

Australian

Commodore Review

AMIGA

ANNUAL 1988



Complete Software Guide

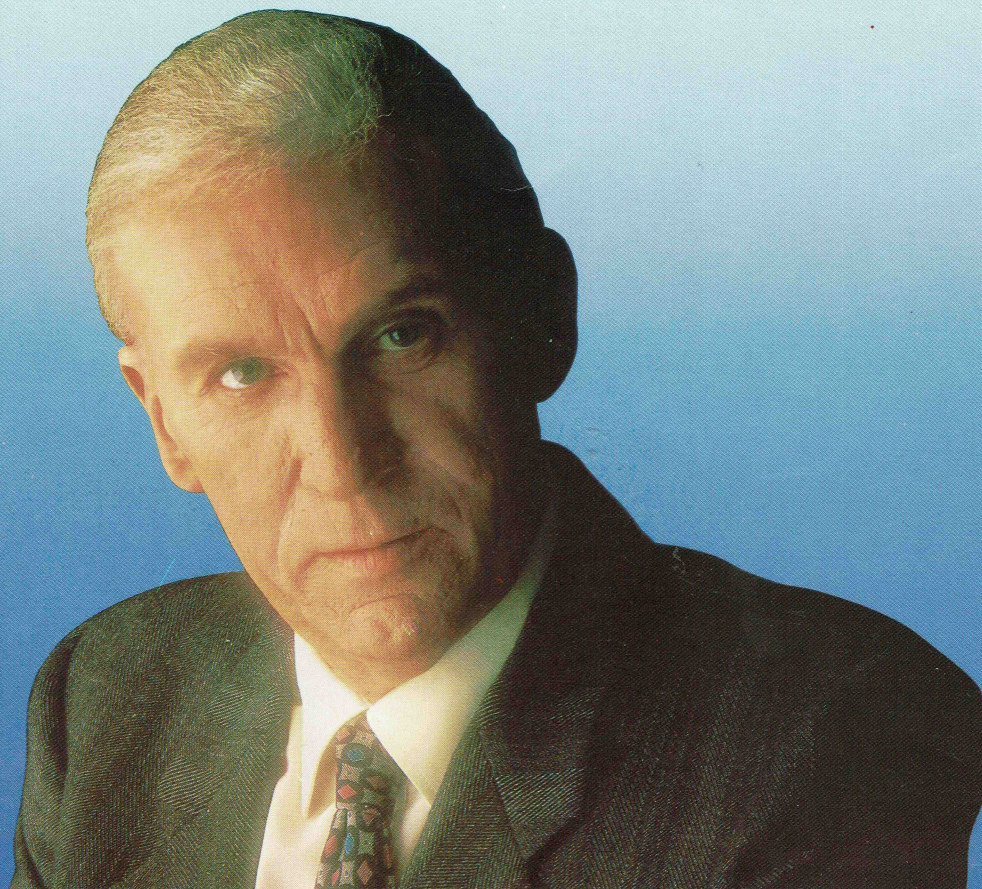
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The Australian Commodore Review

AMIGA ANNUAL 1988

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Amiga ascendant

Launched amid a fury of urgent spectators, the Amiga was under pressure to perform. And perform it did, beyond expectations.

From the early days of bouncing balls to the latest rotating digitised images, Amiga thrills its users. The sheer power and scope continues to expand as more and better uses are found.

In this publication we view the Amiga from many angles. Noting its good points, and find-

ing ways of overcoming the bad are all part of the job. Many long hours have been spent testing, learning, and playing.

The result is a guide to each ability of this wondrous machine. From desktop publishing, to animation and music.

We have also produced a listing and short description of many software titles and hardware add-ons. I hope you find what we've ended up with is as invaluable as was the experi-

ence of putting this Annual together.

In the future, Amiga looks promising. Despite being proclaimed by many as the ultimate games machine, it is much more. Although Amiga plays games, and plays them better than any other home computer, it is this ability which gives it the edge in other departments.

Let's take a look at just what the Amiga has under the bonnet.

Andrew Farrell

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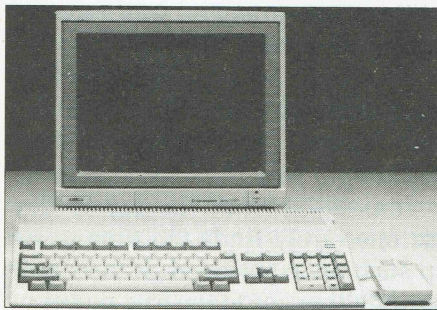
Which Amiga?

Commodore offer three different Amigas. In Australia all three units are still available, despite rumours to the contrary.

Amiga 500

An ideal starting point for beginners. All the usual Amiga features, with the operating system, Kickstart 1.2 built into ROM. Parallel and serial ports use standard IBM type connectors, which is a good thing. The keyboard has a solid feel, and is well spaced. A few Kickstart 1.1 based programs will not work, however these are quickly being upgraded to the new format.

Not as expandable as the other models. An extra 512K, plus clock/calendar may be added via a slot on the underside. Devices such as SIDECAR, or a SCSI interface for use with Hard Drives would require some form of extension cable. An expansion unit may be released in the future allowing connection of



such devices.

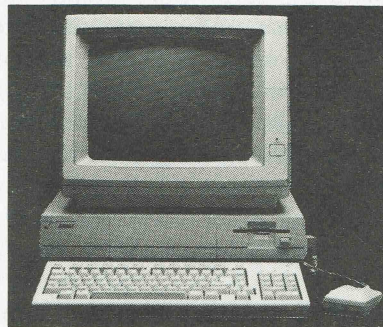
At \$999, complete with built in disk drive, the A500 is relatively inexpensive when compared with machines that have similar power. An adaptor is available to allow connection to your colour television.

Amiga 1000

First and foremost. Keyboard is a little tight, and has an unusually light feel that can take some getting

used to. Parallel and serial connectors are Amiga peculiar, however special cables and adaptors bring them up to standard. Not a problem unless you already have, or plan to use, IBM type equipment.

Some room for internal expansion has been put to use by third party suppliers. The expansion BUS will accept SIDECAR, thus allowing IBM compatibility. Price wise the A1000 works out slightly cheaper than the A2000 when adding PC



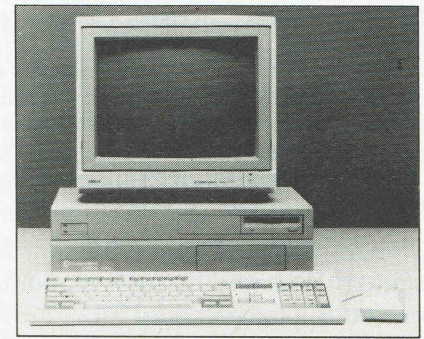
compatibility. However, the A2000 includes extra RAM, and additional expansion ports.

External memory may be added via the expansion port, along with SCSI adaptors, and a variety of Hard Drives.

Supply of this unit was a little tight at the time of writing. However rumour has it that a new version, with a lower chip count, could be in production early in '88. The retail price varies immensely, and usually includes monitor, and system software. Pay between \$1895 and \$2195.

Amiga 2000

Top gun in the Amiga range, the mighty 2000, has much to offer the serious user. However, there's also plenty for us hardened hobbyists and happy hackers to play with to our heart's content.



I've had one of these beasts on my desk for some months. My version is fully souped up. Inside the sturdy steel cabinet is a full three megabytes of RAM, the Janus hard drive, Bridgeboard and 5 1/4 inch disk drive. A standard 3 1/2 inch drive is built in.

The keyboard is now a hybrid arrangement of IBM and Amiga keys, which may at first be confusing. Key tops are large, well spaced, and generally provide a pleasant light but positive feel. Several keys have been repositioned compared to the Amiga 1000. On the whole each change is largely a matter of what you're used to or prefer.

Options

Options are what the Amiga 2000 was designed for. If you plan on expanding your machine in a big way, then the 2000 is the answer. It has the room and potential for expansion in every direction. A typical setup would at least contain the PC Bridgeboard and hard drive. Extra memory makes multi-tasking not only possible but practical.

A modified version of Workbench is used which contains additional software for PC emulation. My startup-sequence was modified to transfer control to Janus at power up.

The on board twenty megabyte hard drive was partitioned for ten megabytes each way between MS-

Janus Hard Drive Performance Table

File Create/Delete :	create 4 files/sec, delete 8 files/sec
Directory Scan :	36 entries/sec
Seek/Read test :	42 seek/reads per second
r/w speed 512 bytes :	rd 19134 bytes/sec, wr 11650 bytes/sec
r/w speed 4096 bytes :	rd 21140 bytes/sec, wr 14644 bytes/sec
r/w speed 8192 bytes :	rd 21140 bytes/sec, wr 14894 bytes/sec
r/w speed 32768 bytes :	rd 21312 bytes/sec, wr 14894 bytes/sec

DOS and Amiga DOS. With Janus installed there was no further room for an additional on board 3 1/2 inch drive, as the hard drive is situated behind the second 3 1/2 inch drive cover slot.

With so many devices to power on and initialise or make Amiga DOS aware of their existence, the time from when you flick the switch until when the workbench is ready for use can exceed 100 seconds. As far as hard disks go, Janus is not overly fast. (See Table.)

At first I wondered just what use I would put all this extra power to. I almost had to remind myself that the Amiga was a multi-tasking machine. Now was the chance to really put that ability to work. My first experiment was to run three large projects simultaneously. I chose *Sonix*, *Wordperfect* and *Digiview*.

Having loaded a HAM picture into *Digiview*, and started *Sonix* playing the Miami Vice theme, I returned to *Wordperfect*. All went well. However after some time of swapping to and fro between these applications, a Guru error appeared and it was time to wait another minute and a half for the system to re-boot.

Further experimentation produced similar results. Whilst it was easily possible to have two large programs operating at one time, complex tasks seem to trip over very quickly.

The usual explanation for this problem is that Amiga programmers are still coming to terms with the machine. Memory requirements need

to be carefully handled to avoid problems where several programs request or simultaneously use the same portion of memory.

Other problems may also occur with priority over the serial and parallel port. Some applications will work together, providing they're booted up in the right order. For example, *DIGA!* will not operate with the serial port already allocated. *Sonix* will always allocate itself to the serial port if it is free, in case of the need for Midi input/output. By booting *Diga!* first you can have both these programs running.

Do it the other way, and *Sonix* grabs the serial port. *Diga!* won't boot.

Most of these sorts of problems can only be discovered by trial and error. (As time goes by we will be producing a list of known compatibility problems with the entire Amiga range, to be published in *Australian Commodore and Amiga Review*.)

Some games refuse to work at all on the Amiga 2000. Some programs may work if you first disable fast memory. Others refuse to recognise the existence of certain devices. These are primarily utilities that haven't been properly written. Many disk copy programs won't run.

Having a hard disk is a big plus. It's possible to put all your printer drivers, fonts and day to day utilities in the appropriate directories and no matter what you're doing they're all there ready to use.

Bridgeboard

Another side of interest is the Bridgeboard. On my system the PC

side of the Amiga 2000 shared 10 megabytes of the Janus hard disk. All the programs tested worked without any problem on PC emulator.

Files may be transferred from one DOS format to another using special commands available from MS-DOS.

A simpler method for moving small amounts of text is using the cut and paste in conjunction with the Amiga's own clipboard.

Whilst operating the PC emulator, Amiga's usual multi-tasking is still available. MS-DOS merely boots up as a separate window within the Amiga workbench environment.

We tested one multi-tasking job that really demonstrated the true power of this system to the full. On *Ventura*, a desktop publishing package running under MS-DOS, we instructed the Amiga to print out a page to the laser printer.

At the same time on the Amiga side, *DIGA!* called an overseas database and made a connect. Meanwhile a spreadsheet was recalculated under Maxi-Plan.

The page was printed, *DIGA!* connected, downloaded a file and disconnected, and the spreadsheet added up.

Impressive stuff. In day to day use one rarely finds the time to set up such an experiment. It does take some getting use to the true power of the Amiga, especially with so much expansion at hand.

The Amiga 2000 is truly a serious machine. It would put most other similarly priced PC's to shame. For the hobbyist nothing comes close. There is so much to explore and tinker with.

Ideal for the intending BBS system operator, or just the power hungry.

Accounting

BEST Business Management System

Several computer magazines have already named B.E.S.T. as product of the year for 1986, and rightly so. BEST is an accounting system that has genuinely broken new ground. The package does not rely on multiple disks to store the suite of modules or independent programs. Instead a single 880K disk contains the entire ball-game.

Minimum requirements are an Amiga with 512K and one disk drive. The system allows the user to upgrade to a larger system at a later date.

Having booted the software the integration becomes more pronounced. A diagram is displayed on the screen which is in effect a flow chart of the accounting processes handled. At the heart is the General Ledger. As the manual so aptly puts it, this is simply a place with relevant buckets for collecting information back to a central point.

BEST makes use of Amiga's point and click philosophy. The only time you ever need to type, is to enter information that you would normally have to write.

As an added bonus information is saved as you work. There is no chance of losing your data because of an inadvertent loss of power or an accidental lapse in memory on your part in saving or exiting correctly.

Moving between various functions is fast. Speed is attained by using small memory overlays, invisible to the user.

Because the program allocates only the amount of disk space that it actually needs and never uses more than 512K of RAM, it defines system capacity in terms of disk storage. The maximum capacity would occupy 8.4 Megabytes of storage and encompass 3,000 inventory items, 1,000 services, 500 General Ledger Accounts, 25,000 transactions, 2,000 ac-

counts receivable, 1,000 accounts payable and 1,000 invoices/purchase orders/cheques.

Once you feel at home with B.E.S.T. the product's talents start to shine through. Moving from inventory to invoicing, then back to the General Ledger to see the effect, can be done at the mere click of the mouse.

"An affordable accounting powerhouse"

Having entered a few inventory items, I immediately proceeded to accounts receivable. Here the data screen allows space for the customer number, name, address, phone, contact person and a current balance as well as aging for 1-30 days, 31-60 days, 61-90 days and over 90 days. There is also space for the current cash amount on order, credit limit, month-to-date, quarter-to-date, and year-to-date sales, year-to-date freight charges and the lowest percentage and/or amount of a bill that the customer is allowed to pay.

By clicking the mouse in the upper corner of the screen, the program displays an alternate transaction screen listing date, descriptions, and amounts for up to 240 lines of customer transactions.

Every module, from ledger to services, prompts the user for this degree of detail. It is up to you how much detail you supply, though you cannot leave a screen without supplying the minimum required data items. It is clear that this program has been designed and programmed by individuals who are well versed in the procedures and the requirements of business management.

Report design and printing are handled ingeniously. Standard report forms such as Sales Report and Price List are pre-formatted and available in the system. Other reports, such as balance sheets (up to 15), can be custom designed and saved on the data disk.

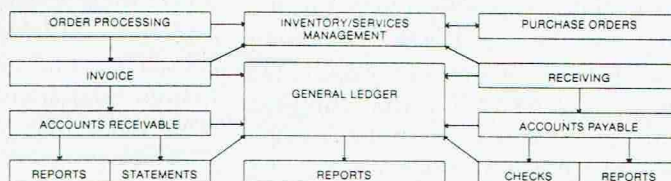
Two different procedures are used, one for General Ledger reports, another for Inventory and Services reports. Report creation from the General Ledger offers a number of entry lines into which you can type the accounts or items that you want displayed. The open framework construction of the General Ledger Report Writer screen provides the creative flexibility that is desirable when devising financial reports.

Somewhat more structured is the Report Writer used with the Inventory and Services data bases. Here, you're presented with a listing of the database fields and the space to print up to 10 in a report (to a total of 80 report lines) along with the ability to limit and sort fields (inventory items of 10 or more, for instance, printed in ascending or descending numerical order).

Next financial year, if not sooner, I'll be putting my accounts onto BEST. It's the easiest to come to grips with, and by far one of the fastest. Without the headache of disk swapping, and with the simple to understand screen layout, you can concentrate more on running the business and less on the physical movement of information within it.

Top marks. Future updates will include a payroll module, and an even further improved menu system.

Our review copy from Able Australia Pty Ltd, (02) 816 3700.



PHASAR

First impressions of *PHASAR* (Programmed Home Accounting System And Register) were good. The software is nicely presented in a ringbound plastic binder that not only protects the manual but sits well on the shelf.

Here's a brief run-down: *PHASAR* allows up to 39 accounts, 29 income categories and 97 expense categories. Miscellaneous income and expense categories and a cash account are automatically defined. Transfers may be made between accounts. The maximum number of transactions permitted for any month is 500. Up to 17 sets containing 20 standard transactions may be predefined. A data disk is intended to hold one year's worth of data. At the end of the year, *PHASAR* will carry over all unconfirmed transactions to the new data disk.

An important plus for *PHASAR* is - no copy protection. The program can be Workbench copied and can be installed on hard drive. There is no Workbench on the *PHASAR* disk and it is not auto-booting. The manufacturer recommends that on drives of 800K plus, the program disk is also used as the data disk; that's fine, but there's insufficient room for the Workbench as well. If you aren't running an external drive on your Amiga, it's the old problem - swap the disk every time you need a printer driver etc. On a two drive system, all is well, Workbench in DF0, *PHASAR* in DF1.

Good points: Yes, the manufacturer has gone to the trouble of incorporating pull down menus. Once into the program, the HELP key offers help and the ESC key gets you back to the title screen. As well as operating the pull down menus, the mouse can be used in the actual input of data. All

mouse functions are also available on the keyboard.

PHASAR also uses a nice default system. Once the date has been set, the last used date is offered as a default each time a transaction is entered. Cheque numbers are automatically incremented by the software and the next sequential number offered as a default. The account in use is also offered as a default. All in all, data entry is extremely straightforward. Entry errors (no one's perfect) are easily corrected.

I found the program was so well structured that the tutorial tended to hinder rather than help. The index and the Reference section were enough to get me out of trouble.

Data entry is easy and quick. Entry of the various categories is simplified as each may be abbreviated to the first two letters (eg library is entered as li).

Using the options from the "Transactions" menu, you may view/edit all transactions; viewing includes output to printer. This menu also offers the "Confirm with statement" option, designed to allow the user to compare the transactions with a bank statement.

The "Reports" menu offers view/print account and category summaries. The account summary is basically the balance of each account, the category summary is quite a good breakdown of income/expenditure by month. The "Analyse" menu contains budget and loan utilities and the final menu is "Setup" which allows the defining of drive paths and printer driver specifications.

I tried the view options and found them to work well. I could, at a glance, see where the money had come from and gone to; ideal information for a small organisation or a home budgeting system.

Note: program will not output to print if your system supports two ex-

ternal drives. Another tip: use *PHASAR* under KS/WB1.2; the disk access time under 1.1 is dreadful!

The budget functions allow the user to project income and expenditure trends and budget accordingly. A handy addition, which, if you have known commitments, should keep you out of the red. As an added bonus, *PHASAR* has an address/telephone book and diary tucked away in the "List" menu.

One excellent function of *PHASAR* I found quite by accident. During my juggling of disks I created a read/write error on the *PHASAR* disk, which the program informed me of the next time I loaded it. Then to my surprise, it dutifully reconstructed the data files with no loss of information. I was impressed.

Plus: Pull-down menus
Mouse/keyboard driven
Not copy protected
Ample "HELP" screens
Data recovery of damaged disks
Simplified data entry (defaults)
Comprehensive Report generators

Minus: Not multi-tasking
Calendar year based (not financial year)

Dates are only accepted in US format:MMDDYYYY

No <ESC> from "Statement compare" option

Conclusion: *PHASAR* is well presented and does all it claims. A home computer accounting program should be simple to use, easy on the eye and produce the results you want. *PHASAR* passed all requirements.

I certainly wouldn't suggest BHP swap over tomorrow, but a small organization that needs a simple book-keeping system should take the time to check *PHASAR* out.

Review copy from OziSoft, (02) 211 1266. RRP is around \$149.00.

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FULLY INTEGRATED BUSINESS SOFTWARE

MAJOR is fully integrated — all the modules you choose will work together. For example, when you receive an item of Inventory and

enter it into MAJOR, the Purchase Ordering system, Accounts Payable details and General Ledger are all updated — immediately and automatically. With MAJOR you only need to enter information once and all of your accounting system will always be up to date.

MAJOR Business Software is available for your Commodore Amiga 500, 1000 and 2000 with hard disk drive.

For more information, ask your Amiga dealer now.



* Available Sept. '87.

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BUSINESS SOFTWARE

Caring for your Amiga

If statistics show a computer can expect one fault every two years, you can be sure that somebody, somewhere, will collect ten years' worth of failures in two months.

What can you do to lesson the chances of a breakdown? With careful treading in a few areas, it's possible to greatly reduce and even eliminate the possibility of certain problems. Now we're not talking about keeping your mouse free of stray biscuit crumbs - but equally serious problems!

Static

Have you ever walked through a building with synthetic carpet and a dry air conditioned atmosphere? Often you'll receive a nasty 'bite' as you reach for the door handle on the way out. Try the same thing in low lighting and you'll be amazed at how big a spark can be generated.

A similarly sized 'bite' will send large computers into a state of limbo. Smaller home computers are also at risk.

Static can upset your Amiga's memory, or damage floppy disks and tapes. Fancy losing your favourite game, or perhaps a work report or school assignment?

Static electricity is caused by a surplus or deficit of electrons on a charged body. Problems occur when the body in question is yours.

Normally any static charge you build up is slowly dissipated into the atmosphere or lost to an earthed object upon contact. The dryer the air, the longer a static charge will remain upon you.

Solutions

Ensure that you are at the same potential as your computer before you touch any part of it. Or simply put, that you're on mutual ground.

For example, touch the metal cabinet of your video monitor or some other earthed object such as the kitchen sink. Avoid picking up the static charge in the first place.

Static electricity is generated when two different materials are rubbed together. Shoe soles on carpet, trousers across upholstery, plastic rubbed with silk are examples.

Install your Amiga in an area with vinyl or wood flooring. Avoid carpet (particularly synthetic) like the plague. Carpet treatment chemicals are available for static reduction.

Dust

The cleaner's nightmare. It gets on and into everything, keyboards included. Switch contacts don't like it. There isn't a lot you can do about this one other than cover your computer when it's not in use and keep it in a relatively dust free environment.

Covers are available from most computer retail outlets for popular home computers. If you're having trouble finding one to fit, contact Computermate on (02) 457 8518.

