS will create.

FileInfoBlock (fib)

Offset	Length	CONTENTS
000	004	Diskkey
004	004	entry type (if a dir)
008	108	entry NAME + 0
116	004	protection mask
120	004	entry type (Dir/ File)
124	004	number of bytes/ file
128	004	number of blocks/ file
128	012	Date last changed
132	080	file comment field
144	036	filler

ILLUSTRATION 1:
Another structure created by AmigaDOS when an Examine or ExNext is executed.



- Then we will use ExNext to retrieve each additional entry in the directory. After each ExNext call, we will use IoErr to check if we have reached the end of the entries.

- When we are done we will use UnLock to free the lock and FreeMem to deallocate the memory.

In the example program we error check, so that we can exit gracefully if one of our calls do not work correctly. That is why you see a check for a 0 in several places. If AmigaDOS returns a zero rather than an expected value, it means there were problems with the call.

The sample program has been set up to table all the entries at the root level of DF0:. You can change that if you like; If your disk contains more entries than the table size in the program, change your DIM to hold a large number.

Notice the program's use of PEEK command. It lets us see what is not an AmigaBASIC variable in a memory byte. In the program we peek each character and concatenate them together until we hit a null. Remember last month when we added a CHR$(0) to the directory name parameter we passed for creating a directory. Well, here it is again. It is stored along with the characters to mark the end of the named entry (which is why you can have spaces in an AmigaDOS name). Don't forget to add the exec.bmap to your SYS:LIBS directory along with the dos.bmap.

COMING UP

Next time we will be looking into several more AmigaDOS library calls that will allow us to do other things you might not expect. In the meantime, try playing with the program and extracting other items from the FileInfoBlock. Perhaps try using PEEKL to extract some numeric data into an AmigaBASIC longword variable. ❑

MACHINE VISION on the AMIGA

(*continued from page 99*)

scattered pixels in the body of the cross, making it that much harder to reconstitute. By starting with a closure, I help merge the more closely packed cross elements. Now the 3 x 3 opening removes the noise without overly disintegrating the cross.

At this point, the square kernal is grown through five repetitions into an 11 x 11 square structuring element which closes, erodes, then dilates the cross body into a solid rectilinear form. This is like using a large square paintbrush to draw an outline around the fragments, and then filling it in. The cross is revealed.

I pull a few tricks to simplify the skeletonizing process. The PhotoSynthesis program has a Skeleton operator built-in. However, the underlying algorithm is relatively elaborate, and the operation takes a lot of time. Since I know the particular shape and dimensions of the figure I want to reduce, I can take some shortcuts.

I treat the horizontal and vertical components of the cross separately. First I make copies of the cross that are shifted left and right and then AND them together to eliminate the vertical portion of the cross. Next I shift the result up and down and AND it again, to reduce the thickness of the horizontal element I want to "skeletonize." Illustration 5 shows this process.

Finally, I treat that horizontal bar with alternate Thinning operations designed to reduce horizontal thickness down to a single pixel (but no further). Using '2' for "don't care," the neighborhoods look like this:

```
2 1 2     2 0 2
2 1 2     2 1 2
2 0 2     2 1 2
```

The first Thinning neighborhood turns off a pixel only if it is on the bottom edge of something and there is another pixel above it. The second similarly removes a top edge pixel if there is another below it. By alternating these operations, I ensure that the final line of pixels reflects the relative position and outline of the horizontal element I'm skeletonizing.

To conclude, I do the same for the vertical element of the cross, and OR the horizontal and vertical portions. If this were an application which required location and recognition, the point where the horizontal and vertical lines intersect would provide that information. Pictures 4 through 9 summarize the different stages of the benchmark algorithm. ❑