Smoke is also in the danger category. A smoke particle is about one quarter the size of a typical dust particle. Of similar size is the fingerprint left when the magnetic surface is touched by human fingers.

A human hair, dust particle, or other foreign object can render a portion of a disk unreadable.

Disks

As a general guide, do not expose floppy disks to the following: heat, magnetic fields, bending or other physical violence, dust, and greasy fingers. Avoid touching the bare surface with your fingers. Sneezing

on the same area is a definite no - no. Never use a disk as a coffee mat, or frisbee!

Disks become less reliable with usage. Some sources suggest 25 to 30 hours of actual rotation. Keep backups and relegate heavily used disks to non-vital jobs after they have shown you long and faithful service.

Disks do shrink and expand slightly with the rise and fall of the temperature. Don't use a disk that has recently been roasting in the hot sun. Allow it to cool down to room temperature first.

Heat in the disk drive may cause inconsistencies. Make sure it is well ventilated, with easy air flow around the cabinet. In some instances it may be necessary to install a fan. Dick Smith stores sell a unit which is well suited to the job.

Heat

Your computer consumes electricity. Due to the laws of thermodynamics, this electrical energy is turned into heat. Energy can't be destroyed or created. It may only be transformed from one form to another.

Some silicon chips produce more heat than others. A Video Interface Controller in the Commodore 64 has a metal leaf spring pressing down on it to conduct heat away to the surrounding metalwork. Without this 'heatsink', the chip's temperature would climb to destructive levels.

Both the Amiga 2000, and the 1000 with extra devices such as RAM, or hard drive, are especially susceptible to heat problems.

This simply means that to avoid heat related failure you must help your computer keep its cool.

Don't impede the air flow to the computer's already small

ventilation holes. Always put the machine on a hard flat surface, never on a blanket or thick table cloth that could reduce the air flow. Keep the computer away from sources of external heat - reading lamps, sunlight, radiators.

Avoid operation when the temperature is extreme - especially during summer. Use a fan to ensure a steady air flow over the machine and keep operation to as short a time as possible.

Now, if you think this sounds a

little extreme, remember, it's your computer that's going to suffer heat stroke and most commercial installations are air conditioned.

Another problem can be humidity. Should the humidity levels reach 100 per cent, moisture will condense on any available surface at or below the temperature at which dew forms.

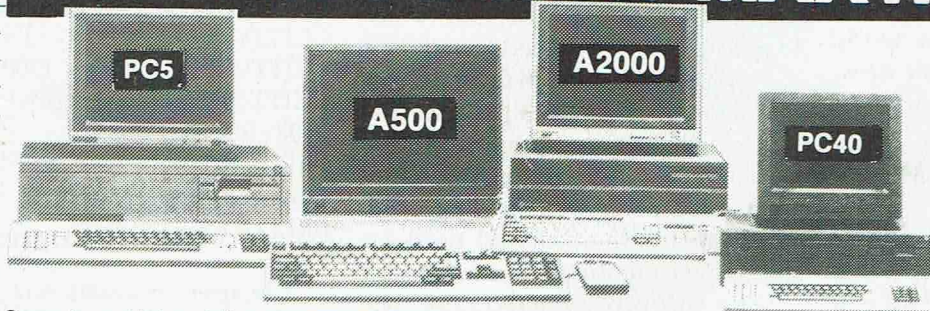
If this happens, corrosion can cause problems which often don't show up until it's too late.

The sorts of problems caused by

condensation include unpredictable keyboards and intermittent failures caused by poor contacts in the multitude of metal to metal connections in the computer.

This problem is more significant in seaside areas due to airborne salt. The solution to this one? Avoid leaving your computer in a cold damp area. Make your computer room inside a warm dry house, avoid garages and other outbuildings.

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Travel the world by modem

To travel is better than to arrive, and no better way to travel is there than by modem. From the comfort of your armchair you're free to visit far away places and speak with those whom you have never met. How does this mysterious means of exploration work?

In a multitude of counsellors there is wisdom. New computer users are always in need of a little counsel, be it to solve the contorted explanations of the included manuals or to try some feat never before performed.

Finding help when you are in need is made far simpler thanks to the modern world of communications. One of the fastest growing facets of this field is that of telecomputing. In short, this is the ability of computers to speak to each other by means of the public telephone network. Entering into this world you will discover yet another array of jargon to help explain the various technicalities involved.

Using a modem you can gain access to:

*** Electronic Mail and Bulletin Boards.** Messages may be sent to other users, or groups of users. Special interest areas cater for a variety of subjects, including a range of non-computer matters.

*** Electronic Shopping and Banking.** Several banks offer account access via modem. It's possible to transfer funds, obtain an account summary and pay bills. Electronic shopping, with a little help from your credit card, makes available many hard to come by products, as well as many day to day items.

*** Electronic Education.** Maquarie offer a vast range of services, as do several smaller systems. Subjects are especially useful for the school aged.

*** Telecommuting.** Why not work from home? With a wordprocessor, modem and other business software, many jobs can be carried out from the comfort of your own study.

*** Electronic Broking.** Place your orders directly, the instant you see the rise and fall of stocks. At least six brokers offer such a service, several using Viatel.

*** Electronic Monitoring.** TAB results, weather patterns, national and international news, tidal charts and much more is available using Telecoms Viatel network.

*** TeleGaming.** Several games, including *Flight Simulator II*, offer the unique ability to enter two player mode, with the second player's information accessed via modem!

You probably already know that to get started you'll need two things. A MODEM (MODulator/DEModulator) changes the information stored in your computer into a series of audible tones that may then be sent down the telephone wire - this is the first and most expensive part required.

The software is a terminal program that lets your computer talk to the modem and in turn to other computers. Various levels of sophistication allow more complex operations such as file transfers and remote access to your equipment.

Hardware

Searching for the best buys is a tricky task. Dozens of brands with vast differences in ability exist.

At the most basic level, the biggest variation is the speed at which these little black boxes can send and receive information. This is measured in bits per second or the baud rate. In common practice most home users will use either 300 or 1200

baud, which is roughly equal to 30 or 120 characters per second respectively.

Around 30 characters per second is the speed at which most people read. However the faster speeds are very useful, especially in transferring files or programs. Viatel, a service provided by telecom, uses a special 'split' baud rate, where the sending and receiving speeds are different. Information is received by the user at 1200 baud, but sent at a sluggish 75 baud. This is fine when you are mainly viewing or retrieving information.

The various combinations of speeds is often represented by the following codes :-

V21 - 300 Tx / 300 Rx
 CCITTV22 - 1200 Tx / 1200 Rx
 CCITTV22bis - 2400 Tx / 2400 Rx]
 CCITTV23 - 1200 Tx / 75 Rx
 CCITTV23org - 75 Tx / 1200 Rx
 CCITT (V23 set to originate)
 B103 - 300 Tx / 300 Rx
 BELL (U.S.)
 B212 - 1200 Tx / 1200 Rx
 BELL (U.S.)

Cheaper modems support only 300 baud or perhaps 300 and 1200/75. This should suffice for the moment, but once you've been treated to a dosage of 1200 baud, you'll be forever sold on the higher rates of operation.

I use a Dataplex DPX224 with our office Macintosh Plus. This beastie is capable of most speeds currently in use, as well as a few rather rare combinations. It also supports what is known as the HAYES command set.

This is a set of short instructions which allow you to COMMAND and PROGRAM your modem to do certain things. For ease of use, and flexibility, I normally recommend a HAYES modem. Fortunately these

have of late dropped in price to under the \$500 mark.

Non-Hayes compatible modems sell for as little as \$110, but provide far less power potential. Another features to consider are the Autoanswer and Autodial facilities - if any. Let's take a quick look at a few typical set-ups in the various price brackets.

Modems - listed by price

Under \$500

Cicada 300
Rec. Retail : \$110
(Only available direct.)
300 full
Manual operation only.
Distributor : Centre Industries

Cicada 312
Rec. Retail : \$245
300, 1200/75
Manual operation only.
Distributor : Centre Industries

Modem 3+12
Rec. Retail : \$341
300 full, 1200/75.
Manual operation only.
Distributor : NetComm

Sendata + Viaterm.
Rec. Retail : \$349
300 full (requires software), 1200/75.
Manual operation only.
Distributor : Rosser Communications

GPA Supermodem
Rec. Retail : \$395
300 full, 1200/75
(optional 1200 full - \$190).
Autoanswer, autodial, hayes.
Distributor : Micro-Educational

\$500 - \$1000

Automodem 21/23
Rec. Retail : \$549

300 full, 1200/75.
Autodial, autoanswer, hayes.
Distributor : NetComm

Auto 12+12
Rec. Retail : \$699
1200 full only.
Auto answer, auto dial, hayes.
Distributor : NetComm

Automodem 123-A
Rec. Retail : \$925
300 full, 1200/75, 1200 full.
Autodial, autoanswer, hayes.
Distributor : NetComm

\$1000-\$1500

Dataplex DPX-224 - SA
Rec. Retail : \$1288
300 full, 1200/75, 1200
half, 1200 full, 2400
full.
Autoanswer, autodial,
hayes.
Distributor : Rosser
Communications

**Smartmodem 1234-
SA**
Rec. Retail : \$1499
300 full, 1200/75, 1200
half, 1200 full, 2400 full.
Autoanswer, autodial,
hayes, software includ-
ed.
Distributor : Net-
Comm

Software

There are literally dozens of terminal programs around, all of which will get you going. One of the simplest of these would be in the form of a desk accessory, such as is provided in *Gizmoz*.

For a full listing
of Communications,

check out the Software Guide at the back of this Annual.

If you're using a Hayes modem, many functions, such as auto-redial, are controllable using the built in instruction set.

* All the above prices and specifications were verified at the time of publication. Please note that various optional extras are included free with some modems. Rosser Communications, for instance, always provide the necessary double adaptor for your telephone to be used in conjunction with the modem.



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Communications Glossary

Acoustic Coupler: A device that allows modem-generated audio signals to be transmitted into and received from a telephone handset. The handset is placed into rubber cups on top of the coupler. A small transducer at the bottom of the cups produces the actual signal.

ACK: Acknowledge. Yes, I received that last byte, or string of bytes. Normally only used in file uploading or downloading.

ASCII: American Standard Code for Information Interchange. A seven-bit code used widely in data communications to transmit the letters of the alphabet, plus the standard punctuation marks and certain control characters. Every character has a corresponding numeric value that is common on most home computers. This allows different types of machines to speak with each other.

Auto-answer Modem: A modem that can answer an incoming call by generating a carrier tone that signals the originating modem its call has been received.

Auto-dial Modem: A modem that can simulate a telephone dialer using either pulse or touch-tone dialing signals.

Austpac: Packet switching network provided by Telecom. Allows computers which talk at different speeds and languages to exchange information.

Baud: A speed expressed in bits per second transferred over a communications line. 300 baud is roughly 30 characters per second.

Bell: The American standard for data communications.

Binary: Place where rubbish is stored. Or in computers, a number system using base two rather than base ten as in decimal.

Bit: What the dog did. Short for binary digit (either 1 or 0), the elemental unit of digital information. Every character is made up of several bits (usually eight). A bit is either one or zero, corresponding to pulses that may be transmitted audibly on telephone lines.

Buffer: Often called capture buffer. In general, a temporary storage place for data. A capture buffer is temporary storage for data "captured" from a communications link.

Bulletin Board: A computer you can access via modem especially for leaving

messages to other users. Various subject areas are available, and normally programs can also be uploaded or downloaded.

Byte: What a dog does. On an eight bit computer, eight bits make up a byte. Usually one byte is equivalent to a character. Each character in the ASCII set can be represented by only seven bits. Thus, a byte can be thought of as equivalent to a character for approximation purposes only.

Carrier: A steady signal that can be changed in tone (modulated) to transmit data.

Checksum: Used as a test for the integrity of information transmitted by any means where corruption may take place.

Control Characters: ASCII characters that do not print out, but are used to control communications. Control characters can, for example, signal a sender to stop transmitting information when the receiver is busy.

Data: Information in code, text or numerical form, generally represented in ASCII code for digital communications.

Database: A file or program which contains information in a specially formatted way. Normally made up of records and fields which are roughly equivalent to a card file system.

Download: Transfer a file from another computer to your computer.

Duplex: Refers to the two-way nature of modem communications. In full-duplex communication, both terminals can send and receive simultaneously. In half-duplex operation, both ends can send and receive, but not at the same time. With full-duplex, echo-back communications, a transmitted character is not displayed until it has been verified by the receiver.

Electronic Mail: Messages directed to a specific user on a Bulletin Board system. A personal message, similar to mail.

Frequency: The number of cycles of an oscillating waveform that occur each second.

Glitch: Hiccup on the telephone line. Some information may be garbled making it unreadable.

Hayes: Command language for programming some modems.

LF: Line feed. Moves the cursor to the next line.

Modem: A device that modulates audio tones to carry digital signals and also demodulates the signals at the receiver so they can be understood by a computer.

NAK: Negative Acknowledge. Used in file uploading/downloading.

Noise: Random disturbances that degrade or disrupt data communications, present to some degree in all transmission links.

Originate/Answer Modem: A modem that can either start a telephone call or receive one automatically. Some modems automatically assume originate or answer status, others require manual switching to the proper state.

Parity: A means of checking for errors by adding an extra bit to each ASCII character transmitted.

Protocol: A set or rules for the transmission of data. Protocols describe when transmission will start and stop, what error checking system is in effect and the like.

RS-232: A standard for transmission of serial data covering both hardware configurations and transmission parameters. Different manufacturers may implement some or all of the RS-232 standard in their communications products.

Serial data: Data sent one bit at a time, as opposed to parallel data sent several bits at a time. Modems operate on serial data.

Sysop: System Operator. The person who is responsible for the smooth operation of a particular remote access system such as a Bulletin Board.

Teleconferencing: Several people get together to talk via electronic means, either telephone or computer, about a particular subject. Often used in multi-user remote access systems.

Terminal: A device that receives or transmits digital information. Communications software is designed to control computers during terminal mode operation.

Upload: Transfer a file to another computer.

X-ON/X-OFF: A protocol for pausing data transmission using simple control characters.

DIGA!

Amiga owners will be pleased to know that there is a top class terminal program especially for them.

DIGA! is distributed by Commodore and sells for a recommended retail price of \$129.

Apart from all the usual facilities of any good terminal program, *Diga!* also offers a special mode called DoubleTalk! In this mode two Amiga users both using *Diga!* can both send and receive files simultaneously.

However, at the same time, they can also chat to each other. This amazing capability is achieved using complex batch sending all handled by *Diga!*

Pull-down menus offer a vast range of selections. Files may be sent and received using a variety of for-

mats. Commonly used telephone numbers may be entered into a log.

To dial one of your favourite BBS's, simply click on the appropriate name, then click on DIAL.

DIGA! has a special remote access mode, ideal for Amiga's multi-tasking environment. Another user may ring your computer and remotely operate the package.

Having entered the password, a small menu is displayed. From here you may move into different sub-directories. Files may be up or down loaded, or merely viewed.

If you boot up *Diga!* and set it up ready to answer an in-coming call, it's possible to carry on with some other job such as wordprocessing. When somebody does ring, *Diga!* takes the call and handles the job of

looking after the remote user.

There's no need to interrupt your busy schedule. You can carry on working with another job!

In all, this package is easy to use, yet very powerful. Various video modes are supported, all BAUD rates and virtually every combination of communications protocols commonly used (Unfortunately 1200/75 baud is not supported by *DIGA!* - this is its only shortcomings. If you plan to just use your modem for BBS and not Viatel then *DIGA!* will fulfil your every need. There are several terminal emulators included, such as VT-100, which you may load up.

If you're thinking about getting serious with your modem, be sure to grab yourself a copy of *Diga!* first.

The Bit Blitzer 12E

The modem itself is a well-packaged, neat unit with a footprint a little smaller than an external disk drive, and less than half the height, and it packs a lot in. Features included:

- V22 (1200 bps) and V21 (300 bps) : CCITT standard, ie, Oz
- Bell 212A (1200) and 103 (300) : US standard
- Full duplex, ie simultaneous data transmission and reception over a single telephone network connection
- Auto-dial and Auto-answer and Auto-disconnect
- Tone and pulse dialling (which is automatically detected)
- Hayes AT Command Protocol
- Call progress monitoring (ie, tells you if anything goes wrong)
- Loopback for remote diagnostics
- Internal speaker with manual and software volume control
- 8 status and activity indicators (LEDs)

This list of features is pretty im-

pressive at a price of \$349 RRP, and everything does work. No cable is provided with the modem, so you may have to go to a dealer and specify an RS-232 cable with two D25 male plugs.

The documentation consists of a well-written spiral-bound book which, while it's not a communications text book, is sufficiently detailed to let a beginner test and install the modem. It is well set out with an Overview section followed by a step-by-step procedure for installation.

At the back of the manual are some other useful sections: Troubleshooting, to let you solve any problem that may occur; Country Specific Information, including a section on Australian conditions; an Appendix with details about the Serial Cable; Appendices on Hayes Command Summaries; and a listing of the ASCII Character codes.

Having followed the Installa-

tion procedure, it is possible to change any of the 10 Configuration Switches on the bottom of the modem. These are set at the factory in a way which works with the Amiga with no changes.

Some of these options are "hard" and some "soft", ie, the soft ones can be changed by commands. There is also a Reset command to change all configurations back to the actual switch settings. In other words, you can fine tune the modem as much as you like, using both hardware and software. Once you've set things up for normal use, you'll probably never change them.

In conclusion, I liked the modem so much I bought it. Had to have it. Considering the fact that it has all the features of Smart modems of much higher cost, is well documented, has a very small footprint, and only costs \$349, I can recommend it as a high quality product of very good value for money.

Combine this modem with a powerful software package like *Diga!* and your communications will be a real pleasure, and not as costly as you might expect.

Name: Bit Blitzer 12E
Price: \$349 RRP
Manufacturer: Banksia Information Technology Ltd, 201 Hollywood Commercial House, 3 Old Bailey St,

Hong Kong.
Supplier: Mike Boorne Electronics, Eel: (02) 46 3014, (09 306 2056. Dick Smith Electronics. Some dealers.

Public Domain Communications Software

Anyone with a computer, and particularly an Amiga, should investigate what's on the end of their telephone line. There are: dozens of BBS's (Bulletin Board Services), Viatel, databases of all kinds, electronic banking, not to mention what's available through overseas calls.

All you need is a Modem, which ideally can handle various Baud Rates (300/300, 1200/1200, 1200/75) and a Communications software package to facilitate the communication between your computer and the target service.

While there are many commercial communications programs available for the Amiga, some of which are very sophisticated packages with all sorts of exotic capabilities, most people will not require all the bells and whistles. Many people may be unaware of the fact that there is a large and comprehensive library of Public Domain software for the Amiga with free programs of every variety.

Among these are numerous Communications programs which are as good as the commercial alternative in some cases. Among these are "Vt100", "Comms1.34" and "Handshake".

VT100

This is a powerful Vt100 terminal emulation, meaning that it will do just about everything you want it to do. It can upload and download any kind of file using most protocols (Xmodem, Kermit, etc), and can be customised using "script" files according to what you want it to do - automatic log-ons to BBSs and so forth. "Wildcard" characters are available (so *.c means any file with a ".c" suffix, for example) and you can define "macros" - ie, F5 can be defined as "df1:my.script").

Note that while you can make the

program perform all kinds of tricks, you can operate all the necessary functions via the menus, so there's no need to be a power user to use the power. Other features are: automatic re-dial, screen colour changes, multiple baud rates. There is also a version on your local bbs which handles Viatel 1200/75 baud rate, though it isn't written to handle the Viatel screens in full format.

You'll find *Vt100 Version 2.6* on *Fish Disk 55*, along with the necessary documentation - along with *ShanghaiDemo*, a demo of the game; *SoundExample*, as it implies; *CSH V 2.05*, an excellent CLI shell for speeding the CLI; and a few other useful programs.

COMM 1.34

Some of the features of Comm include:

- *ASCII (text format) send and capture modes
- *Xmodem protocol (one of the commonest and most reliable) Autochop - ie, extra characters are stripped off, very useful Baud rates up to 19200 supported
- *20 Keyboard macros are definable with the Function Keys Phone library with 44 entries available
- *Chat mode with split screen is available Interlaced screen is optional

This is a well designed communications program, and it is very user-friendly, with extensive use of menus and mouse control. There is a status line at the bottom of the screen which tells you what is happening and when, and a series of "Hot Keys" which can be used instead of the menu options for speed of use. For example <LeftAmiga-P> will toggle the printer on and off, so that you can capture everything coming through the serial port as printed text.

Comm 1.34 can be found on *Fish Disk 71* - along with *Airfoil* (a graphic

demo of aerodynamics); some Amiga-Basic programs; *Blocks*, a graphics demo; *DiskX*, a file structure viewer; *IconMk*, to create your own icons; *NewFonts*, a couple of fonts; *PetCLI*, a CLI shell to speed up the CLI; *Rot*, an animation object editor; and *TimeSet*, to set the time via an icon.

Handshake

Once again a very powerful and easy to use program. This is a full-featured VT52/100/102 Terminal emulator (VT102 is a "superset" of VT100). This has all of the features mentioned above along with a few extra ones relating to the VT102 capabilities. There is a phone directory for 20 numbers, auto re-dial, Xmodem file transfer, and file transfer is very fast.

The program is fully integrated with Workbench, and if you save particular configurations or parameters, they will appear on the Workbench with icons attached. You can even specify a number to dial immediately when the icon is opened.

As with the other programs mentioned above, it is possible to set up an interlaced screen so that you can see more on screen, quite useful when communicating when things tend to scroll by a little too fast at times, depending on your baud rate.

Handshake is available on *Fish Disk 60* - along with *Blitz*, an excellent text display utility; *Blitzfonts*, which speeds up text display; *Med*, the text editor; *PrtDrvGen* (to make your own printer driver); *Show*, to display graphics; and a couple of other editors. A useful disk.

Viatel Communications

There are versions of both COMM and VT100 in the public domain which

have been adapted for Viatel, which demands both software and a modem which can handle the 1200/75 baud rate (ie, data comes to you at 1200 bits per second, while you type back at 75). These are serviceable but don't seem to have been fully written to handle the Viatel screens completely.

So it is recommended that you purchase "SUPERTEX", distributed by Paris Radio at about \$85 RRP, and likewise find a modem which handles Viatel baud rates along with the others you need - the BIT BLITZER 123E is an excellent low-cost (you'll find it for \$449 if you look around) modem with all the features of some rather more expensive units.

About ARC

ARC is a very useful utility which you should know about if you get onto any of the BBSs, which are using it a lot. It provides a way of compressing files and programs into a smaller space, often saving up to 50% on the original size of the files. This is very useful when uploading and downloading files, since less time is taken to do so, and therefore less money!

The only hitch is that you can't check the file out before downloading it, and that you have to "De-Arc" it once you've got it on disk. This is a simple procedure, and can be made even more simple by using one of the many useful Directory Utilities such as DISKMAN - these are programs which provide an interface which halfway between the CLI and Workbench, allowing you to perform a lot of operations without typing (see Megadisc below for availability). With a combination of one of the Communications programs mentioned above and ARC, you should be up and running on your telecommunicating career, and rather cheaply at that.

Where to get them

MEGADISC Digital Publishing (responsible for the Amiga Magazine-on-a-Disc, all-Australian and full of Amiga information) have a full library of the Fish Disks, as well as all the Amicus Disks and a number of their own

"Theme" disks on various topics - graphics, fonts, etc.

Write to their address below, including the Numbers of the disks that you want, and including \$6.50 for each disk you order - postage is included in the price, for any quantity.

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Databases - an introduction

Let your fingers do the walking . . . that large yellow wad of moderately priced advertising and phone numbers is everyone's personal database. Information stored on easy accessible, planned listings - it's convenience, it's speed, it's downright civilized.

Massive quantities of data are what make the world go round. Military records, economic, academic, dental . . . it's all there, it's all identification of something that could be important to somebody.

An electronic file cabinet. Like a spreadsheet or a word processor it can direct the computer to scan its contents and act on them immediately. With a large bank of data such a program can thus sort and retrieve information by the criteria you select. Instant research in a teacup.

Anything, inventories, personal files, invoices and other such business records. It allows you to check the patterns in your daily exercise, peruse collections that have slipped your head waves and other Big Brother protocols.

The larger the database, the greater the benefit from instant research. Thus, a hard disk system will let you maintain a much more powerful database than floppy disks, and a mainframe can hold the largest databases of all. Into these can go reports, newspapers and magazine articles, judicial opinions, movie reviews and documents of all kinds. But unless you're making pumpkin scones for the Pentagon a scaled-down version will suffice.

Like the spreadsheet, databases they require you to create a structure for them. And there are four main sides to getting that structure to stand.

Formatting: You begin by designing a form, which gives structure to your database. Typically, this task entails listing the categories of data

you want to access. For instance, if you wish to compile a database of information on your pet wasp collection you can perhaps create such categories as colour, sex, stinger size, breeding capabilities and dental records.

Data entry: After constructing this amazing synopsis of recorded messages you must then type in the information itself. That's a bit of a drag.

Be sure to make backup copies of your database or it'll be like driving an NRMA. van without a street directory.

Retrieval: Diving in and getting it. With the wasp collection, for instance, you could list all wasps that lived longer than four hours, how much pollen they managed to suck from your mother's crysthemums and flight hours logged between home and the field.

Printing: It's got it all and fine-tuned. And when the time comes that you want to print out parts of your database, perhaps in a certain order, the printing facility lets you arrange your output in a manner pleasing and satisfactory to you.

Talking Data: In order to communicate with the information within the database it's necessary to familiarize yourself with the peculiar jargon associated with the specialty program.

Entry: a single unit of information. A telephone number inserted into your personal directory for instance, would be considered an entry.

Field: A group of similar entries. In the standard database layout with titles across the top and lines of data below, fields form columns beneath the titles. Perhaps within a telephone directory in the M listing is a number for a particular centre, say an advertising agency and under that name and direct number are the listings for various exten-

sions and offices therein. In a database within this arrangement it would be called a field.

Record: Is a set of entries related to one item, like Russian Embassies' satellite dishes all revolving around one KGB transmitter satellite. In the standard layout it forms a row across the fields.

File: Is the entire database. It is not, though, your database program, which creates many files and stores them on data disks. These concepts form the framework of almost all databases. The database file is composed of individual entries as the spreadsheet is composed of cells. You may group entries with those of a similar type, as a field, and with those having the same reference point, as a record. Using this pattern, you can then search, sort, retrieve and print all in a variety of time-saving ways.

Most of the databases you're likely to see on personal computer fall into two categories: file managers and true relational databases.

File Managers

File managers, or file management programs are the simpler. They are easy to use and relatively inexpensive. However, they are generally limited to list management and even there are somewhat awkward.

Then, a more complex database will let you access more than one file at a time and sort several fields simultaneously. A file manager normally restricts you to one field at a time.

Moreover, while the more powerful databases may allow extensive calculations so that certain fields can even depend mathematically on others in the manner of a spreadsheet, file managers have a much more limited capacity for computation.

True relational databases

A true relational database is more complete. By definition, it allows at least these five major operations: adding records, deleting records, searching records, searching

fields and joining records from two files into one new file.

The normal database, like the spreadsheet, comes empty and ready for you to load with information. Then there are those companies that sell databases with many or all the blanks filled in. These

programs are computerized reference works. Their range is large. There are programs with recipes, maps, horoscopes, astronomical charts and so forth.

How to use a database

In many cases the documentation accompanying computer file management programs deals only with the mechanics of file creation (how to do it), and novice users may not be aware of the many concepts which must be taken into consideration when creating and using a file.

In this article we will attempt to explain some important concepts related to computer databases. Our aim is to give you, the computer user, a "just below the surface" view - not too technical, not too vague - of the structure of database files which may help you to create better files and to make better use of existing ones.

An analogy

In many ways, a computer database file resembles an index card system.

If you are/were about to set up such a file you would purchase a plastic flip-top box and a packet of blank cards from the newsagent. You would have, in the back of your mind, an idea of how many cards you would be likely to need and how much information would be written onto each card. This knowledge would guide you in your choice of boxes and size cards.

For the sake of this example, let us assume you wanted to create a file containing the names of your friends and relatives, the birthdate of each and a note recording the gift you bought each person on their last birthday.

It would be appropriate to allocate one card to each person and to write each person's name, birthdate and gift on their card. You would probably then store the cards in the box in alphabetical

order so that you could quickly find a required person or in chronological order so that you could quickly find a certain birthdate.

The translation

Let's now take the example above and translate it into computer terms.

The whole box, once you have started actually writing details on the cards, would be dedicated to recording people's names, dates and gifts. It would be hard to then use the completed cards for another purpose, say to record serial numbers of your household appliances or details of tax deductible expenses. For this reason the computer will require you to give the whole box a FILE-NAME. You may call it "GIFTS" or "BIRTHDAYS" or whatever.

In computer terms, each card in the box is called a RECORD. In computer files all records are identical in layout. Different programs allow you different numbers of records (cards) and just as you have to buy a box which is big enough for all your cards, so you also have to decide on a computer program that will allow you to maintain enough records in each file.

Each entry on each card will be called a FIELD (or sometimes CATEGORY or HEADING). The cards you bought may be only big enough for the three categories "Name", "Birthdate" and "Gift" or there may be a number of blank lines left unused on each card. So it is with computer filing systems, some allow many fields, some relatively few.

PART 1 - Creating the file

When you are setting up a database file on a computer you must define these parts of the file so that the computer knows how to record the information. Usually the program you use provides a step-by-step of instructions or prompts which lead you eventually on the stage where it can store the file on disk.

The list which follows outlines these steps and attempts to make clear some matters you just consider as you go through.

1. What is the name of the file?

Usually the first thing the program requires is the Name of the file. This name will eventually be used as the filename when the data is recorded onto disk. Some operating systems allow long names for files and allow punctuation marks, numbers and spaces; others allow as few as eight characters with no punctuation marks.

You should think of a name that is easy to remember and is in plain English. Sometimes the program will require you to type the filename from memory and it is important that you know what it is without having to try different possibilities. Usually the programs allow you to scan the filenames on disk and some will make it possible to pick up the file using the cursor control keys or from a menu.

Be careful of operating systems which do not accept lower case filenames or that automatically truncate

long filenames without informing you.

2. How many files are on each record?

This is very important.

You must specify how many categories are to go onto each record and in some cases there is no way of increasing or decreasing the number of fields once the file has been created.

Fortunately, modern database programs usually allow you to add a new category later or to delete ones you no longer require. Often the program will deduce the number of fields by counting the number of field names as you type them in.

The computer database uses the fields as key elements when sorting and searching the file. It is therefore very important that you put some thought into what headings are necessary in your particular application. Here are some hints when deciding what headings to include in a file.

a) If you are recording people's names then you should consider two separate fields - one for the Given Name and another for the Surname. This will allow you to sort the file alphabetically on the basis of Surname and yet still get print-outs containing their full name. If you place the full name in only one field then you will have to write entries like "Bloggs Bill" in order to get the names sorted correctly.

b) Include a field to contain each person's title: Mr, Mrs, Ms, Dr, Sr, Br, Sir etc. This could be useful if you decide to merge the file later with a form letter or print address labels.

c) If you are recording addresses then ensure there is enough room for the complete address by creating about four fields called "Address 1", "Address 2" etc. You would be surprised where some people live.

d) Don't waste time, effort and computer memory by creating fields you don't need, and don't record sensitive or personal data about people when this is not appropriate.

e) If you will require arithmetic calculations based on the total number of

A, B & C Co. *****		Partial Client List *****				
CLIENT	JOB NAME	START	FINISH	FEE		
A-Z Bank	AUDIT 2	21 Jan 85	18 Feb 85	£11,750		
A-Z Bank	TAX 2	18 Feb 85	25 Feb 85	£2,500		
City Investors	TAX 4			£27,000		
Global Group	AUDIT 4	4 Feb 85	18 Feb 85	£4,750		
Light Industry Ltd	AUDIT 3	4 Mar 85	25 Mar 85	£9,000		
Light Industry Ltd	TAX 3			£6,250		
P&Q Stockists	AUDIT 5			£11,500		
Universal Printing	AUDIT 1	7 Jan 85	28 Jan 85	£11,000		
Universal Printing	TAX 1	25 Feb 85	4 Mar 85	£3,750		
Universal Printing	MERGER	11 Mar 85	18 Mar 85	£6,000		

SUMMARY OF JOBS COMPLETING IN FEBRUARY 1985			
CLIENT	JOB NAME	FEE	COSTS
A-Z Bank	AUDIT 2	£11,750	£8,825
A-Z Bank	TAX 2	£2,500	£1,400
Global Group	AUDIT 4	£4,750	£3,075
Total FEES and COSTS		£19,000	£13,300

records or the number of records falling into different types, then it may be necessary to include "Counter" fields which contain numbers that can be tallied at print time.

3. Setting field lengths

Some programs will require that you specify the number of characters which are allocated to the data on each field. If this is the case then you have to take care that there is enough room for long entries. For example, if you have the field "Name" in your file then you may need space for about 25 characters (some people have long names!)

4. Entering data

If you get to this stage, you have created the file and are now ready to enter the data. This seems easy enough, but there are still a few traps especially if the database program is not very sophisticated.

As stated earlier, if you have only one field for people's names then it may be necessary to enter their surname first so that they appear in correct alphabetical order when the file is sorted.

If you are including the date in the file then the program may require that you enter it in a certain way. For exam-

ple, some need to have the date in the form Month/Day/Year if you are going to sort the record chronologically.

If there is no special date function in the database program, then it may be helpful to enter the date in the form YYMMDD. That is April 15, 1986 would be written 860415. When you sort this field from lowest value to highest (or alphabetically) the record will appear in chronological order.

Testing the file

You will get a very sick feeling if you spend hours entering data only to find that the file does not work properly. If the program does not allow you to add or delete fields or change their length after you have recorded some information, then you should enter ten or so records, print the file, sort it, search for special records etc.

If the structure you have created is not working then you will be in a position to create it again without too much time lost.

Saving the file

Database programs usually come in one of two types. Those that save the information on disk each time a record is changed and hold only one record in memory at a time, and those that hold the whole file (all the records) in memory while you are working.

The first type usually allow more records per file (sometimes only restricted by disk space) and if the power is cut there may be only one record change lost. Although these programs have the advantage of large storage capacity, they are usually slow when searching or sorting.

The latter type (memory resident files) are able to store less per file (the memory space is smaller than the disk space) but are faster at sort time. You must take care to save the complete file to disk before you switch the computer off. You should also force the program to save the file regularly during a work session because even the briefest power failure can vaporize all the modifica-

continued on p 20

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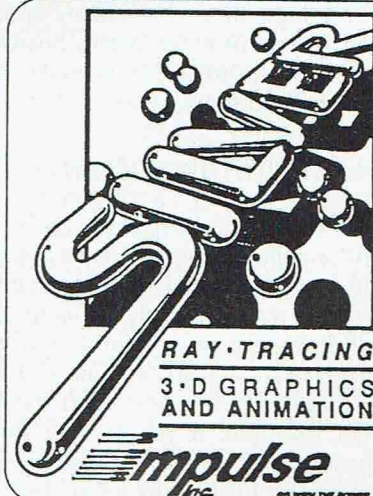
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Midi Interfaces

tions since the last save.

Modern database programs will usually prompt you to save the file when you quit if you have made changes. Some even interrupt with messages like "You have made 57 changes to this file, do you wish to save it?"

PART 2 - Using the file

So much of the information relating to using the database depends on the program you are using. In presenting this material I have attempted to clarify those points which are common to most of the packages available.

Sorting data

Most programs will allow you to sort the file using any of the fields as the key. Naturally, you choose which field you want here. It may be appropriate to sort using two fields. This case arises when you need major groups of data in a print-out and information within those groups also in order.

In order to obtain such an arrangement you usually need to sort the field of lesser importance first (ie "City") and the field of greater importance last (ie "Country").

This technique may not work in some cases, it depends on the sorting routine the program uses. Generally however, the principle to follow is "Sort the least important field first".

Finding Information:

Scanning

All database programs have the ability to search and find records. Some allow you to scan the whole file looking for occurrences of a certain word or words. If you use this feature then you will sometimes retrieve unexpected records.

For example, if you have a file of magazine articles about animals and you scan this file looking for all the occurrences of "fish", then you may find the program retrieves articles written by Joan Fisher because the word "fish" occurs in the author's name.

Likewise, scanning a file of people's names and addresses for someone

named "Brown" may well deliver all those people who live in Brown Street or Brownville as well.

Selecting records

Usually, searching is done by specifying a particular field by name, then selecting some sort of test, then typing a value or word for comparison. Sounds complicated doesn't it? Here is an example:

If you want to find people from your people file called "Brown" and that's all, then you would specify the selection by first choosing the "Surname" field, then setting the test to "equals" and finally typing in the comparison value "Brown". In this way you would have made a selection rule which reads.

"Surname" equals Brown"

Things can always go wrong. This test will NOT find those people with the name "Browne" or "Browning" or "Erskine-Brown". I find it safer to use the test "contains" in most cases. Specifying the rule

"Name contains Brown"

may deliver a few unnecessary records but you are more likely to find the person you want without having to go through the rule setting task more than once.

Consistent data entry :

For searching

Computers are high speed morons. They do what they are told with the information they are given. For this reason it is important to enter information in a consistent manner so that searching and sorting yields worthwhile results.

If more than one person will be typing entries into the database, then there will have to be some coordination so that they all use the same abbreviations and contractions. If you were searching for the people living in the state "N.S.W." in an address file then people will NOT be found if they;

- a) do not live in that state or
- b) the state has not been typed in or
- c) the entry reads "NSW" or "N.S.W" (without the final dot) or
- d) the entry "N.S.W." has been placed

in the wrong field.

You can see that there is a lot that can go wrong.

For sorting

In the computer's memory, lower case characters have different code numbers from their upper case equivalents. When the file is sorted alphabetically entries written in upper case will float to the top of that list.

People entering the data should be made aware of this so that they always enter the information using the same case.

This aspect of data entry is quite important when it comes to print-outs which calculate values based on alphabetical groups. The field to be grouped must be sorted alphabetically before the calculations will work and you will find that items like "school" and "School" and "SCHOOL" will form different groups.

Security

If the file contains important information or has taken a long time to develop then you must make backup copies regularly.

For example, most County Councils record customers' details on computer. The files could account for some tens of thousands of customers. They usually keep one set of disks on the computer, a second set locked in a fire-proof safe and a third set in another building! You may not need to follow their example to that degree but the principle is the same. Keep a backup copy in a different location and update it regularly.

Have you heard of computer crime? If you are recording sensitive or personal information then keep it away from unauthorized eyes. Sample print-outs thrown into the office tidy bin could be a source of information leaks. Use your own judgement on this aspect but don't neglect it completely.

Summing up

These days computer programs are fairly easy to use, and if all else fails you could always read the documentation accompanying the program.

d B M A N

Most computer users, be it in a business or hobby atmosphere, have a need for a good, dependable data base. As such, we are constantly on the prowl for a reliable product that contains both versatility and ease of use.

dBMAN comes with a pretty impressive reference manual. Their manual describes the various command syntax making it a bit easier to convert from *dBASE* to *dBMAN*.

The manual does, however, bring you through a quick tutorial teaching you how to create and manipulate a data base via the 'DOT PROMPT'. The Dot Prompt in *dBASE* is just that, a dot. *dBMAN* uses *CMD:* as their prompt. From here, you can access nearly all the power of *dBMAN*. It's a bit inconvenient, but it can be done.

Creating a data base couldn't be easier. Let's say you want a data base by the name of *MEMBERS*. To create it, just type *CREATE MEMBERS* at the *CMD:* prompt. *dBMAN* then presents you with a nearly self explanatory screen to specify the names, lengths and type of each field. Following the tutorial at the start of the manual will answer any questions you may have at this point. Now that your data base has been created, adding records requires two commands.

The first is simply *USE MEMBERS*.

The *USE* command opens the data base specified. The second command is *APPEND*. You will now be given a screen prompting you to fill in each field you previously specified. *^N* will bring you to the next record to be filled in, and *^S* will save your work. After entering your data, it can be viewed with *DISPLAY ALL*. Each record is then displayed on the screen in the *PHYSICAL* order you typed them in.

What? You want them sorted in some way? Well, here's where the headache begins. *SORTING*, or *INDEXING* is pretty simple to do, but the syntax is a bit odd for non-*dBASE* type people. From this point on, the ease of use begins to dissipate, for you must now begin to learn the lingo. For example, let's say we want our *MEMBERS* data base indexed (alphabetized) by last name. The command is:

```
INDEX ON LAST TO <index file name>
| / | |
Index command Field Name Name of new index file
```

Now, you must *USE MEMBERS INDEX <index file name>*. A subsequent *DISPLAY ALL* will display all the files alphabetized by last name. *BROWSE* and *EDIT* commands will allow you to perform various editing functions on your records. The syntax is a bit wordy from the dot prompt. For example to *BROWSE* (which will allow you to edit at the same time) a record with the last name of *SMITH*, the command is *BROWSE* for *LAST = "SMITH"*.

The *CMD:* prompt is really anything but user friendly. Keep in mind this is no fault of *VersaSoft*. All *VersaSoft* did was produce a *dBASE* compatible product. The less than friendly attitude of the dot (*CMD:*) prompt is all a part of *dBASE*.

There is a way around all these commands. *dBMAN* comes with an *ASSIST* file. The *ASSIST* file links you to *dBMAN* in a much friendlier way, complete with pull down menus to select various commands. There is no need to learn all the wordy commands as in the *CMD:* prompt. To get the *ASSIST* file going, you must type *DO ASSIST* from the *CMD:* prompt, or add *ASSIST* as an argument when loading *dBMAN* (*1> DBMAN ASSIST*).

Although *ASSIST* looks pretty impressive, there are a few problems. One of the selection methods for commands consists of touching a word or command with the mouse pointer and selecting it with your left mouse button. It works, but not always right away. At first I thought it was locking up my machine, for *dBMAN* just sat here and stared at me. But if I waited long enough (sometimes 30 seconds or more), the command would be executed. *VersaSoft* acknowledges this problem stating they are experiencing problems reading the mouse properly.

It is my opinion that *dBMAN* is *NOT* for the novice. Experience with *dBASE* is a **MUST**. A desire to learn *dBASE* with a few good examples and a few good books will get you going. *VersaSoft* agree.

Overall problems with *dBMAN* at this stage were very minor. Gurus were not experienced.

So now comes the *BIG* question. Is *dBMAN* for the **AVERAGE** user?

Amiga users need a powerful data base environment that can be expanded upon. It seems to me *dBMAN* is just that environment. Since the time I first received my review copy, I have begun to do some programming in *dBASE* (*dBMAN*). A quick trip to the book store gave me the needed books to teach myself *dBASE* type programming.

Between those instruction books and *VersaSoft's* *dBMAN* Reference Manual, I've experienced few problems. I would recommend to anyone who has an interest in programming data bases, go out and take some classes and start programming. The language is relatively easy and *POWERFUL*.

If you are strictly a user, I'd suggest keeping your eyes open for programs in the public domain or offered for sale that are written in

dBMAN. I predict a wide base of programs filling various needs to be available soon.

dBMAN lists at \$359.00

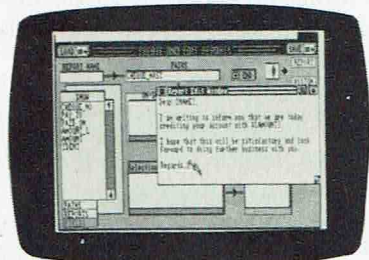
VersaSoft can be reached at:
4340 Almaden Expressway #250
San Jose, California 95118
408/723-9044

dBMAN is available from Computamart (020 328 9799 (see distributors list at the end of the Annual).

Acquisition

First impressions were encouraging. A well presented 300 page manual, two disks and ... a dongle?! Oh well, the price we pay to protect copyright. Everything was nicely packaged in a plastic cover.

I skimmed through the "Quick Start" chapter to get things going and the first hints of doubt crossed my mind. Maybe I had read too quickly but things didn't seem all that clear. I took a punt and fired up the Amiga with KickStart 1.2, threw a disk in each drive and scrambled my way through the



demo database. Very impressive. Icon driven graphics as a backdrop, even talks if you want it to. But . . .