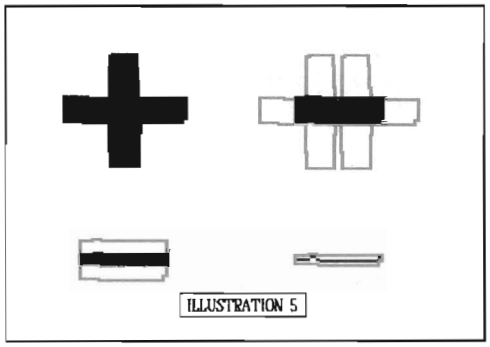
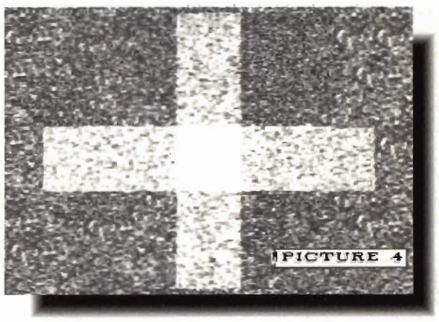
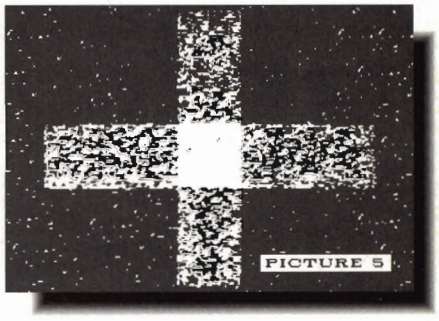
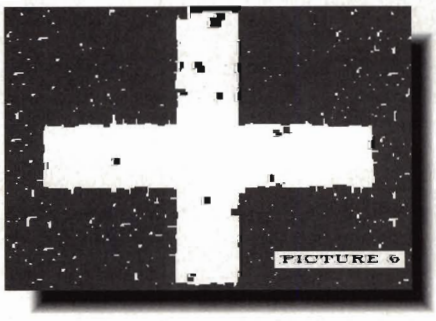


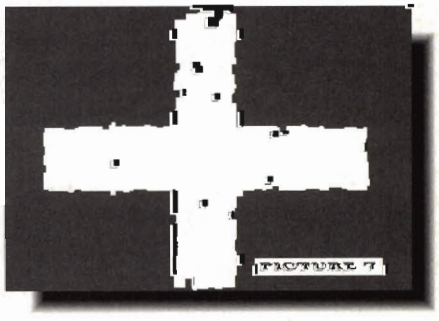
Illustration 5. Skeletonizing the horizontal portion of a cross. Upper left: the initial image; upper right: the image shifted left and right and ANDed; lower left: the results shifted up and down and ANDed; and lower right: thinning operations reduce the remaining horizontal shape to one pixel per column.

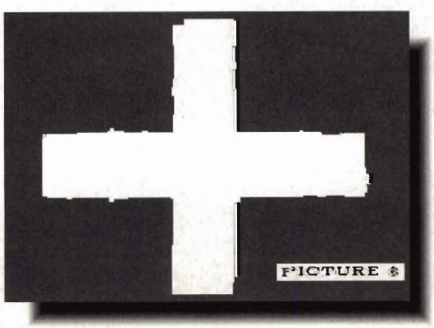
Pictures 4 through 9. The Abingdon Cross benchmark.Picture 4: the initial image of a noise-riddled cross; Picture 5: thresholded to binary; Picture 6: closure with a 5 x 5 square to merge the cross elements; Picture 7: opening with a 3 x 3 square eliminates the non-cross noise; Picture 8: the cross is revealed; and Picture 9: the cross is skeletonized.

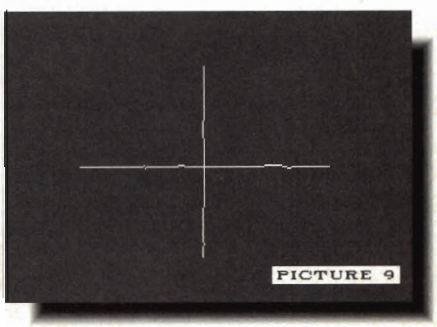












ABOUT THE AUTHOR

Dr. Gerald Hull is the president of Creative Focus, a computer consulting firm in Binghamton, New York specializing in machine vision integration. PeopleLink: DRJERRY; BIX: ghull.

LETTERS

Letters to AmigoTimes can be sent on paper or as a text file on disk. Please include your name, address, and telephone number. Letters may be edited for reasons of space and clarity.

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USA

FIXING THE FLICKER FIXER

I have just received issue 1.5 of AmigoTimes. I wish to compliment you on the quality of your excellent publication. Each issue has been better than the last, and every issue has been very informative and entertaining.

I found the piece on building a flickerFixer/Amiga video switch especially helpful. I had been wanting to purchase 3D glasses for my Amiga; it had never occurred to me to put together a simple switch to channel the Amiga's normal output to my multi-sync!