After reading the manual from cover to cover, I read it again, and again! The more I read it, the more confused I became. I tried the "walk through" approach... read a chapter, try it out. It didn't help. There was no tutorial, no examples, just thousands of words from page one to the index.

I rang Commodore (*Acquisition's* Australian distributor), pleading for more information. An apologetic Matthew of Product Support sympathized and gave me the comforting news that everyone was having the

same problem. Mine wasn't the first call regarding *Acquisition*, and Matthew FAXed England for help.



Taurus must have been expecting the call. Within a couple of days assurances were received that an updated version of the program, another 200 (plus) page tutorial and application disks were to be released "soon".

In fairness to the software, I must mention that *Acquisition* appears to be a powerful piece of software that all serious users of the Amiga should consider. Some of its attributes are:

System requirements:

Amiga with at least 512K RAM and two floppy disk drives or hard disk.

Software specifications:

Maximum field size: 10 Megabytes
Maximum no. of fields to a record: 10,000,000
Maximum no of record to a file: 100,000,000
Maximum size of a file: 1 Gigabyte
Maximum level of sorts: 65,000
Maximum level of selection criteria: 65,000

Maximum no. of files in a system: unlimited

Maximum no. of paths attached to one file: 16

Maximum no. of files handled in one application: 16

Data types supported: alphanumeric, numeric, date, time, logical

Field formats supported: standard, clipboard, IFF image, customized

No. of memory variables: 65,000

Logical operators: AND, IN, NOT, OR

Arithmetic operators: +, -, *, =, %, ()

Relational operators:

==, <, >, >=, <=, <>

Acom (custom programming language) functions: over 200

Happy ending

Commodore Australia have now received the updated version of *Acquisition*, Version 1.3F, the manual has new and replacement pages, and there is a tutorial. The new version will be available to existing users.



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Desktop Publishing is on the move

Things are moving very rapidly on the Amiga Desktop Publishing front, and this article is an attempt to keep both you and me up to date.

The big news is the release of *Professional Page* by Gold Disk, those fine people who brought us *Pagesetter*, which is currently the Amiga's best offering in DTP - though I haven't yet seen *Shakespeare*, a package just released in the States. For those new to DTP, I would recommend a quick browse through the appropriate articles in Megadisc 1, 2 & 3, but here's a quick recap.

Pagesetter

Pagesetter is a low-cost, high-quality program which allows you to do most of what is currently possible on the very best DTP systems, which means: Apple MACs with *Ready, Set, Go* or *PageMaker*, or IBM/compatible AT's with *Ventura Publisher*.

Pagesetter is easy to use, easy to learn, and its presentation and style of use will be followed by *Professional Page* when it appears, meaning that you won't have to relearn the program.

For non-laser-printed output, *Pagesetter* is very flexible, will allow the use of any fonts for the Amiga, including public domain, Zuma Fonts, Calligrapher fonts and others. Many people are using it for local newsletters, forms, and other documents output on a good dot-matrix printer. Practically any printer can be accessed by *Pagesetter*, from desktop jobs right up to Laser Typesetters like the Linotronic Series (100 and 300).

If you purchase the *LaserScript* companion disk to *Pagesetter*, you will be able to use *Postscript* laser printers with *Pagesetter* - such printers as the Apple Laserwriter (Plus), the Texas Instruments Omni-

way using an Apple Laserwriter Plus and a Texas Instruments 2108, and the results have been excellent, and good enough for artwork/typesetting commissioned by printers. Note that *LaserScript* comes

with a *Makefont* utility which allows you to duplicate any laser typeface available in any size you like and use it for printing.

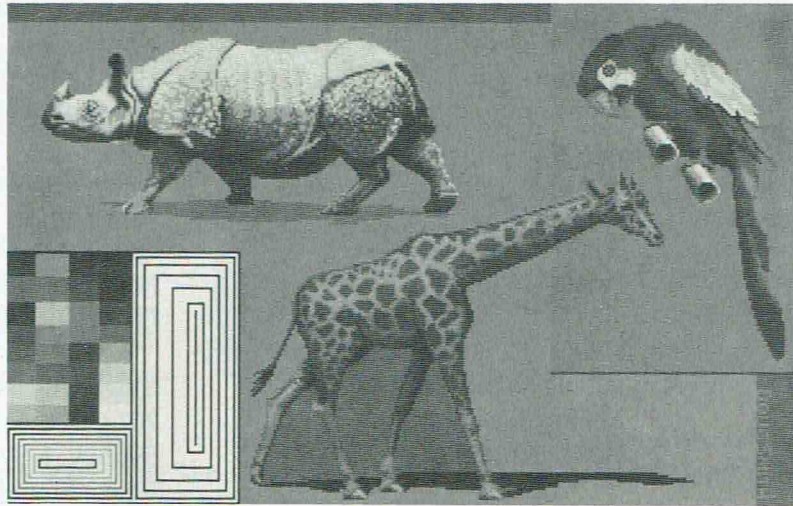
The main drawback of *Pagesetter* is the way it handles graphics. As it stands, any graphic, whether constructed in the "Graphic Editor" or imported from a paint program like *Deluxe Paint*, will only print out at a resolution of 72 dpi, because it is a

"bit-mapped image", ie, it is based on pixels. The printer output is chunky and jagged to say the least, and just not good enough for quality graphic output. The problem behind getting high-resolution graphic output on a Postscript laser printer is constructing the graphic in a "structured" form.

This means, for example, that a circle has to be described to the printer as a figure with a centre at a particular point and a radius so long, rather than in the normal way of a series of dots/pixels in a circle. This structured way of creating and describing graphics is the secret behind the *Adobe Illustrator* program on the Mac, which puts out such high res graphics. And this is what *Professional Page* will make possible, and rather more.

Professional Page

In *Professional Page* (PP), there is a graphic editor which creates



Created by and colour separations made by *Professional Page* - pity we can't show it in colour

laser series, the Qume printers, the Mitsui Ricoh and others.

Real Desktop Publishing starts with these printers and the Postscript Page Description Language, because the resolution available (300 X 300 dots per inch versus approx. 72 dpi for the average dot-matrix) and the various manipulations of pages that are possible allow for a near-typeset quality in the output pages.

If you intend to use a laser printer, you boot up with *LaserScript* as the system disk, so that the specially designed laser fonts in the fonts directory of that disk (Times, Helvetica, Courier and Symbol in 4 different font sizes 8, 12, 16, 24) are the ones you use in your documents.

Note that if you try to print a document with normal Amiga fonts they will appear at the low resolution of 72 dpi, not having been designed for the Postscript devices. I've done a lot of printing in this

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WE'VE GOT *THE MOVERS*

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structured graphics, rather than pixel-oriented or object-oriented figures, meaning that all such graphics will appear in the resolution of the output device - 300 dpi for a normal laser printer up to 2,500 dpi in the case of a Linotronic 300 typesetter. What's more, any IFF graphic imported from a "structured graphic" CAD program such as *Aegis Draw* or *Draw Plus* will also be output at high resolution.

This is a very powerful capability, because you'll be able to create a complex graphic in *Draw*, using all the powerful tools of that program, and import the whole thing into PP, where you'll be able to resize it and combine it with typeset text.

Furthermore, any graphic from an object-oriented program such as *Deluxe Paint* or in HAM mode (4096 colours) can be imported and its colours will be read by the program and translated into 16 gray scales, which is a lot. Such graphics will have near-photographic quality.

The icing on the cake is that Gold Disk is writing a module which will allow for 4-colour separations. That is, your colour graphic page will be

read by the program and four different scans will be read from the page corresponding to the magenta, cyan, yellow and black separations needed by printers to do full colour prints.

These graphic capabilities will put PP and the Amiga in a class of their own - such tools are being developed for the Mac, it is true, but unless you have a Mac II with colour monitor at about \$14,000, it will be just guesswork on a normal Mac to establish colours for the final artwork. And the combination of the Digiview digitiser with this DTP setup will mean that ANY image can be digitised as an IFF graphic, loaded into PP and output at up to 2500 dpi...in colour. Commercial artists and typesetters should beware, these are serious, low-cost tools.

PP will have other beefed up capabilities - more typefaces will be available to take advantage of the 13 resident typefaces in the Laserwriter Plus, and others will be developed; there will supposedly be text wrap-around of graphics (which *Pagesetter* doesn't do); text will be entered straight onto the

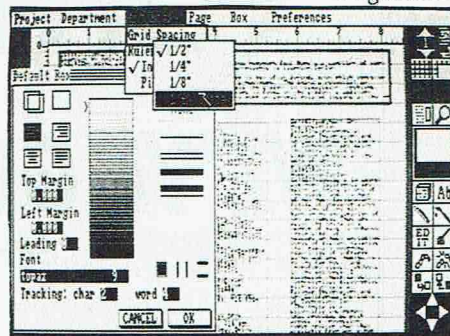
page.

All the signs point to a quantum leap in productivity on the Amiga in this particular area, just as other areas of application are rapidly developing a professional level of usefulness, in for example Animation and Music.

The Gold Disk company is to be congratulated on their efforts to turn the Amiga into a professional productivity tool - and I'm sure their efforts will continue as people realise the power of their products.

One drawback with *Professional Page* is the use of the hi-res interlace screen - it flickers quite a lot. This can be reduced significantly by changing brightness and contrast on your monitor, and/or getting a long-persistence monitor, and/or getting a screen for your screen (a slab of plastic will do).

Pagesetter



Laser Script and Pagesetter

The whole point of Laser Script is to add the capabilities of the Postscript page manipulation language to the page formatting talents of *Pagesetter*. PostScript has become an industry standard in a fairly short time, due to its portability across most systems and energetic marketing by Adobe, who developed it.

It is a programming language in itself, and its function is to describe in detail every aspect of the finished page - fonts, font sizes, position, borders, graphics, angling, etc - so that any laser printer with PostScript capability can read it and set

up the page as required.

Now there are some people who can and do actually program in this language, but you might have several pages of description for one page of output, and we average users are not about to get involved in that sort of endeavour. So the trend has been to pass a document from a DTP program such as *PageSetter* through another which "wraps" a PostScript "cocoon" around the document for handling by the laser printer. Seems nice and simple, and so it is.

The basic procedure is to import the document into LaserScript's "Standard Print" section, adjust your

page size with the mouse, choose the number of pages and copies required, and select the printing option.

If you're more adventurous, you can go to the "Custom Page Design Studio", where you can manipulate one or more pages separately or together for output to the printer. That is, you can take, say, three pages from any *PageSetter* documents, rotate them, shrink them, put borders round them, make them "transparent" or "opaque", and so forth to get all kinds of effects, for presentation, educational or other purposes. It's a matter of experi-

menting, as usual.

The results I got from an Apple LaserWriter were very sharp - the whites were white and the blacks were black, there were no jaggies at all, and the grey scale backgrounds were just as they should be. In fact, it was good enough for "camera-ready" copy, for a magazine or whatever purpose you might have, be it fliers, brochures or newsletters.

Any Postscript-compatible laser printer should work similarly, provided that the type faces loaded into it are the same as those provided on the LaserScript disc.

The first version of this has four different type faces: Helvetica, Times, Courier and Symbol, each in 4 font sizes, 8, 12, 16, 24. This is somewhat limited, especially for headings, but Gold Disk has a number of others on the way, which should be here by the time you read this.

It is worth keeping in mind when setting up a system that your software fonts must correspond with those loaded into the laser printer.

Most printers have extra cartridges of fonts which can be loaded into the printer - for example, the Hewlett-Packard Series II provides extra fonts at prices from \$300 to \$500.

The LaserWriter already contains about 11 of the most popular typefaces, and so handled the LaserScript fonts automatically.

It should be remembered that the Amiga "system" fonts, such as Topaz, Diamond, and so on, can not take advantage of PostScript, as they lack the necessary "metric" file - so if they are used, they will not have the 300 dots per inch resolution of the Postscript fonts.

The accompanying illustration shows most of the range of fonts available, and also shows how *PageSetter* enables any text to be given such effects as Bold, Italic, Shadow, Outline, and Underline, which is done by simple keystrokes embedded before and after the text which you want to affect.

If you want to print out graphics, they will be output as "bitmapped"

graphics at present, because the software has not been written yet to wrap a PostScript shell around graphics done on *PageSetter*. However, I'm sure that this will be available in the near future, just as the *Adobe Illustrator* already exists for this purpose on the Mac.

The only unfortunate aspect of all this is the prices - your Amiga will be a minor part of the cost of a full Desktop Publishing system, because a good laser printer with a number of fonts and sufficient internal memory (RAM) for full-page printing will cost. A Laserwriter costs approximately \$12000 fully set up, and a Hewlett-Packard Series II about \$10000 with 2 MEG of RAM, and a number of fonts.

One alternative is to go to a Bureau which does your printing for you, but you may have to take your Amiga with you, as few currently have an Amiga installed. This situation will undoubtedly change fairly soon, but in the meantime you will have to be resourceful.

City Desk

City Desk is much like other desktop publishing software now available, with just a few differences that set it apart from others. It provides direct support for the Hewlett Packard LaserJet+ and Series II laser printers. All the others "support" the HP LaserJet in that the printer driver is found on your WorkBench disk.

P City Desk will allow the user to use any printer in Preferences along with the LaserJet, but also defaults to its own built in LaserJet driver. The built in driver not only allows the user to access all the Laser's fonts and power, but prints a page of text in about 20 seconds or less.

This "text" page can contain 2 or 3 columns (or more) with boxes drawn around the text and drop shadows added. This appears to be graphics, but it is treated as text. A page with some graphics (10% or less, give or take a bit) will print in 3 - 5 minutes. The time required to print increases with the amount of actual graphics (IFF pictures) used.

A serious desktop publishing tool MUST be able to take advantage of your printers fonts. Using the Amiga's fonts with a laser printer results in nothing more than a screen dump, resulting in jagged print. That's fine if you're working with a dot matrix printer. Some of the fonts are optimized for a dot matrix printer. But if

you have a laser, the output is the same as a dot matrix printer, only a bit darker.

In other words, your Amiga with a laser printer and software that doesn't TRULY support that laser, is a large waste of money. *City Desk* allows the user to select Laser or Amiga fonts, and also allows for mixing the two on the same page. So if you have a special Amiga font that you want to use, you still can while using your laser.

Still on the topic of fonts, *PageSetter* allows for only one font per "box". Each box is placed on the page and then can be sized. The default font for the box is then selected. *City Desk* on the other hand,

uses a default font for its "box", but it also allows an unlimited number of fonts per page, box, or line. This is done using embedded commands in the text. *City Desk* has 57 different embedded commands for everything from defining the top and bottom margin to changing font types and sizes.

Two more powerful and helpful features of *City Desk* are its ability to print IFF colour pictures of any resolution (not HAM) in gray scales and its ability to "FLOW" text around graphics. *PageSetter*, as an example, requires all graphics be black and white and in 640 X 200 resolution. Using 640 X 400 and/or colour pictures will give unpredictable results. *City Desk* transforms IFF pictures to various shades of gray, yielding more pleasing results.

The text flow feature allows the user to place his/her graphics on the page, then drop in the text. The text will then "FLOW" around that piece of graphics. This eliminates the need to play around sizing boxes to get the text placed around the graphics.

If a user prefers to place the text around the graphics manually, then fine, it can still be done. The flowing text does have one drawback, being that the graphics must be to the far right or left of the page or box. If it is in the middle, the flow will be to the left leaving a gap on the right. In some cases this may be the desired effect, but in others it may not.

City Desk's text editor is rather weak at first look. The manual explains a survey was taken that showed a very high percentage of users already have a favourite text editor with which they are very comfortable. MicroSearch felt it would be a waste of development time to create a full featured text editor for which you would have to learn a whole new set of commands.

Rather than a full featured text

editor, they have an editor which displays the text on a single line with a slide bar to move from one point of your text to another. This editor is best suited for quick spelling changes, adding/removing embedded commands or things of this nature. Use YOUR text editor to actually type in the bulk of your text. *Scribble!* or anything with the ability for ASCII output works well, however *City Desk* does support *WordPerfect* files.

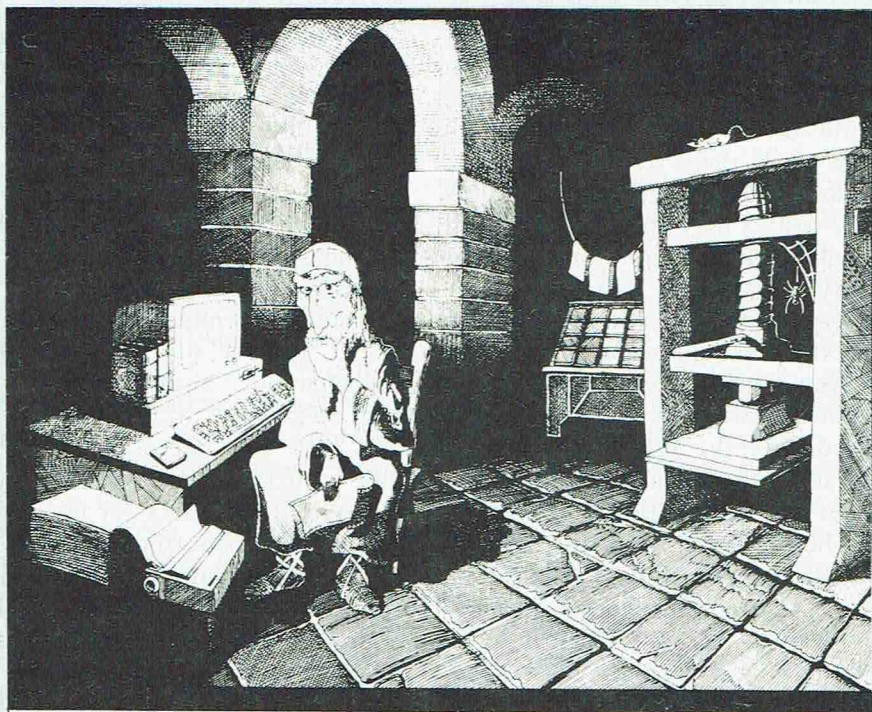
One feature that could have been added to *City Desk* is the ability to create templates and specify a template with the default page setting. This would be extremely useful when printing out a manual where the page size is less than 8 1/2" x 11". What is commonly done, is simply to create an outlined page with the borders set to the size of area the user wishes to confine his printing to.

Outside that area, the margins

are marked to indicate to the printer where the page needs to be cut in order for the finished product to be the proper size. Right now, the user has to draw those markings by hand on each page. That's not so bad unless you happen to be printing out a manual of 100 pages or so. MicroSearch explained they realize this would be a great feature, and hope to include it in a future update.

In conclusion, *City Desk* and an HP LaserJet+ or Series II will give you the professional output many users want while still possessing extreme ease of use.

(Compared with *Pagesetter*, however, the cheaper price reflects well the lower quality of *City Desk*. One would think that the expense of the laser printer would be reason enough to lash out on the best available software. - Ed.)



If Only Gutenberg had used City Desk...

Professional Page

When desktop publishing first started the number of machines and packages that could cope were very limited.

Matters have changed and there is now a wide range of machines and a far wider range of programs that will handle desktop publishing - to a greater or lesser degree.

The problem is that no-one is agreed where enhanced word processing ends and desktop publishing begins. For the record it is my view that very few programs give true desktop publishing. For the MS-Dos push - the IBM series and all their army of clones - there is *Ventura* and *PageMaker*. For the Macintosh there is *PageMaker*, *Ready, Set, Go!*, *Quark Express* and that is it.

On the Amiga 2000 it is perfectly possible to run *Ventura* on the PC side of the machine if you have the right cards inserted. It performs as to the manner born and for some time I have played around with it in this environment. But so far there has been no desktop publishing program for the Motorola chip side of the Amiga - the side where the fun and games lurk - which could be considered worthy of the name.

Now all that is about to change with the release of *Professional Page* from Gold Disk, a Canadian company.

This is a totally genuine desktop publishing package with all the speed and power of comparable packages on other machines. And, as we will see, in some areas it is ahead of the competition.

Professional Page follows the well-known Wimp interface which was originally introduced by Xerox at their Palo Alto Research Centre in California and later copied with great success by Macintosh *et al.*

The Wimp stands for windows, icons, mouse, pull down menus. It is now a very standard format and anyone who has any experience of desktop publishing will be able to use *Professional Page* with facility and ease almost without looking at the documentation.

When you first boot up you see a title bar with page number at the top of the screen, a boxed group of icons on the right hand side - the gadgets - and the rest of the screen is, effectively, your electronic layout pad. A running set of

figures in the top right hand of the title bar gives you a positive indicator of the cursor position, which is a great aid to pinpoint accuracy when placing type and pictures.

The gadgets, jointly and singly, allow you to perform all the functions of desktop publishing.

From the title bar you have a series of pull down menus which allow you to control the program.

The first pull down menu is "Project" which has the standard New, Open, Save, etc, instructions which allow you to control your files, start a new page, save, call from memory and so on.

" A genuine desktop publishing package with all the speed and power"

The second pull down menu shows the direction in which desktop publishing packages are developing. This menu lets you call up templates which is a style very much after the way *Ventura* operates. My guess is that desktop publishing packages without templates are going to have a hard time of it in the future. Because with templates you can keep all of your basic designs on tap.

In other words you can design a magazine, a page, a booklet - what have you - and keep all the basic underlying features as a template. Then, at any time in the future, you can drop in new copy, new illustrations and it will automatically be made up exactly to the original specifications.

With templates desktop publishing can be speeded up by an order of magnitude. As well, professional designers can produce a series of templates - they already have for *Ventura* - which allow you to produce superbly professionally designed output, extremely quickly and cheaply. Which is what desktop publishing is all about.

The "Box" pull down menu allows you to set up wrap-around text, add borders and many other design and typographical tricks.

An essential feature of this program

is the way in which it allows you to treat collections of boxes or text as a group and move them around the page. Using this feature you can get precise alignment of all the features within those boxes in a way that is almost impossible with some of the other free form programs.

The pull down menu "Text" allows you to use a word editor for making changes to the text. Although it is perfectly adequate it does not contain a spelling checker.

"Type" offers you kerning - the squeezing together of two letters for maximum optical adjustment, tracking - for moving letters up and down - hyphenation (sadly, American) and justification. You can also specify the type style, size and weight providing that type is available to you. It contains, in other words, all the tools a typographer would want.

Under "Drawing" you get the option to choose line weight, line pattern and fill pattern.

"Preferences" allows you to define the level of screen magnification, to select grids - the most essential adjunct to good and professional layout.

The gadgets down the side allow you to create boxes, to size, move and adjust them and to produce simple graphics. It even allows you to construct Bezier curves which means that an illustration - no matter how complex - can, with a little ingenuity, always be converted to a PostScript file.

From the keyboard there is access to a further group of commands, one of which gives you the power to insert an en, em or thin space for manual manipulation of lettering. A typographer's dream.

What this program has is, for my money, the best of the features available on all the other desktop programs. From *Ventura* it has templates, from *PageMaker* it has free hand capability, from *Ready, Set, Go!* it gets tight typographical control.

Pretty impressive. Now, if only they will do something about that damned flicker I can switch all of my publishing over to what appears to me an excellent desktop publishing program.

Gareth Powell

External Drives

Every Amiga user will eventually need two drives. To make a BACKUP of valuable disks, use complex software and enjoy the true power of AmigaDOS, two drives are essential.

The range to choose from will vary from state to state. Commodore offer their own drive, the A1010, which retails for \$499. It draws a small amount of power when compared with some other units. The main drawback is the bulky size and footprint on your desk top.

Alternatives exist, although not all match the beige coloured casing quite as well as Commodore's own. A few are smaller, and slightly faster. However, speed difference will probably be of no consideration. Most units run with such a small fraction of difference that there is no value in comparing the margins.

Price and quality are the key factors. A sturdy, metal case may be desirable if you plan on moving your gear around. In that case, also check for properly secured leads, at both the connector and disk drive ends.

D-Tech Systems

One manufacturer in particular, D-Tech, offers a strong range of drives. D-Tech is also well committed to further development of Amiga product in general.

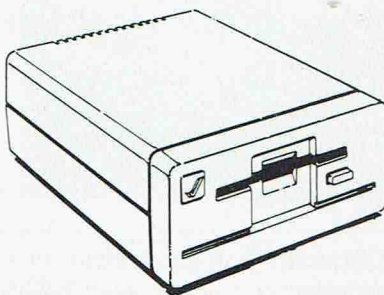
We tested three of D-Tech's drives.. All were solidly built and well made. Ribbon cable was used for the main connecting line, anchored inside your typical Dick Smith type 23 pin socket. None of the drives allowed daisy chaining, something which few Amiga owners seem to be requesting.

All have solid metal cases with a push type drive door mechanism, much the same as the smaller drives found in the Amiga 2000. Of the single drive units, one was shorter, but

higher, whilst the other slimline version was slightly longer. This lower profile model enabled D-Tech to produce a dual drive which stands only slightly higher than Commodore's single drive!

All three units performed well. Our favourite was the dual unit, which is a very practical addition to your system.

All units use the NEC FD 1035 drive mechanism. The half height version also boasts a head load mechanism, which means the head



remains out of contact with the disk until it is in use.

Both versions of the single drive sell for \$349. The larger dual drive is \$595.

Future plans for a 5.25 inch unit exist, which will have a pass through socket to enable a 3.5 inch drive to be simultaneously connected. This unit will be similar to Commodore's 1020 drive, to be released soon.

For further information contact D-Tech Systems, Unit 6, 5 Pitt Way, Booragoon, WA 6154. Phone (09) 330 6663.

Diskworks

Two versions to choose from, both competitively priced. Using a metal case, and round cable with D-Connector, the drives look a part of the Amiga. They also boast a twelve month warranty.

The base model uses a one inch high, slim line fujitsu (copal) mech-

anism. The drive features a low power drain wait state. In english that means if it ain't doing much, it don't use much power. This is a good thing for Amiga owners finding that power is hard to come by.

Further more, for real hard cases, an optional connector is provided for the attachment of an external nine volt power supply. Recommended retail is \$349.

For serious users, Diskworks have the Tri-drive. It comes in a variety of configurations, with either one, two or three drives. An optional external power connector is available. For the musically minded, a midi-interface sells for an additional \$30.

If you want cheaper storage, an additional 5 1/4 inch drive may be added externally using a 34 way connector on the rear of the Tri-drive. The drive itself will be available in early '88. A switch allows you to select between one of the internal drives, and the external 5 1/4 inch drive.

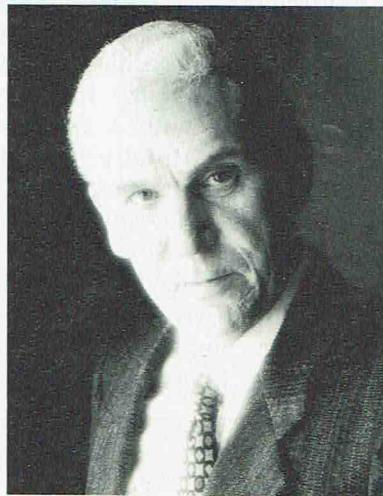
Your configuration will cost \$369 for one drive, \$729 for all three. All models available from Diskworks, 8/5 Greenwich Rd., St. Leonards, 2065. For information phone (02)436 2976.

Conclusions

Various other organisations offer drives from time to time. Stocks tend to be limited. Real bargains can be found by perusing the Bulletin Boards. Many hobbyists have discovered it's possible to construct their own drives with a fair saving.

Amiga drives use commonly available drive mechanisms. However, the additional electronics, cabling and case add to the price considerably. For most users, a reliably built factory made version is the best bet.

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Bard's Tale

In this midst of the growing sea of Amiga entertainment software is the usual mass of fantasy-role playing games and adventures. *Bard's Tale* represents a high quality, well written game that would satisfy both the avid adventurer and role-



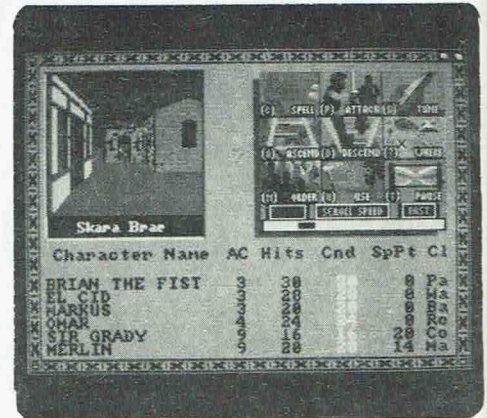
playing fanatic.

The game features 3D Views of both dungeon/castle scenes and scroling city map. 85 Magic spells are enough to fulfill anyone's taste for

the arcane, the sixteen different mazes make the game a challenge not just an exploration. The variety of monsters, traps and specials also make *Bard's Tale* far from a straight maze-game.

Long ago, when magic still prevailed, the evil wizard Mangar the Dark threatened a small but harmonious town called Skara Brae. Evil creatures oozed into Skara Brae and joined his shadow domain. Mangar froze the surrounding lands with a spell of Eternal Winter, totally isolating Skara Brae from any possible help. Then, one night the town militia-men all disappeared.

The rescue of the town is up to you. A setup of six characters, each of which can come from various races including Elves, Dwarves and



Gnomes, set out on an adventure of epic scale to destroy the evil Mangar. Your task is by no means simple and many perilous obstacles lay in your path. Good luck'.

Published by Electronic Arts.
Distributed by ECP.

Starglider

For the best 3D vector graphics these eyes have ever seen on a computer, fast-action flying sequences more demanding than those seen in *Top Gun*, then *Starglider* is it, and it is sure to impress. The sound is truly amazing, complete with digitised song at the start of the loading sequence.

All resistance is gone, you are the only force left that can have any

chance of saving your home planet. You fly an ancient assault unit that has surprising speed and unbelievable maneuverability. Surely with the aid of surprise you have some chance to outwit and destroy the enemy.

However, there is the question of fuel for your ancient warship, where to find an energy pod for a ship that is generations older than you. As you

can see, this exceptional game has more problems than meets the eye. It is by no means a mere shoot-em-up game, it is probably the best piece of entertainment software for the Amiga. If fast complex game play is your desire, there is none to compare with *Starglider*.

R.R.P. \$79.95
Published by Rainbird.
Distributed by Ozi Soft.

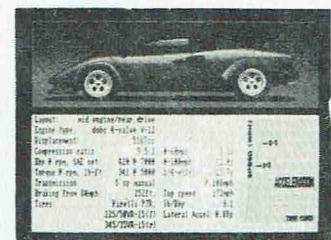
Test Drive

Has it been your dream to drive a Lamborghini Contach or Porche 911 turbo? Its been mine. Now's your chance - sit behind the wheel of a Ferrari Testarossa or perhaps a Lotus turbo is more your style. You have the opportunity to drive five of the world's most exotic cars with Accolade's *Test Drive*.

One of the best (if not only) car

simulations on the Amiga. The sound is very good with an authentic "feel" to the drive up the winding mountain path. Before you test drive your new Exotic, all the specifications are shown with a top little animation of the prospective car.

The game overall lacks some variation in scenery and events, it



would have fantastic to have seen a selection of tracks and perhaps a race mode - alas we can only play

what is available, and this is the best around.

The game has some definite good points which should be noted. Sound is impressive as mentioned before, also the dashboard graphics are so realistic that you can almost smell the leather (or so says the packaging). If your software collection desperately lacks a driving simulation then this is for you, but if you can hold on then it's probably worth the wait.

R.R.P. \$49.95

Published by Accolade.

Distributed by Ozi soft.

Emerald Mine

Although likely to be launched under the title of *Gem Hunter*, this game is a super version of the C64 classic, Boulder Dash. The Amiga version is by no means a simple upgrade. The graphics, sound, and animation are right up to scratch.

For the uninitiated, the object is to collect a set number of gems each frame. Only part of the current level is displayed at a time. As you move toward the edge of the screen, new areas are scrolled into view.

Various obstacles block the way of your courageous little man. Yummies, Beatles, Bombs, walls (visible and invisible) and doors requiring keys make Boulder Dash a mini-adventure. Game play is brilliant.

The best feature is the ability to design your own levels. We spent a good two days testing and playing one of our own home grown mind teasers. The designer allows control over many aspects apart from the actual appearance of each level.

Special features include mould, which has a growth rate that you preset. When a beetle touches mould it will explode and turn into something else - preferably more gems. It's impossible to describe each level, as they vary immensely, and our disk had over 65 to play with. Many of these had been altered by previous players, making for some interesting variation. Captivating, entertaining play in this edge of the chair classic. Publisher and Distributor unknown.

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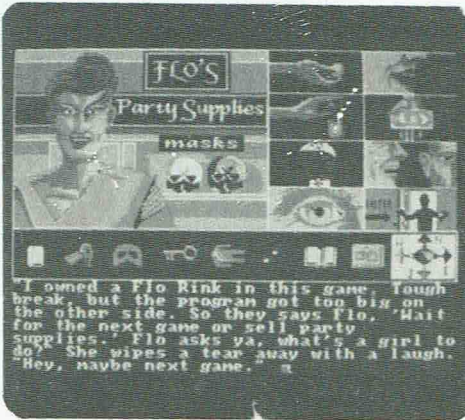
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Tass Times in Tone Town

Here's an adventure with a twist. Rescue your grandfather, not from some sunken cave or future land, but the flunky world of Tone Town. Meet interesting people, like Mr Alligator, the hair dresser, a rock concert manager, the newspaper editor, and eventually track down the whereabouts of your pa. To get to this land of wacky colours and creations, you need to take a trip through a hoop... Sound fun?

A split screen displays graphics and text, with many commands accessible by means of mouse movements. The game play is quite good, and



the plot is very enjoyable. Graphics are excellent. And a few tricks and

traps will require a good degree of thinking.

For the first time adventurer, there's plenty to get your teeth into and be immediately intrigued by the unique scenario. Experienced players will equally enjoy the speed at which the game unfolds, and the depth of seemingly obvious problems.

Enjoyable, even if a little frustrating in parts. Truly Amiga in look and feel. Published by Activision distributed by Imagineering.

R.R.P. \$67.00.

Alien Strike

Watch out.. "US Critical, Aaaaugh SPLASH... Kaboomm" and so the sound track goes to this blast'em super action special. It's you versus the Aliens, or another player, or even the computer

out. The weapons are lasers and guided missiles. The result is total panic, for both players. A very radical game if you're into shoot-em-ups.

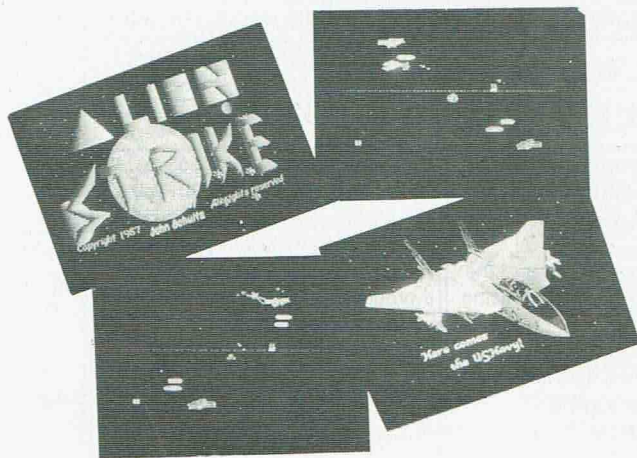
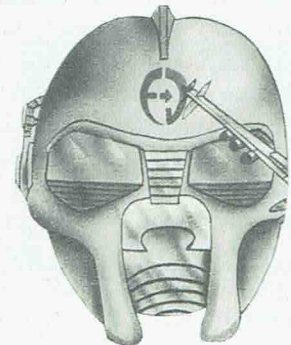
Graphics are ho'hum.. but the sound effects, digitised as they are, and game play, are excellently put together. Various aspects of play can be controlled from the option's menu at the start of play. Then the simulation begins. Four scenes follow, each with an additional craft introduced.

At first it's just jet to jet, or players may choose to use a chopper. Missiles are launched by pressing on the button, and pulling backwards. The target is se-

lected by pressing a key on the keyboard. Later in the game when you have four craft on your side, you can control any of them, by selecting the appropriate key. And you can launch missiles from any of your craft, to any of the opposition's, once again by selecting the appropriate key. Auto pilot comes in handy.

R.R.P. \$39.95

Published by Diamond
Distributed by OziSoft.



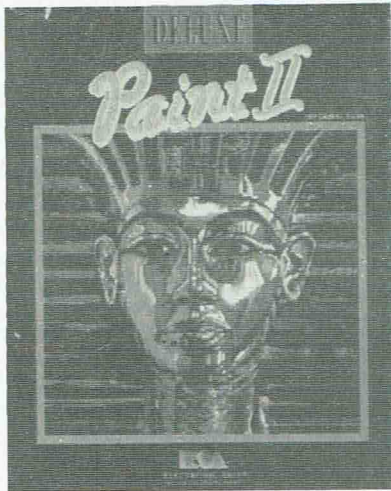
against itself. A one on one, aerial view of a battle at sea.

Below you the frigate, battle ship, aircraft carrier, and jet or helicopter battle it

Amiga's amazing graphics

In 1980 as an art student I had my first "brush" with computer graphics. Fearfully I sat down at a college terminal and flicked polygons around the monotone screen with a light pen. That is until, for some unknown reason, the system froze. I, of course, froze with it, left the technocrats to fix things up, and sneaked back to my oil paints.

Now, seven years later, when I sit down to a computer, it's nearly always to do graphics, and it's with a sense of pleasure rather than trepidation. Today the sheer variety of things that can be done with computer graphics is astonishing. For example there is computer aided de-



Deluxe Paint II

sign, animation, paints and ray tracing as well as digitization. All this, and more, can be done with the Amiga.

There is little doubt that the Amiga is the machine of choice for the serious graphics user with a limited budget. No other computer anywhere near the price offers 40% colours, four screen resolutions and a dedicated graphics chip. Further, the system is expandable from 512k to a whacking 9 megabytes. As many graphics applications are memory intensive, this expandability is

very much a plus for the Amiga.

As well as these features the Amiga is easy to use and has an excellent user interface in the mouse which translates its movement to the screen in a very direct fashion. Multitasking is another great feature, you can for example, especially with extra ram, run two or more graphics programs at once.

To digress, it is possible to design icons on *Deluxe Paint* using a P.D. program called *Zapicon* to convert brushes to icons. The icons however usually need cleaning up and it is easier to do the final adjustments in *Iconed*. This is much quicker if you run *Dpaint* and *Iconed* at the same time. This may not work with a 512k machine but you can always try.

Lastly most software developers have conformed to what is known as the interchange file format (IFF). What this means is that you can swap picture files from one program to another as long as the files are IFF. Find out if the software you are interested in supports IFF before you buy it. Life with the Amiga is much easier if it does.

Software

Since the Amiga hit the market there has been a proliferation of graphics software. There is absolutely no truth in the rumours that unbelievably still abound that there is no software for it. So let's look at what's available.

Paint

Undoubtedly the king of the paint programs for the Amiga is *Deluxe Paint* from Electronic Arts. Owning an Amiga without a copy of *Deluxe Paint*

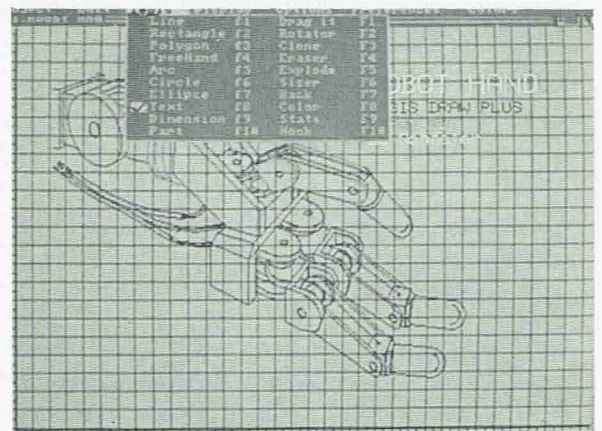
(*Dpaint*) is like having cornflakes without milk, it is the computer paint program par excellence. *Dpaint* supports all four screen resolutions and allows a maximum of 32 colours on screen at one time. You can flip to a spare screen and make user defined brushes without a visible window around them. You can make pattern and spread fills.

You can stretch, bend and change the size of your brushes. You can cycle colours, merge pictures, and on and on and on. You have probably realized by now that I like *Dpaint* very much. It is in fact my graphics standby program and apart from HAM (more on this later) images almost every picture I do goes to *Dpaint* at one time or another.

Aegis Images is another good paint program but since *Dpaint1* was upgraded to *Dpaint2* *Images* has been largely superseded. Also available is *Graphicraft* which is ok for the kids. Another paint program worth a mention is *Easyl*. *Easyl* accepts input from a touchpad and stylus rather than the mouse, which may suit people who have difficulty drawing with a rodent.

Computer Aided Design

Computer Aided Design (CAD) software differs from paint software



Aegis Draw Plus

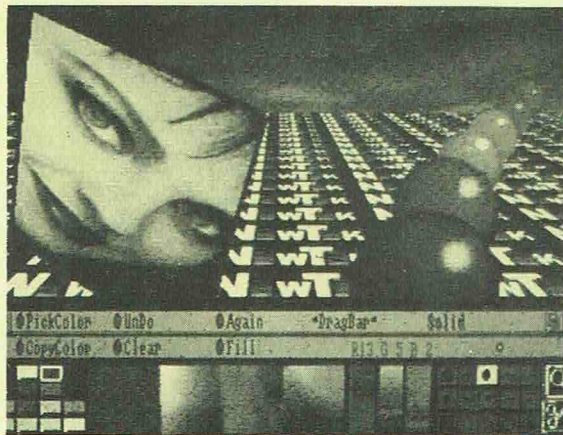
in a number of ways. The screen display of a CAD program is strictly diagrammatic and the dimensions of the drawing are of prime importance.

The difference between CAD and Paint is best demonstrated with the use of the magnification tool. In a paint program this tool simply enlarges the pixels, there is no increase in resolution. CAD programs do not magnify the pixels but increase the resolution, keeping track of the smaller increments of scale as the magnification increases.

Aegis Draw seems to be the most popular CAD package for the Amiga, but before rushing out to buy a CAD program take time to consider that you will need extra memory and a plotter rather than a printer. As well as these, a high resolution monitor would help as the standard Amiga monitor has a pronounced flicker in the hi-res mode. There is a CAD program on the public domain called *Mcad* (AmigaLibdisk 74) so check this out first before investing all your dollars.

Hold and Modify

The Amiga's exclusive HAM mode allows the use of all 4096 colours on the screen at the same time. There is a price to pay for this how-



Digi-Paint

ever. The problem is that inbetween colours occur, unless the colours are closely related this produces an effect called fringing. Fringing can be minimized as you can define sixteen colours which work "out of ham" and do not display this effect.

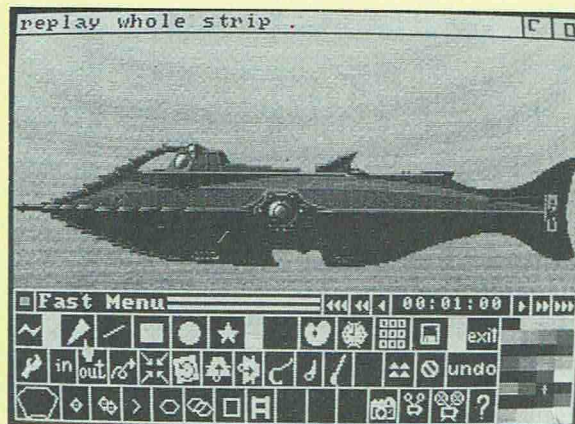
To my knowledge there are two HAM paint programs available, they are *Prism* and *Digi-Paint*. *Prism* is interesting but *Digi-Paint* is terrific. *Digi-Paint* is great for creating spectacularly coloured images and is ideally suited for the retouching of digitized pictures. It supports a large number of drawing modes and can be used in lores and interlace. For a more detailed description of *Digi-Paint* see my illustrated review on Megadisc4 which will be available by the time you read this.

Animation

There have been some fine animation demos for the Amiga since its release. Hardened Amigaphiles will remember the bouncing ball and the juggler. More recently a ball juggling three unicycles and a cat walking in a frame which in turn revolves round and round are destined to become classics.

These demos are usually produced by experts, but there are available a number of animation packages aimed at the average user.

On an entry level there is *Aegis Animator* which comes packaged with the *Images* paint program. This is really good value for those starting out. The animation process is very di-



Aegis Animator II

rect and the program supports 32 colours also the manipulation of objects takes place on the screen rather than in an editor.