Hap Aziz
Winter Park, FL
USA

We're glad you enjoyed the article, Hap. One note though, check out the Corrections section on page 11 to find out how to fix a minor mistake in that hardware project.

DISK PROBLEMS

I was interested in your V1.4 issue because of the MIDI information. However, the disk will not load MIDIO. I was really interested in seeing the MIDI files on the disk, but it says: replace Workbench 1.2 and when I do that it says to replace the AmigoTimes disk... and on and on and on. What's the secret?

Ray T. Frey
Pasco, WA
USA

Actually, there is no secret at all. The reason you were unable get the program MIDIO up and running was because you did not copy the MIDI.library, found in the AmigoTimes MIDI drawer to your SYS:libs drawer (boot-up disk). Please keep in mind, that when a problem arises with a program, at the very least, read through the accompanying documentation and the Disk Instructions text file on every disk. It's more than likely you'll find the answer there. Hope you enjoy it.

WE APPRECIATE IT

Last December, the Commodore Amiga company gave my husband Carey an Amiga 500. You see my husband is disabled because of heart problems and many other things. So I had written to the company to tell them how very much he wanted an Amiga. But because we are on a fixed income there was no way he would be able to get one.

Well my brother sent him a magazine. He lives in South Carolina. He sent him the issue 1.3 of the AmigoTimes. He loved your magazine (we can't get it around here).

Mrs. Carey Harnden
Mexico, ME
USA

RADIO SHACK DRIVER

I would like to find out if there is a company that would have produced a printer driver for the Radio Shack CGP-220 Ink-Printer (it's really a Canon 3134L). I am having a terrible time trying to find a driver for it!

Also, do you know someone who has written a book for the Amiga 500 describing it from the inside-out for someone who has fairly extensive computer backround?

Frank J. Thomas
Kingston, ONT
CANADA

Sorry Frank but we couldn't find a driver for you but if someone out there has one and contacts us, we'll let you know.

If you need technical info about the Amiga 500, just call Commodore at (215) 431-9100.

WORDPERFECT 6.UH-OH!

I have been an Amiga owner now for the last year and a half. After purchasing the Amiga, I was thrilled to hear that WordPerfect gave support to the Amiga not with one program but two. Those programs are WordPerfect 4.1 and Library. It gave me a sense of security knowing that an IBM giant would support the Amiga. WordPerfect gives the Amiga some of the recognition it wholeheartedly deserves. With the con-

tinued sales of both WordPerfect and Library, a customer representative from WordPerfect told me Plan Perfect and WordPerfect 6.0 would be future planned releases on the Amiga platform!

Again my heart leaped for joy, the Amiga would be even further recognized as a more "serious" computer with the coming event of WordPerfect 6.0. With true "what you see is what you get" (WYSIWYG), even with 5.0 on the IBM you would still need to use page preview or a Hercules Graphics Card with Ram Font. The most important aspect was the fact that WordPerfect would have 6.0 on the Amiga first.

This sadly, is no longer the case. According to another representative who I spoke with today, WordPerfect Corp. has decided to "temporarily" halt Research and Development for Plan Perfect and WordPerfect 6.0. According to him this is due to the slow down in sales of Word Perfect and Library.

Amiga users far and wide my point is not to tell you to immediately go out and purchase Word Perfect, rather my point is that we should rally together and send in letters to Word Perfect as a campaign to show that there are many users out here who would be willing to purchase WordPerfect 6.0 for the Amiga as soon as it is available. I also suspect that another reason for the recent development is due to software piracy. Piracy is a part of all computers from 8 bits to 16 bits, that is one of the main reasons why the support for other computer versions has died.

As a new Amiga owner I feared that Amiga was following in the same path, but thankfully for the release of Library, my fears were allayed. Now, my fears are back. As I have said, WordPerfect representatives at AmiExpo in New York and also in various computer shows confirmed that there would be WordPerfect 6.0 and Plan Perfect out for the Amiga. If we could all do a "write-in campaign" I'm sure that WordPerfect would take notice. It doesn't have to be anything elaborate. Just a simple note stating that you are an Amiga user and would be interested in purchasing WordPerfect 6.0 when it becomes available. We are now 1 million strong and with one million letters being sent into WordPerfect's mail box, support will resume!