Electronic Art's "*Deluxe Video Construction Set*" is now available in its second version. A more complex program than *Aegis Animator*, *Deluxe Video Construction Set* features a large library of primitives and also supports sound.

More recently Aegis has released *Videoscape 3d* which looks interesting. This software supports a 3d object editor as well as the means to animate these objects.

Forms in Flight is similar in its approach but it has an unfinished feel to it and is prone to the odd visit from the guru. In fact, a couple of times while using *Forms in Flight* the program just seemed to disappear from the computer. I even found myself looking under my desk for it, so completely did it vanish. Stupid but true.

There are also file flippers available which simply load as many IFF pictures as they can into memory and simply flash them on to the screen one after the other. Obviously the more ram the better for this process.

Okay there are lots of animation tools out there so let's see some more of those demos!

3D

Programs which are capable of three dimensional rendering are a relatively new development in the computer world. It is to the Amiga's credit that there are already a number of programs available which are capable of three dimensional work.

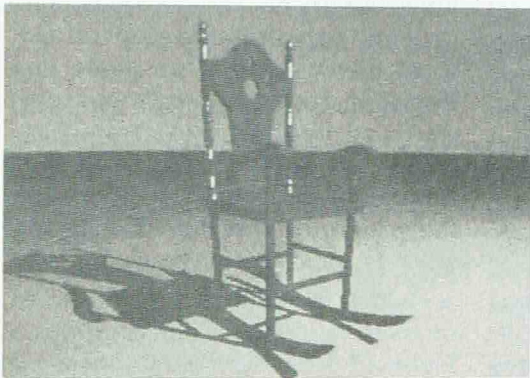
Essentially there are two types of 3d rendering. The first is a technique where a "wire" frame is created and the surfaces are filled in from point to point, line to line. *Video-scape 3d* and *Forms in Flight* are programs which use this method of rendering.

To my mind though, by far the most exciting technique for 3d computer graphics is ray tracing.

Ray tracing is simply a method of recording the paths taken by light rays around a predefined space. Ray tracing creates a little universe all of its own with a surprisingly realistic appearance. Mirrored surfaces are easily rendered and textures and colours can be easily changed.

For the Amiga there have been a few user unfriendly programs on the public domain but now there are two notable packages commercially available. They are *Silver* by Impulse and *Sculpt 3-d* from Byte by Byte.

Silver combines ray tracing with animation and is capable of generat-



Sculpt 3-D

ing complete screens, in HAM mode, in as little as twenty minutes. This is very fast for a ray trace program. It only supports rectangles, spheres, triangles and tubes though, but for buffers, null points and hierarchical boundings are possible. I must admit that I have had all sorts of problems with the file management system of this program also the manual while mostly ok has some glaring inconsistencies and errors. In spite of its shortcomings, with a little perseverance and imagination fine work can be created with *Silver*.

I have yet to experiment with *Sculpt 3-d* but have been informed that while somewhat slow it is a fine program indeed. It is possible to create more complex objects than it is with *Silver* but *Sculpt 3-d* does not support animation, rather it is designed for the creation of fine 3d renderings.

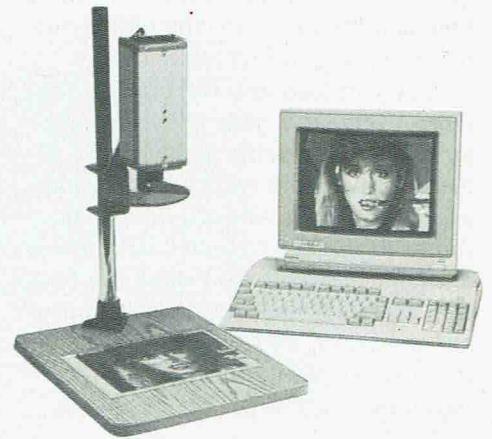
If you buy either of these packages be sure to register for upgrades as subsequent releases are sure to be an improvement and new ways of speeding up the image generation time are always being found. Also both programs require at least a megabyte of ram.

One more point to consider is that *Sculpt 3-d* generates its images as a background process whereas *Silver*, when generating takes over the machine.

Image Processors

There are a few software items around that are designed to make global changes to graphics. *Butcher* and *F-Pic* are typical.

Butcher allows you to convert HAM to 32 colour and vice versa, it has pixelization routines and performs edge defini-



Digi-View

tions with various degrees of success. It also enables you to chop back the number of bit planes, do histograms and reorganize the palette of your picture.

F-Pic is a public domain program which is specifically designed for the manipulation of digitized monochrome images (*Digi-View* version 1 only). Being a bit of a computer anarchist though, I have found that amazing effects can be achieved by running some of the routines on 32 colour graphics. *F-Pic* is in fact a small wonder, and for the price of a disk amazing value.

Digitizing

Amiga graphics would not be quite what they are if it wasn't for the *Digi-View* hardware/software combination from New Tek. Simply by plugging a little box into your printer port and connecting it to a black and white video camera you can take images from the real world and viola, there they are on your screen. *Digi-View* supports HAM as well as 32 colour and works in all four screen modes. It's worth noting though that a lot of time needs to be spent on each image to get really good results.

Digi-View with a camera is

quite an expensive proposition. If you lack the funds for the whole outfit try buying the software only.

You can load any IFF graphic into *Digi-View* and you can fine tune your pictures with a degree of finesse impossible with other packages. The controls allow you to adjust the RGB values, contrast, brightness and sharpness. It also does the best conversions from HAM to 32 colour of any program, try doing a conversion in *Butcher* and then one in *Digi-View*, the difference is incredible.

Output

The greatest problem by far for the budding Amiga artist, is that of hard copy. If you are looking for high quality hard copy in colour, and have only average means, then forget it. There is just no way of getting it. Oh yes, I know there are printers available that print in colour, but my experience with all these printers is one of disappointment.

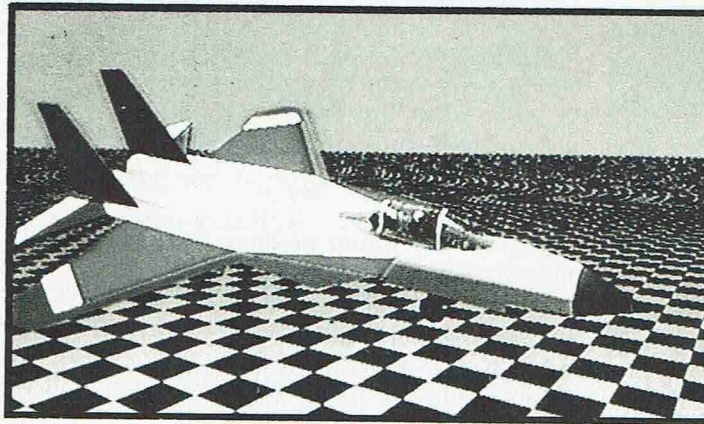
Especially when the output is compared with the image on the screen. Basically the problem is that the image on the monitor is composed of light, and when transferred to the always flimsy paper of the printer, the image loses its brilliance. The best colour prints come from high quality ink jet printers, but I have yet to see any print from a colour computer with sufficient quality to be considered a fine print.

So come on you hardware developers, how about a complete rethink from the ground up. We want an inexpensive colour printer that does the following: Prints 60 x 60cm images on heavy paper, provides antiali-

asing, airbrushing and dream, dream, dream!

Another method of getting hard copy is with a camera. You can buy expensive boxes which are designed to produce high quality slides of your graphics. Also with careful setting up you can get reasonably good slides from your screen with a 35mm camera.

A few tips for doing this are: Darken the room, make sure you use a tripod for the camera, be sure the camera is square onto the screen and shoot at less than 1/30 sec. Finally you can eliminate scan lines by putting the computer into interlaced mode.



Animate 3-D

Video

You can pass video signals to and from your Amiga. The Genlock device enables you to take video output to the computer, and there is video output socket on the back of the console. I have heard that the quality leaves something to be desired, but for those interested in animation worthwhile experience can be gained just by having an Amiga, an animation package and a VCR. Surely this is the least expensive method of computer animation

available.

Conclusion

Both traditional and commercial artists are still showing resistance to computers as tools of their trade. Machines like the Amiga are helping to break down the barriers, and more and more creative people are using computers as an aid to their work.

Graphic experimentation can be carried out far more quickly using a computer than any other method and soon a computer will be as indispensable to the artist as a word processor is to the writer. Computer graphics won't necessarily be an end in themselves, but rather a means to an end. A kind of high tech sketch pad on every artist's desk.

There is still much to be said about the wealth of graphics applications such as games and the great look of software programs thanks to the excellent capabilities of the Amiga.

Dollar for dollar, the Amiga is simply the best value for computer graphics around, in fact it is far superior for this purpose than many machines at two or three times the price.

If you like computer graphics and want to have some fun along the way then get an Amiga, some software and fly.

See the Software Guide in this Annual for distributors and prices of the programs mentioned, also for other graphics software.

Amiga screen 'Wobble' in Interlaced Mode

The reason that the image on the 1081 monitor wobbles up and down slightly in high resolution mode is shrouded in a veil of technical mystery. To understand why it happens on the Amiga and not on some computers requires another lesson in television theory. (Have a read of the explanation on Genlock first.)

Before we discussed that a television picture is made up of frames. Television transmissions have 60 frames a second. This means that each frame is displayed for such a small length of time that the eye cannot detect their separate existence. The eye perceives the television picture as a moving image, even though the picture is made up of individual still frames.

The lines that make up each frame are not 'written' on to the phosphor in straight sequential order. The electron beam scans the height of the tube twice for each frame it displays. Starting at the top it writes every other line, until it gets to the bottom. The beam then jumps back to the top and fills in all the lines that it missed out. This mode of operation is called interlace mode.

The Amiga was designed so that each of its graphics modes could be displayed on a normal television set and recorded by a home video recorder. This meant that some compromises had to be made. Normally computers do not take advantage of the interlace mode that televisions use. They opt for non-interlace mode where the whole frame is scanned in one pass.

Computers are programmed in terms of pixel resolutions. A pixel is a computer buzz word that refers to the smallest dot or Picture Element that the programmer can control. This is why the Amiga has several



'Graphics resolutions', 320 by 200, 640 by 200, 320 by 400 and 640 by 400. These numbers are the number of pixels that the programmer can control in each frame.

With 320 by 200 mode the programmer can control 320 dots horizontally by 200 dots or pixels vertically.

To send these pixel figures out to a normal television that operates on 625 lines per frame, computers have to make up the difference between the number of pixel lines the computer uses (internally) and the number of scan lines required by the television. To do this the computer sends out the same information for the odd and even scan lines for the computer's pixel area and makes up the difference by adding a border of blank lines to the top and bottom of the picture. Thus internally the computer thinks in terms of (roughly) half the number of scan lines required.

Using this doubling-up technique we can quite happily display 200 pixels vertically on an interlaced monitor or television. If you want to display more than this figure, say 400 pixels vertically, there are not enough scan lines in the picture to allow for the use of the doubling technique. This is because a television picture is made up of 625 lines,

so to display 400 lines using the doubling-up technique would require at least 800 scan lines per frame.

There are two ways to overcome this problem.

The first is to increase the scan rate and still use non-interlace mode. Computer monitors are generally designed to work in this non-interlaced mode. This means that if you ask the monitor to work in non-interlace mode and display those extra lines, it has twice the number of scan lines to display in the same amount of time, so it must work twice as fast.

A normal monitor designed to show up to 200 pixels vertically (non-interlaced) would have a scan rate of about 15 KHz. A monitor to cope with 400 pixels vertically (still in non-interlaced mode) would have to have a scan rate of about 30KHz. This works but has a number of drawbacks. The signal can not be displayed at all by a normal television or monitor, as the scan rate, the number of lines scanned and the interlace mode are incompatible. As well as this a monitor designed to work at 30KHz as opposed to 15KHz generally costs twice as much.

These are the reasons the Amiga designers decided to implement interlaced mode to display 400 pixels vertically. In other words, each line

sent out by the Amiga is different, thus allowing 400 lines to be displayed on standard televisions and monitors. For interlace mode the Amiga operates at 25 frames a second. This rate unfortunately is not fast enough for the eye. The eye can detect the two halves of the frame.

These being the two passes the electron beam takes to display the frame. Most lines that televisions receive would rarely be smaller than about 10 scan lines in height, so

we do not notice the 'wobble'. This theory can be tested by drawing a picture on the Amiga in high resolution mode making sure that any horizontal line is larger than one pixel. To add to this problem most monitors are not designed to cope with the sharp lines that can be drawn by a computer. This adds up to the 'wobble' that is present when the Amiga is used in interlaced mode.

To get over this is fairly simple. If we remember that the 'wobble' is

caused by the image from half the frame fading before the other half is written, we can attack the problem from the monitor angle. It is possible to make phosphors that do not fade as quickly as normal phosphors. Using a monitor made with these phosphors removes the flicker problem. These monitors are known as 'Long Persistence' monitors.

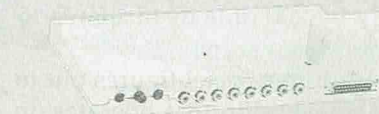
What is Genlock?

GENLOCK is the name given to a facility, not a device. The Amiga is able to use Genlock applications with the help of an add-on device which attaches to the rear panel. To explain further it is necessary to examine first a how a television picture is produced.

A television picture is produced by a scanning beam of electrons. This beam passes across the back of the picture tube, lighting up the coloured phosphor coating. The beam scans from left to right, moving down one line at the completion of each pass.

From this comes the term 'scan line'. A set number of these 'scan lines' are needed to make up the picture. Our television system in Australia uses 625 lines. A set of scan lines which would fill the screen are called a frame.

By playing different frames one after the other in quick



succession the effect of motion is achieved. This is the basic theory behind the television.

Fading or mixing video images is achieved by making up a complete frame of scan lines from a number of different input sources.

To be able to perform this mixing and fading, the video mixer must be able to identify the first scan line from each of the sources. In fact the signals must be in synchronization with one another. By having a common signal to provide a synchronization pulse, this can be achieved.

This synchronization

pulse is usually provided by the mixer itself or by a separate device. A device can be said to have Genlock if it can accept synchronization from an external device with which it can generate its video output in harmony.

A Genlock feature is required on any video equipment when more than one video source is being manipulated. Back to our example of the video mixer with the two incoming signals.

In this configuration both the mixer and the two sources are in synchronization with each other. This allows the mixer to perform its job correctly.

For further information we suggest you contact Neriki Enterprises on (02) 957 4778.

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Guide to Hard Disks

Once you've been treated to the delights of hard disk power, you'll never think in terms of floppies again.

Four units graced the stage for a line up of the meanest, toughest, collection of drives you've ever seen. All look like they're built to take it. Strong metal casing, with chunky rubber feet give sturdy look and feel.

(Of course, hard disks are inherently fragile and best treated with the utmost care and respect.)

Connections

All but one of our test drives connected via some form of controller or interface to the bus expansion port. The Multisoft Fast Drive 100 is unique in that it plugs directly into the parallel printer port.

Disk mechanisms used are standard, readily available and serviceable units. Usually the controller used conforms to the SCSI (Small Computer System Interface - pronounced "scuzzy") standard. Abiding by this standard is one way of ensuring future compatibility, as the SCSI way is likely to become increasingly popular.

If you already have a device connected to the bus expansion, such as a RAM expander, you'll connect the disk controller or adaptor to the bus pass-through.

Failing that, connect the disk interface first, and your original device second. Try not to get caught with two non-pass through expansion devices. A few of the earlier Amigas had some problems supporting two devices on the expansion bus. Although unlikely, contact Commo-

Table 1.
Fish Disk Tests
Written By Rick Spanbauer.
File read and write measurements are in bytes per second.

Device	DF1:	RAM:	C Ltd.	Fast Drive	Expan. Systems
File Creations	0.1	5	6	7	6
File Deletions	1	10	10	15	15
Directory Scan	36	5	51	39	51
Seek / Read	17	51	55	33	53
Read 512 bytes	11702	201469	28807	15791	26214
Write 512 bytes	4818	131072	12977	9295	13443
Read 4096 bytes	12365	655360	34952	18591	19134
Write 4096 bytes	4974	262144	17712	9602	13512
Read 8192 bytes	12423	873813	34952	18724	22405
Write 8192 bytes	4955	262144	17712	9637	13512
Read 32768 bytes	12483	873813	34952	18995	23405
Write 32768 bytes	4964	291271	18078	9673	13512

Table 2.

Product	Cost	Capacity	Adaptor Price	Pass Thru	DMA Access	Cooling Fan
Fast Drive 100	\$1995	20Meg	n/a	yes	no	no
C Ltd. Hard Drive	\$1895	20Meg	Included	yes	no	no
	\$2900	40Meg				
X-HD	\$1795	20Meg	\$1395!!	no	yes	yes
	\$2800	80Meg	\$1395!!			

!! X-1000 Multi-Function Board includes battery backed clock/calender, 512K FAST RAM, SCSI interface.

dore if you should discover this problem.

The Fast Drive 100, although connecting to the parallel printer port, allows up to seven drives to be daisy chained, as well as having a printer connected.

Installation is relatively painless in most cases, installation is a simple matter of booting up the appropriate disk.

Performance

Everyone wants the best for as little as possible. When it comes to performance, a small tradeoff in price may not be worth the drop in speed. No single test is really conclusive, as close examination of our results will show. Some drives excel in one area, but fall way behind in others.

Our results were generated using a program that is commonly available in the public domain on Fish Disk number 48. The program performs a series of tests, from writing and reading blocks of data, to multi-

ple file creations and deletions, and directory scans.

Files are then written to the disk in four different sizes from 512bytes, to 32K, several times. Each file is then read several times and a speed in bytes per second calculated for each function.

No drive is exceptionally fast in every activity. Some show a marked edge over the rest. Howev-

Fast Drive 100

Multisoft
1133 Hat St, West Perth
Phone: (09) 322 6637

C Ltd. Hard Drive

ACME Software
PO Box 3, Brighton North
Victoria, 3186.
Phone: (03) 596 6732

X-HD/X-1000

Expansion Systems
111 Palmer St
Woolloomooloo, 2011
Phone: (02) 356 3445

er, on the whole all perform well.

Any hard disk is a welcome relief over the slowness of the Amiga's floppy disk system. Unfortunately, the improvement is not dramatic, with an increased speed factor of only around 3-5 times. This is still way below what some users may have anticipated.

In the future we may well see an increased difference in the speed of hard disk systems. As DMA development progresses and tighter disk handling routines are written, a further increase by a factor of ten may well be possible.

Rumours also abound of a possible release by Commodore of an improved disk I/O system. AmigaDOS is inherently slow at present, but operation may be improved with the use of extra memory. Use the `ADDBUFFERS` command from a CLI to increase the size of the capture area for the last accessed file.

Conclusions

If you're after a quick and simple solution to disk storage, you'll probably end up buying the Multisoft Fast Drive 100. It is readily available and will work on the entire Amiga range including the Amiga 500 and 2000.

However, keeping future developments in mind, it would be wise to take a close look at expansion systems hard drive. It's the more pricey of the bunch, but by far the fastest. A cheaper alternative is the C

Ltd, which combines good performance with a relatively low price.

At present Expansion Systems only have available the 20Meg version of their drive. However, we tested the 80Meg version which uses a Voicecall drive mechanism, the test results of which are those in the included table 1.

Multi-Soft will be releasing an 80 and 40 megabyte version of their drive in the near future. ACME software are also expecting a new drive in coming months, so stay tuned for further details.

More hard disks

ST 506 Controller

Expansion Technol.

R.R.P. \$799

Universal hard disk controller

Attaches to Amiga bus, provides standard ST 506 pinouts for compatible drives, does not include cable or hard disk.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

MAS-Drive 20

20MB, half-height SCSI hard disk drive

MicroBotics, Inc.; Richardson, Texas 75085

The PAL JR.

The PAL JR. combines a 20MB hard disk and a DMA SCSI controller with 1MB of fast RAM.

Its low-profile casing, styled in Amiga colors, connects to an Amiga's buss and extends the SCSI port to provide further expansion.

It has a small footprint and autoconfigures under release 1.2 of the operating system.

Byte By Byte; Austin, Texas 78759

Supra Drive

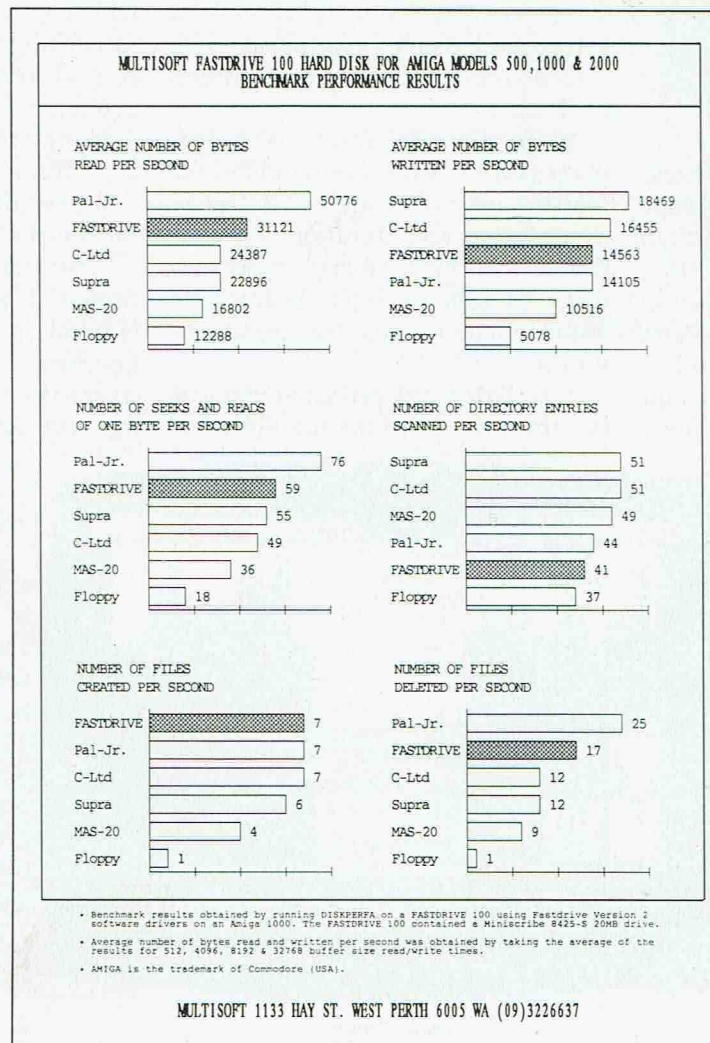
Supra Corporation

20 Mb \$1,999

60 Mb \$3,999

External hard disk, attached to Amiga bus for high speed data transfer, full 1.2 o.s., support, auto startup software, support, includes clock calendar.