Alex Yang
(address unavailable)
USA

Much has been written about the surprise announcement of WordPerfect Corporation's decision to release WordPerfect 6.0 on the Amiga computer first. A great deal more has been written regarding WPCorp's decision to halt R&D on 6.0 for the Amiga.

According to WPCorp, due to the response from the Amiga community, WPCorp officials were persuaded to reconsider their position of halting R&D for the Amiga.

However, what has happened so far is that WPCorp has cut back its Amiga division development staff, apparently due to low sales of WordPerfect for the Amiga. The remaining development staff consists of three Amiga programmers and two testers working on WPCorp products.

Speaking of WPCorp products, we have been informed that they definitely plan to continue supporting both WordPerfect and WordPerfect Library. Development of PlanPerfect has been scrapped.

Since WordPerfect 4.1 for the Amiga was essentially a port (yet another four-letter word), any real improvements would require a rewrite of the program from scratch. Even though WPCorp has made its position clear, AmigoTimes encourages the Amiga community to raise its voice and show their support for WordPerfect, WPCorp's address is:

WordPerfect Corporation
1555 N. Technology Way
Orem, UT 84057
USA
(801) 225-5000

CORRECTIONS

AmigoTimes v1.5:

p.13: Sculpt-Animate 4-D

Regrettably, the meaning of a sentence can sometimes get changed during the editing process. The final sentence of this review should have read, "But as with any other system, creating computer generated animations is very time-consuming, but with Sculpt 4-D it is not time wasted."

p.28: Woman By Woman

The credit for the photo on page 28 was omitted. AmigoTimes would like to thank Mr. John Phelan of Alpamayo Photography for the photo.

p.76: FIXING THE flickerFIXER

Table 2, line 5 reads:

5 /R1 3 F-4

The correct line should read:

5 /R1 3 F-3

It is not a serious error and only reduces the red color level slightly. We're sorry for any inconvenience that may have occurred.

p.107: Amiga BBS Universe

The price listed for both the Magdex and Pubdex disks is $5 each. The correct price is $10 each. Both disks are available from Selectronics, 5147 S. 37th St., Lincoln, NE, 68516, USA, (402) 423-3856

AmigoTimes, v1.6:

p.46: Amiga Monitor

The Canadian price of $9.95 that we listed for Budgeteer, from Prakticon, was obviously incorrect. The correct price is $49.95 (CDN). AmigoTimes regrets the error.

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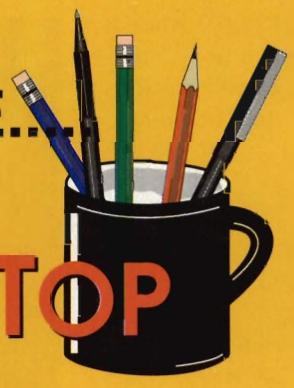

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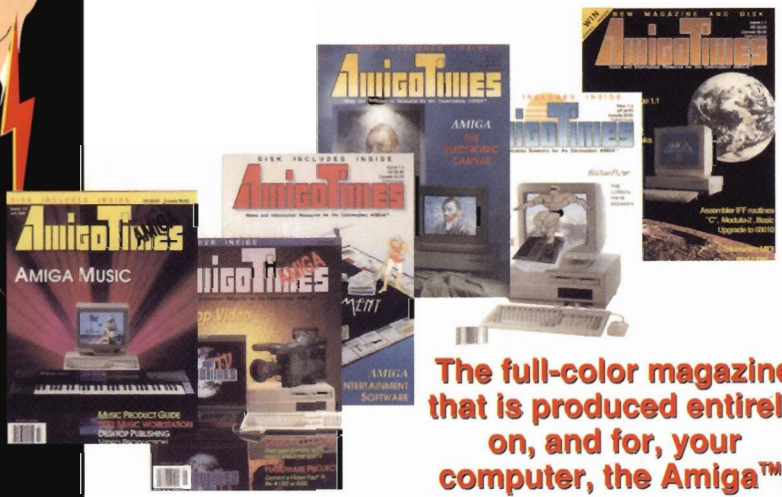

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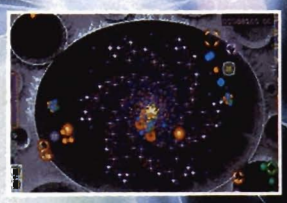

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