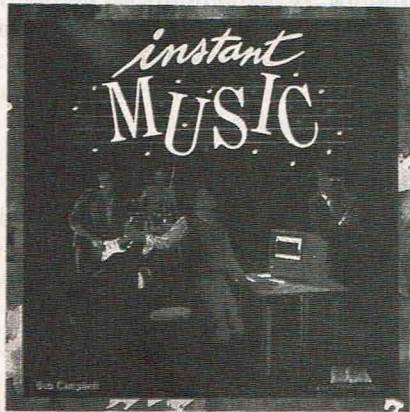
Computamart Pty Ltd, (09) 328 9799



Making manic melodies on your micro

Somebody says "music on computer" and you immediately think of a synthesizer, or very tinny mouse music. That is no longer true, thanks to some of the latest developments in the Amiga software world.

The first electronic synthesizer was invented in 1963 independently



Instant Music

by Donald Buchla and Robert Moog. The Moog synthesizer worked by modifying an electrical model of sound. Real sound is simply tiny, rapid fluctuations of air pressure in the ear. A well-protected structure called the cochlea sits at the end of the ear canal filled with fluid and has numerous little hairs. These hairs detect the minute changes in pressure and pass the information on to the auditory nerve and then to the brain. The changes in air pressure are referred to as sound waves. Sound has an identifiably constant pitch and we call it a note. The note is an atom of music.

Electricity then can give a very good replica of sound. It can be made to fluctuate in strength exactly as sound waves do. For instance, when you speak into a microphone it is converting your voice

into electrical waves that parallel the original sound waves. The current travels to the amplifier which increases the amplitude and then to the speaker. The speaker has a cone which shudders back and forth creating tiny fluctuations in air pressure: sound. The more it reverberates, the higher the pitch, and the more forcefully, the greater the volume.

The current is a direct analog (making calculations with data represented by physical such as length, weight, or voltage) of the original sound, and the broadcast sound is a facsimile of the current. The synthesizer generates electrical waves and alters them to your specifications before they reach the speaker.

The synthesizer has a minimum of five parts:

Controller: ie. a keyboard, enabling you to issue commands to the instrument. The keyboard determines pitch and duration but controllers can give vibrato, trills and other effects as well, much like drawing a bow across the strings of a violin.

Oscillator: the primal element in the machine creating the electrical

wave. The oscillator resembles the string in a violin.

Filter: altering and enriching the pitch of the waves. Many oscillators generate a high, bright sound which you do not always want so something called a lowpass filter cuts off some of the higher frequency overtones for a more pleasant sound.

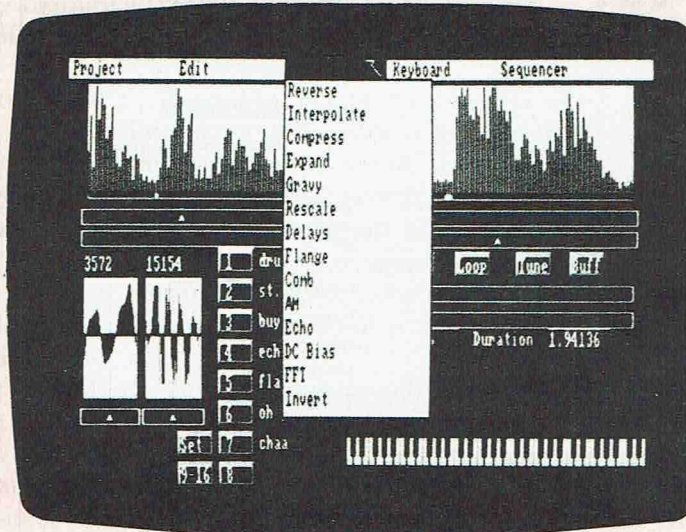
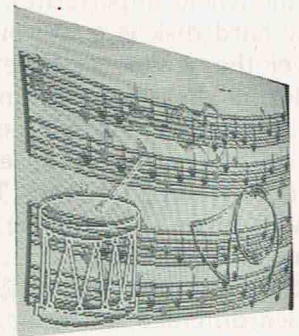
Amplifier: to strengthen or mute the volume.

Envelope generator: to control the amplifier.

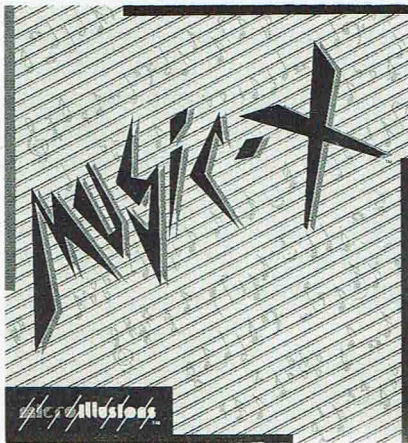
The last three of the aforementioned categories are analogous (similar in certain respects) to the hollowed body of a violin which receives the primary sound of the strings through the bridge and sound holes and modifies it to give greater depth and resonance.

The difference between a violin and a synthesizer is that the violin is fixed. The synthesizer more resembles a violin whose hollow body you can expand, contract and otherwise alter to give you an array of timbres and volumes. The synthesizer too, is hardly limited to the five basic elements above. It can have many more attachments and capacities.

And always moving, always on the technological



Studio Magic



climb is the advancement in computerized music. We've moved on, many plains higher into the world of digital synthesizers.

It was worked out, way back in the sixteen hundreds, that if enough points on a curve could be numbered the whole curve could be described. So it was, that, it's possible to represent the waveform of any sound by assigning numbers to it periodically. Each number specifies a dot's position. If the intervals between them are short enough we'll get a wave we can reproduce. And computers work fast enough to handle such intervals.

Digital synthesizers revamp the standard analog layout. First, they have a microprocessor at their core. Its job is to create waveforms by generating a series of binary numbers (the two digits 0 and 1 in a series). When the waveforms are fully described they go to a digital-to-analog converter which turns the bi-

raries into voltage levels = electrical waves. The waves flow to a speaker and emerge as sound. The digital-analog converter, then, is similar to the oscillator.

Where the waveforms are created the digital synthesizer completely builds the signal before passing it on to the converter. It does this with software. Like, a music program will let you specify in detail the waveform, the volume envelope (life history of a note's amplitude divided into different stages anywhere from attack to sustain to release) and all the other features of a note. The synthesizer transforms your commands into numbers, converts them into analog and plays them out. Presto - Howard Jones is making money.

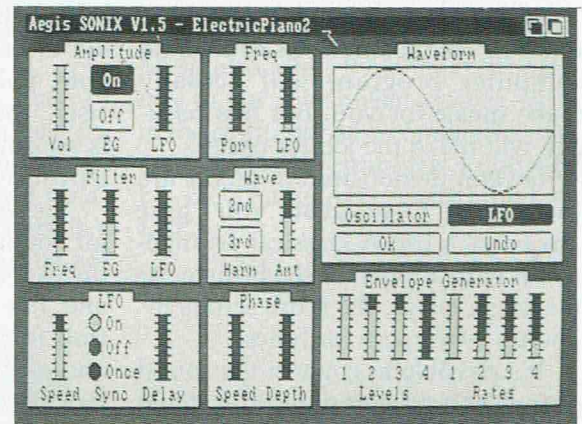
Interestingly, the first complete computer musical instrument was the Fairlight, developed in Australia in 1979 and used by such artists as Stevie Wonder.

And the Amiga has it all. All the powers of a synthesizer. Four voices, all with their own volume envelope and assorted European accents. They all have volume control with not fifty, but 64 levels and timbre regulation (two notes that can have the identical duration, pitch and volume envelope).

The computer has four significant

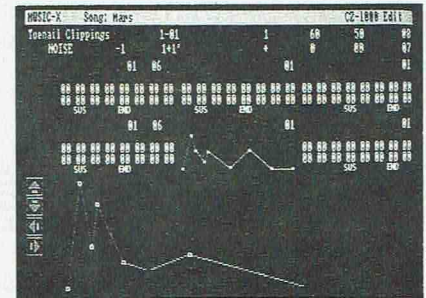
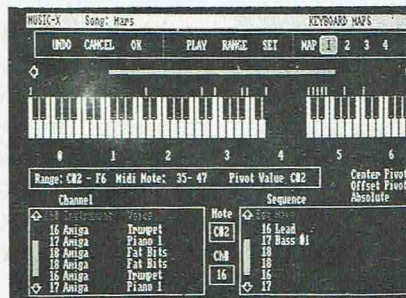
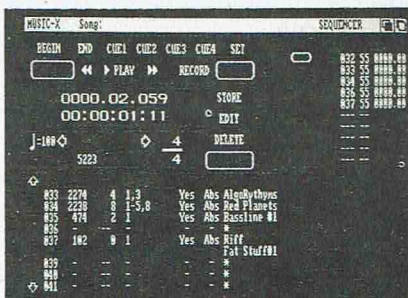
independent channels of sound. And if it's got that, you can stake your sister's cosmetic kit on it. With the Amiga you can program each channel separately, like four separate synthesizers camped out in each district. Not stopping there, you are also able to hook up two channels together to get to the next step in universal language - stereo! Each channel itself can play multilevel tones and imitate almost any jungle sound south of the Amazon.

These channels can be used as a music sequencer too. A sequencer being an electronic instrument that



Aegis SONIX

generates a series of notes over and over. Attaching a microphone you can also do sound sampling, say, fingertapping. Amazingly, the Amiga catches the sound and digitizes the waveform of the sound and stores it. You can kill your cat in front of your Amiga and play it back during the *Top Gun* anthem for your school



MUSIC-X

play. You can play out melodies with it, alter its volume envelope and send it through filters. The Amiga also has a built-in faculty for voice synthesis, male or female, in a range of eight to nine octaves.

There is a very good selection of associated software to go with the Amiga music programs including *Muscraft*, *Harmony*, *Texture*, *Pitchwriter* and *The Music Shop*.

Talking to the world through mu-

sic also means having to talk to the world's synthesizers through your own. This is where a MIDI (Musical Instrument Digital Interface) comes in. MIDI is a recently standardized means of communication between synthesizers. It allows you to hook up several of them to your Amiga and control them all from there. It allows you to achieve magic in music, a part, in the assistance of making the synthesizer one of the hot-

test pieces of computer hardware.

It's getting better. Always better. Yesterday is not history, it's obsolescence. But your computer, particularly your Amiga, is a crystal ball to the future and lets you see into tomorrow's calendar at the sheer limitless possibilities that can come, soon, to the modern world, devoted to productive uses.

Music Studio

Music Studio allows a variety of types of composition. Of course, no computer program will actually make music for you. But this package will make the job far easier.

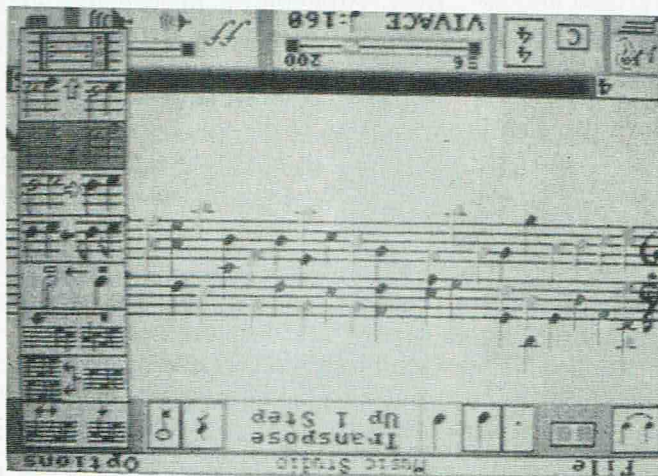
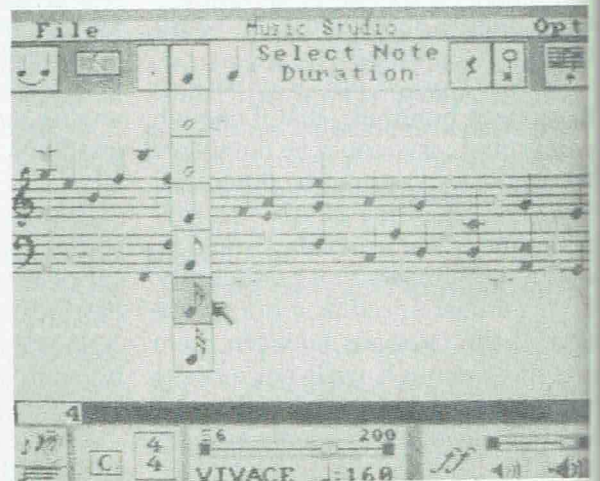
Several demonstration pieces are included. I suggest you give 'Invasion' a try. A classical arrangement, with a touch of the bizarre. As the music plays, the score scrolls by. There's even room for lyrics!

It's possible to connect the sound output of your computer to a stereo system. The improvement in quality is dramatic.

Music Studio has fifteen built-in

musically minded, *Music Studio* is officially an eight note, polyphonic synthesizer. The Amiga version is no doubt the most full blown version.

The Amiga has superior sound quality. It produces true stereo output, and has additional controls for Vibrato, Tremolo and a seven segment Attack/Decay/Sustain/Release. This means you can fine tune your instruments better.



instruments. You can redesign these to your own tastes. For the techni-

and you do the rest.

For would-be musicians, and

For those not familiar with the world of crotchets and quavers, there's a special mode where you can paint music!

It's just like learning to drive without having to know the road rules first. The computer makes sure that the relationship between each note will sound good,

those who just like to tinker, *Music Studio* has much to offer. However, professionals will find it clumsy in some areas.

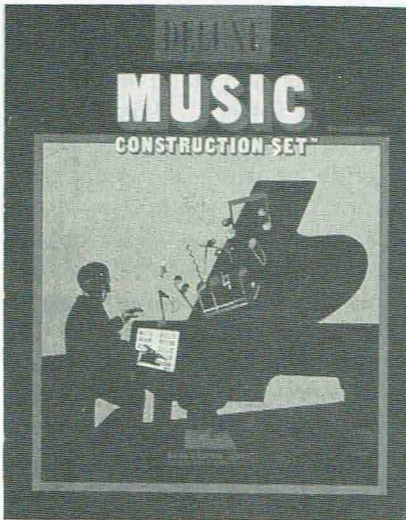
Music Studio was produced by Activision, and distributed in Australia by Imagineering. Recommended retail ranges from \$51.60 to \$85.80 depending on which version you're after.

Deluxe Music

Electronic Arts have produced many fine programs, of which *Deluxe Music* is without a doubt one of the finest. *Instant Music* and *Deluxe Video* can make use of music produced by this package. We recently received the Hottest and Coolest from Ninety Years of Jazz. The disk contains a wealth of Jazz samples, instruments and tunes.

Thanks to a little forethought on behalf of Electronic Arts, the music can be read by both the afore mentioned programs and *Deluxe Music* itself. On-going support for any package is always good incentive to use it. *Deluxe Music* is one such program.

The program operates in true multi-tasking mode. Three separate windows go to make up the display. The largest contains a display of the music in written notation. This window may be expanded to display



more or less as required.

On the left hand side is over 34 gadgets for pasting your music together. These include various notes, rests, editing tools, and speed notations. At the base of the screen is a piano keyboard. Notes may be se-

lected using this, and optionally high-lighted when replayed.

Four instruments may be in memory at one time. Using digitised samples, one instrument may in itself be a chord, or group of instruments allowing fantastic flexibility. The software also caters for Midi-In and Midi-Out. This means you may connect an external keyboard, and play music directly into the software.

In all a very powerful package. Music is displayed as it is played, and the notation is very professional looking. More for the experienced user than the novice. A good knowledge of music is essential. *Deluxe Music* also offers the unique opportunity to put your music to work within the computer as accompaniment to animation and graphics. Published by Electronic Arts, distributed by ECP.

Sonix

Originally released as *Music-Craft*, *Sonix* is probably the most widely used music package. It by no means compares with the complexity of *Deluxe Music* or *Music Studio*, however there are a few novel features.

Sonix supports Midi operation, and also allows design of your own instruments. Music may be played directly on the QWERTY keyboard, however no keyboard is displayed on the screen. Music does not scroll as it is played, and less professional notation is used for the notes.

However, for the beginner, all this adds up to a far easier to use product than most other programs. Music included is a little raw on the ears. All the in-



struments are synthesised rather than digitised. The difference being that synthesised sounds are produced synthetically by the computer, whilst digitised sounds are actually digital recordings.

Digitised samples may be used. *Audiomaster*, a new product developed in Australia and distributed by Aegis, allows sounds to be sampled and re-

corded digitally in the Amiga's memory. They may then be edited, and used as instruments in a variety of programs including *Sonix*.

Volume, tempo, transpose and tune slide scales are provided at the base of the screen. The top two thirds display a stave on which music is displayed. Two separate screens provide keyboard, and instrument control.

Great for those breaking into the world of music. Distributed by Commodore, published by Aegis. For prices and more music programs see the Software Guide in this Annual.

For distributors see list of Distributors at the end of the Annual.

Getting pixels to paper

Having purchased computer, external disk drive and software, a printer is the next logical addition. With it you can obtain that invaluable hard copy of your work. Letters, documents, mail-outs, graphics, charts and diagrams can be printed using day-to-day programs.

The Amiga is very flexible when it comes to printers. Any printer may simply be connected and its appropriate driver selected, and every program you then run will know how to talk to your particular model. The printer driver is a program that acts like a description of what the printer can and cannot do, telling the computer how to interpret what it is trying to do, into what the printer is capable of.

Certain standards exist as to which control codes a printer will respond to. A control code may tell your printer to use a special font, move down one line, or go to enhanced mode. By purchasing a printer that is compatible with, or similar to, one of the printer drivers you already have, you will run into the fewest problems later on.

Commodore recently upgraded their printer range to include some very fine machines. These are actually rebadged versions of the OKI-Microline range. Before looking at the individual models available, let's take a brief look at a few general areas of printers.

Getting ink to paper

Most popular is the dot-matrix printer. Characters, or letters and numbers are formed by a series of dots placed close together. The result can vary from barely readable to virtually perfect letters. Most users will be familiar with the quality produced by a daisy-wheel printer.

Not unlike your average typewriter, this device produces each

letter by stamping the required character against a carbon ribbon. An imprint is then made on the page that is well formed. Daisy-wheels, or golf-balls, may be interchanged to provide a variety of typefaces.

In practice this method produces what is referred to as letter-quality type writing. Some dot-matrix printers are able to come close to this quality by overlapping the dots, and doing a double pass over each letter. The resulting characters are called near-letter quality.

Various other forms of printing have come and gone over past years. These include thermal printing which burnt the letters onto special paper. The cost of paper was far too expensive, and it tended to deteriorate with age.

Ink-Jet printers are another alternative. These are very quite, very fast but rather expensive. Ink is literally propelled onto the page, and each dot goes to form a letter in much the same way as a dot-matrix printer.

The latest development is the Laser printer. These are based on the design of a photocopier. They work by etching the design of each character or dot onto a drum which then prints the entire page in one fell swoop. Quality is excellent, especially with use of a page description language such as Post Script. This language enables each character to be perfectly drawn by the laser.

The result is close to typesetting

quality. Thus many publishing houses use laser printing to save typesetting costs and speed up production time. This very publication was produced using a laser printer.

Which printer do I need?

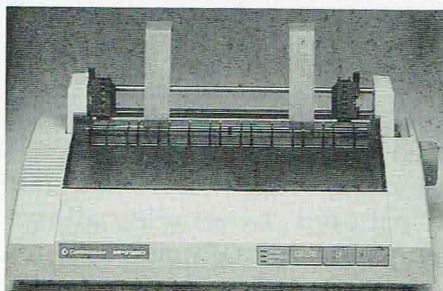
For home use, a dot-matrix printer is the most flexible and least expensive choice. Because of the way in which each character is formed, a similar process may be used for creating graphics output. Daisy wheel printers are confined to the available typefaces. However, the quality of output is higher. Thus, they're more suited to the business environment.

The process of printing graphics is often referred to as a high-resolution screen dump. In this operation each dot displayed on the screen in a bit-mapped display is printed on the printer correspondingly.

More expensive dot-matrix printers work faster. The speed is normally expressed as characters per second. Around 80 CPS is average, with many brands now arriving with 120 CPS standard. In low-quality draft modes a few will even reach as high as 300 CPS.

Daisywheel printers are inherently slow, due to the larger number of moving parts. They vary from 30 CPS to 90 CPS on expensive models.

Several printers available will handle colour. Since the Amiga is a colour computer, this may seem a logical choice. However, in practice colour printing tends to have little day to day use. It is possible to print onto special plastic suitable for overhead transparencies. Colour business reports also attract some buyers. For the hobbyist, a few smaller models will produce excellent reproductions of screen pictures. However, day to day use of these units is limited.



Printer Glossary

NB: Some glossary items refer to features of the preferences tool, found on most Workbench disks.

Aspect : (Preferences) Lets you select whether to print normally or "sideways" on the page. Normally is a horizontal print, so that what you see at the top of the display appears along the top edge of the printer paper. Selecting Vertical to print what appears on the top of the display along the side of the paper. Such as marginal notes.

Buffer : Many printers have a buffer. This is like a pool where data is sent before being printed. Since information can go to the printer faster than the printer can actually print, the buffer frees up the computer sooner.

Dip Switches : A small row of switches which control special functions. Normally located inside the printer, or on the rear panel.

Dot Matrix printer: This printer forms characters similar to the way your computer forms them on the screen, with a series of dots which make up a letter. With this same method it is simple to reproduce graphics screens.

Form Feed : A complete page or form of paper may be fed through the printer by pressing the form feed button. The same effect can be produced by sending a special control character to the printer via software. The form feed only feed to the top of the next form, set using the top of form button.

Friction Feed : Paper is gripped behind a large roller, and held there by friction as the roller turns, feeding the paper past the print-head.

Image: (Preferences) Lets you print an image as it appears on the display (by selecting Positive) or reversed (by selecting Negative).

Line-Feed : The paper is fed through the printer a single line. Produced by pressing the line-feed button or by sending a special character from software.

Margins: You indicate the width of these margins by specifying the number of characters from the left-hand edge of the paper. Some programs refer to the left margin as the binding allowance - a space provide for hole punches, or staples.

NLQ : Near Letter Quality - Dot ma-

trix output that is so good that it resembles daisy-wheel quality print.

On-Line : Sometimes called Select, this button readies the printer to print information. Until this is done, you are able to carry out form or line feed to adjust the paper position.

Paper Size: (Preferences) A variety of paper sizes exist, with some word processors allowing you to chose between the various choices. These include :-US Letter (8-1/2 inches wide, 11 inches tall), US Legal (8-1/2 inches wide, 14 inches tall), Narrow Tractor (9-1/2 inches wide, 11 inches tall) and Wide Tractor (14-7/8 inches wide, 11 inches tall). Basically, representing varying sizes from A4 singles to continuous feed paper.

Paper Type: (Preferences) Select Fanfold if you're using continuous-feed paper. Select single if you're printing on individual sheets. For faster but lower-quality printing, select Draft. For higher-quality printing, select Letter.

Parallel Port or Serial Connection: (Preferences) If your printer is attached to the parallel connector on the Amiga, select the gadget labeled Parallel at the upper left of the screen. If it's attached to the serial connector, select the Gadget labeled Serial. Parallel transmission involves sending eight or more signals down the cord at the same time. It requires that you give it a cable with numerous wires and in turn enhances the speed.

Print-Head : This is the electro-mechanical device that does all the hard work. A print head will contain a certain number of pins, using which each character is produced.

Printer Type: (Preferences) The names of the printers supported by the Amiga appear in the upper right of the screen (Diablo C-150, Epson, Epson JX-80 etc. according to compatibility). To indicate the printer you are using, select either the up arrow or down arrow until the name of your printer is highlighted.

Compatibility is largely a matter of software. Printers differ in the way they interpret signals from the computer. One printer can need a particular instruction for, say, boldface, and another a different one entirely. Your software may perform a kaleidoscope of feats, but if it cannot send the right signals to

the printer you will never see hardcopies.

Proportional : Each character is printed according to it's exact size, rather than giving every character the same amount of space. For example the letter 'i' would only take up half the amount of space as the letter 'o'. Rather than leaving a gap between the two letters, the letter 'o' is printed proportionally sooner, to make up for the gap.

Ribbon : Most printers use a ribbon, contained in a cartridge, to provide ink for the print head. Ribbons come in many shapes and sizes, most of which simply clip into place just behind the print-head.

Serial: Some printers and most modems use serial transmission (breakfast time conversation) and this port handles them. On your Amiga, the serial port is located next to the Parallel port. We suggest you keep it free for communications, rather than tie it up with a printer.

Serial transmission is the opposite of parallel. It entails sending signals one at a time through a single wire.

The industry has standardized serial signals and a common protocol is the Recommended Standard 232 or Rs-232, which you will see very often.

Spacing: This lets you select how closely lines are printed on the page. LPI is lines per inch. It is preferable to select either 6 or 8 lines per inch.

Thickness : A small lever just near the print head allows the distance from the head to the roller to be varied. This is useful for different thicknesses of paper, and for squeezing that last drop of ink out of your ribbon.

Tractor Feed : Paper is fed beneath the roller, and past the print-head by sprockets which clip into holes on the side of each page. This method is normally only used for continuous feed stationary. Normally the holes may be removed by perforations provided. More recently these perforations have been made using a lazer, with the end result being a very fine, barely noticeable tear.

Typeface : A character set used to print with may have particular style, slant and/or size. This is described as the font or type-face.

So what are the choices?

COMMODORE:

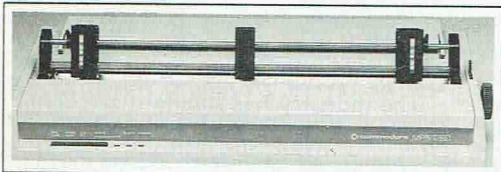
Commodore offer six different models, all suited to various computers in their product range.

MCS 820

For true colour fanatics, with the right paper, and price, the MCS 820 wins hands down. The quality is so good, that under optimum conditions, the results almost resemble a photograph. Not good for wordprocessing in large numbers of pages. Fine for the hobbyist. A little expensive on paper and ribbons. Rec. Retail \$499

MCS1280

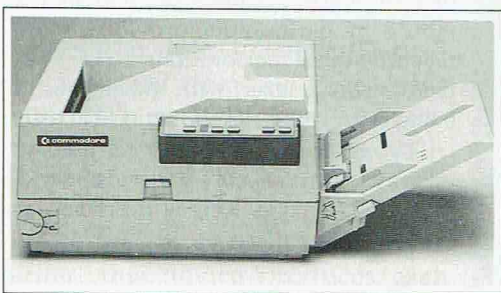
Strictly business, unless you plan on printing out some very wide let-



ters to the finance company explaining why you can't meet the payments. A full 136 characters wide. Fairly slow in NLQ mode, and a reasonable 120cps in draft. Nothing fancy. Rec. Retail \$899

MPS 1250

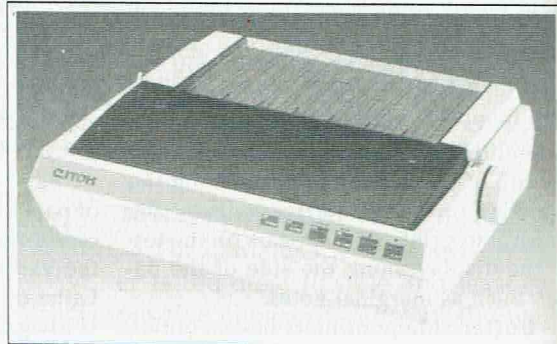
Bottom of the range. A good starting point, and you can always digress - there's a serial port for C64 users too. Similar quality to the MCS 1280, only now we have a stan-



dard carriage width. Ribbons are readily available. Probably the popular choice for week to week use. Rec. Retail \$525

LP806-Laser Printer

Desktop publishing here we come. Hang on a tic. This little beastie has no PostScript. Well, that need not spell trouble. But it is a draw back. The quality is much in line with the price. On that basis, it's a bargain! Great for small businesses trying to cut costs. Not the ideal choice for professional page layout.



ALTERNATIVES:

Star-NX10

Producing some of the most popular small printers to date, Star have quite a reputation to back their claim to fame. The NX-10 has many nifty features not normally found on a printer in this price bracket. Many print functions can be selected using the front control panel. This is a group of pressure sensitive raised plastic buttons, which work well.

The 10c uses a cartridge ribbon, which drops easily into place, without the need for handling. Downloadable fonts, tractor feed, and NLQ printing all come standard. The price is impressive. Around \$540, with ribbons at about \$16. For information contact Star Micronics, Unit 7/25 George St., Homebush, (02)736 1144.

Epson EX-1000

For big time printing jobs, requiring speed, quality and simplicity of operation along with Epson's famous reliability, this is the ultimate. The front panel

uses a similar set-up to the Star. You can opt between draft, NLQ-Roman, or NLQ-San Serif. These can then be printed in Pica, Elite or Proportionally in either normal or condensed modes - all this at the press of a button.

The resulting quality is brilliant. A tractor feed is fitted, and on the EX-1000 the giant 14 inch carriage width, makes this one of the larger choices around. We use EPSON in the office for mailing lists, labels and important letters. Documentation is excellent, complete with quick reference card which may be detached from the inside back cover. A real professional unit. Available through Epson dealers around Australia.

C.Itoh 310/15 XP

Up in the dizzy heights of the top end printer market, you get what you pay for though with 300cps in draft, 50 cps in NLQ and 33 cps in letter quality mode - which incidentally is of unbelievable quality. The C.ITOH has two emulation modes, Epson FX-80+ and the IMB Proprint, this feature in itself is a compatibility dream.

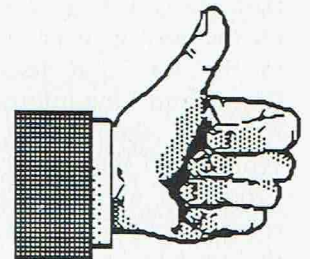
The C.ITOH was tested extensively with an Amiga 1000 and was found to be a printer of very high quality with amazing ease of use. This machine is a pleasure to use, and the print quality speaks for itself.

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X-1000 Expansion/Hard Disk

Amiga and DTP Training

Public Domain Software

The Fish Disks are a wonderful resource for any serious user of Amigas, and Fred Fish should be congratulated for the sterling effort he has made to bring the wide world of Public Domain software and Shareware to all Amiga users, maniacal and moderate, beginners and veterans.

While all the information is there, however, it's not always easy for the average user to access it, due to the fact that use of the CLI (Command Line Interface) is usually required. Fred hasn't opted for a Workbench set-up, except when the programs arrived with icons already set up. So here we'll explain the few necessary procedures for having a good browse of any such disk that comes your way, and it's worth knowing for both fun and learning.

Method: First, it has to be stated that if you don't have an external disk drive you are seriously handicapped for many operations on your Amiga, apart from this one. It is strongly recommended that you get one, for your own sake.

However, if you persist in this madness, you will need to load various CLI commands into RAM - see the article in Megadisc 2 for details on doing this, and in the following discussion, when reference is made to `df1:` (the external drive), any single drive user should replace it with `df0:`, having loaded `RUN`, `CD`, `COPY`, `TYPE`, `DIR` and `LIST` to RAM.

So you've got your Workbench in `df0:` and `FISHx` in `df1:`. Those with one drive have the Workbench in it.

- To get into the CLI - Double-click on Preferences, and click on the CLI ON in the screen you'll see. Click on SAVE, and now open the SYSTEM drawer, and double-click on the CLI icon. You're now presented with a CLI window with a little `1>` at top

left. This is your PROMPT and is where you'll see the result of whatever you type, ie, CLI commands.

[Single drivers now need to copy the above commands to RAM, by entering

`> copy c/run to ram:`

`> copy c/cd to ram:`

etc for each command. Now when you see any of those commands mentioned below, add RAM: before each one. So instead of entering `> dir` you should enter

`> ram:dir` and your first command, once you've inserted the Fish disk, should be `> ram:cd df0:` which tells the computer to use the CD (change directory) command from RAM, to change the directory to the disk currently in drive `df0:`]

- First you'll want to see a general Directory listing, so enter

`> dir [return]`

and you'll see the contents of the ROOT directory of your Workbench disc. To do the same for the Fish disk, enter `> dir df1:`

To get a full directory listing on everything on the disk, including the contents of the SUBDIRECTORIES (those with (dir) after them), enter

`> dir df1: opt a [return]`

and you'll see it all scroll past, fairly fast. To pause the scrolling at any time, hit the space bar. To continue scrolling, hit any key, such as RETURN. Now you know what's on the disk, at least by name.

- Further delving - Fred Fish always puts a file on his disks which explains briefly what the various programs are about, and you'll see it at the bottom of the directory listing somewhere in the form of `README.listxx` where "xx" is the number of the disk. To read this, enter

`> type readme.list36 [return]`

or whatever number it is. You'll see it all scroll past, so press the space

bar to stop it if required. You might want to print this list for easy reference, so turn your printer on with your Preference settings as you want them, and enter

`> type readme.list31 to prt:`

and you should see it appear on your printer.

- Now you'd like to see more, and it may be that you have got Fish 36 and you're interested in the "YaBoing" program in the "YaBoing" directory. You want a closer look, so to change your directory, enter

`> cd df1:YaBoing`

and you'll be presented with the prompt again. To see what's actually in the directory, enter `> dir`

and you'd see

`POSTER YaBoing`

`YaBoing.c`

Before running the program, you'll probably want to see if there are any instructions on how to do so, anything that might have to be done first, or whatever. So enter

`> type poster`

and you can read the contents of this text file, which is probably a message from the author when he uploaded the program to a BBS in the States, and might have some bad-taste jokes, or useful information or even a plea to users to support his efforts by sending in \$10. After you've written out the cheque, you'll want to see what this thing is, so you enter

`> yaboing` since that is the "executable" program, ie, the one that actually does its stuff. The `YaBoing.c` is probably the "source" file, ie, the listing of the program in the C language, and probably beyond you right now, if you're reading this. By now, you should have seen a little "title bar" appear in your screen, so click on it and you should see a cascade of balls all over the screen. (You could have entered `>`

run **Yaboing** at the previous prompt, to use the multi-tasking abilities of the Amiga, and to avoid a software error, as happens very occasionally with the PD programs.)

● You've had your fun with **Yaboing**, and want to check out some of the other directories, so enter

```
> cd: or > cd/
```

the first of which takes you back to the root directory of the disk you're on, the second taking you back "up" the directory tree one level - in this case, since you're only one level down, they both do the same thing. Now you can carry on doing the same sort of procedure with the other directories on the disk. Simple, eh?

● A final note about Suffixes - just as **Yaboing.c** indicates a C source file, and **POSTER** a short note by the author, anything with a ".doc" suf-

fix means, yes, a document, ".bas" a program in Basic, ".fnf" is a little note from Fred Fish, ".exe" an executable program (ie, just enter its name to run it, though most executable programs are a name with no suffix at all), and so forth. And the accompanying documents should be read first, because the program may need "Arguments", ie, further keyboard inputs after the name of the program, telling it something it needs to know, just as you entered > type **readme.list31**, rather than simply "type". And while the PD programs are generally fairly reliable, you may find that occasionally, for some reason or other, the system will "hang" due to a software error or some such. Put it down to experience, and boot up again, and treat that program with some caution.

With this as a start, you can now use the CLI to investigate any disk, and it often repays investigation since there are frequently useful little things hidden in the directories which are invisible on the Workbench, simply because no icon has been attached to them. This is easily done by using the Icon Editor - see the article on **Megadisc 2** for an explanation of how to attach icons to anything.

DOSHELPER on **Megadisc 1** is a very useful little utility for anyone learning about the CLI (it brings up information on screen for any of the CLI Commands), and you'll probably find some of the CLI articles in **Megadisc** of use as well.

Fish Disks are available through various Commodore dealers, and by mail order from **Megadisc**, (02) 959 3692.

What is SIDECAR?

Sidecar is an IBM-PC compatible expansion device for the Amiga 1000. A similar product is available for the Amiga 2000, called the **Bridgeboard**.

The device offers both IBM software and hardware compatibility to the Amiga while still retaining the use of the Amiga itself. You can also perform multitasking as normal and still run IBM software at the same time.

Sidecar fits directly onto the expansion bus on the left of the Amiga and is approximately 27cm wide by 13cm high.

The heart of the Sidecar is an 8088 CPU running at 4.77 Mhz, this is what makes Sidecar compatible with existing software and hardware for the IBM-PC. A standard 5

1/4 inch floppy drive and three IBM expansion slots are also built-in.

The IBM screen modes and the IBM keyboard arrangement are emulated by software running on the Amiga. Printing from MS-DOS is done by assigning the Amiga's parallel port to the Amiga.

FEATURES

- * IBM compatible.
- * 256K ram expandable to 512K (on board) plus to 640K via a standard memory expansion card.
- * Standard clock rate of 4.77 Mhz
- * 16K ram BIOS (Phoenix).
- * Socket for 8087 math Co-processor.
- * 3 Compatible I/O slots (full size).
- * Floppy disk controller (765) on

board.

- * Built in 5 1/4" floppy, 360K mechanism.
 - * Will accept any IBM hardcard internally or standard mounted hard disks externally. This storage can be shared by both MS-DOS and Amiga DOS.
 - * Connector for an Amiga external 3 1/2" disk drive (model 171010). * Can access Amiga parallel port through software. * Emulates PC monochrome adapter.
 - * Emulates PC Color/Graphics adapter.
 - * Emulates both adapters simultaneously on a single monitor.
- Available from selected Commodore dealers.

RAM Expansion

Proton expansion boards

Proton Microelectronics has a range of RAM expansion boards : 512K, 1024K and 2048K versions. The one I have tested is the 2 MEG (or 2048K) and it is a Non-autoconfigure board - I am assured by Proton that their AutoConfigure versions (for 1.2 software only) will be available anytime now, for \$95 extra on the prices they are currently charging.

The boards are compatible with Sidecar and are designed to chew up little power due to their "Low Power CMOS Design", thus allowing four of their 2 MEG boards to be added to the side expansion port of the Amiga, giving a remarkable 8 MEG and more!

Having had the extra 2 MEG available for some time now, it isn't too hard to find a use for so much RAM . . . it is remarkable how memory demands rise to meet availability, and, eg, people who want to create symphonies of sampled sound will find ways to use such quantities.

Installing the unit was a simple matter of pushing it into the side expansion port (with power off); copying the two commands Addmem and Meminstall into the C directory of the boot disk; and adding the command Meminstall in the startup-sequence in the S directory. Booting up then shows a message saying "some expansion memory found" and it's all available for use. If you happen to have a Sidecar, your startup-sequence will say Meminstall -Sidecar, and if you've had the "Kickstart in ROM" upgrade done, you'll type in -kickram as well.

The board also comes with an optional clock, worth getting so that

you can forever forget entering the time and date. Note that all the above will be unnecessary if you buy the Autoconfiguring version - the 1.2 software will handle it all for you.

The appearance of the unit is neat and pretty compact - it is beige-coloured, practically the same as the Amiga, and when sitting in the port rises about 3 cm above the CPU, and extends from behind the joystick port to the back of the CPU. It's housed in a metallic casing, and of course has a Pass-Through Bus connecting up more units.

An inspection of the innards of the board by a friend who is a computer engineer revealed solid workmanship in the construction.

The documentation which comes with the board, both on paper and on a disk, was quite sufficient to understand what to do with the thing. Another option provided is an Analogue to Digital Converter for those involved in more technical pursuits, and a six month warranty is also provided.

So those are the facts, but is it worth getting? And how does it work in practice?

The best use for such a board, in my opinion, is for setting up a "Recoverable RAM Disk" (RRD). The great virtue of such a device is, as its name implies, that if the computer hangs, or you get a Guru, you can re-boot with the same boot disk and everything that you had in RAM is still sitting there, blithely unaware of any crash. This makes you feel warm and secure, since you can use the speed of RAM without its transience. And since the total RAM of the system comes to over 2.5 MEG, there is still about 1.6 MEG available for other uses.

A company called ASDG in the US has made available such a RRD on Fish Disk 58 as shareware, and it

works very nicely with the Proton board. Such a set-up would also work with the 1 MEG board with room to spare, and if you got the half-MEG board you would probably make a slimmed down RRD with just the basic commands and libraries.

As noted in the documentation, there are some programs which don't run with Expansion RAM, notably *Deluxe Paint I*, which uses "Chip" memory (your original 512K of RAM) exclusively.

Most programs are fully compatible with expansion RAM however and will look for it and use it if it's there. I loaded the entire *PageSetter* program into RAM and found that performance was much improved, especially the speed of refreshing or changing of the display.

All in all, considering the facts that these are Australian products of good quality and very competitive pricing, and that the addition of more RAM makes your Amiga purr with pleasure and speed, I would recommend these boards highly. If you want a little more ease of installation, wait perhaps for the Auto-Configuring versions.

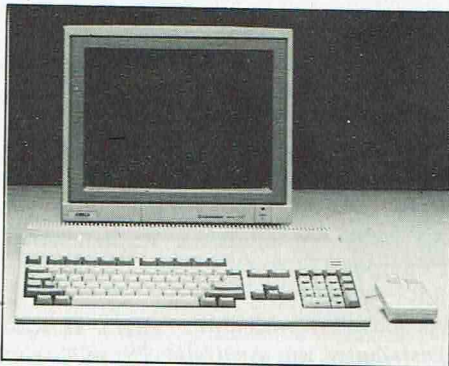
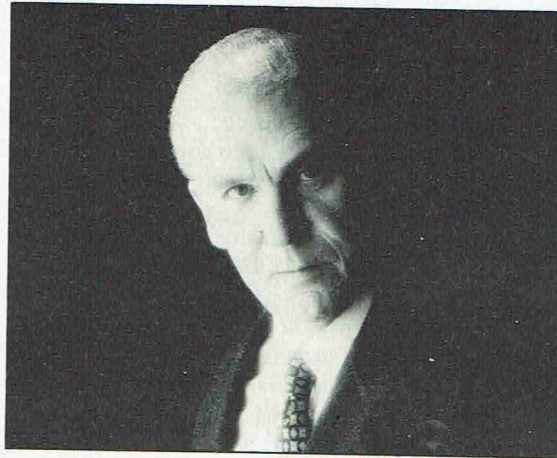
But if you're finding that you're beginning to reach the limits of your 512K fairly regularly, consider such a purchase. The Amiga was made for it, especially since it's a multi-tasking machine, and you'll find quite a leap in performance.

Distributed by Proton Micro-Electronics (08) 277 0323.

X-1000 Expansion System

Another Australian product, this is a very well-designed board, with extras - the primary unit consists of

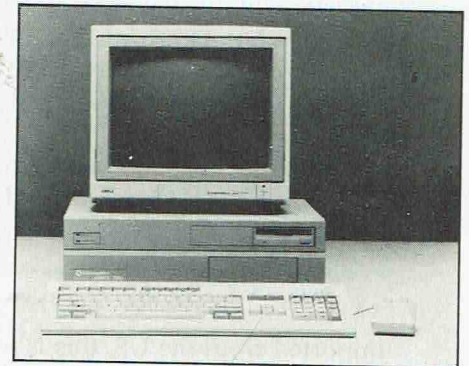
ANYONE WHO HAS JUST PURCHASED A CONVENTIONAL P.C. HAS MY SYMPATHY.



AMIGA 500		
REC. RETAIL PRICE \$999 excluding monitor	MEMORY 512K internally expandable to 1Mb	MULTI-TASKING yes
COLOUR 4096 colours	SOUND 4 independent stereo channels, built in music and voice synthesiser	IBM COMPATIBLE no
SOFTWARE More than 500 commercially released programs available		



AMIGA 1000		
REC. RETAIL PRICE \$2495 excluding monitor	MEMORY 512K internally expandable to 9 Mb	MULTI-TASKING yfs
COLOUR 4096 colours	SOUND 4 independent stereo channels, built in music and voice synthesiser	IBM COMPATIBLE yes*
SOFTWARE More than 500 commercially released programs available		



AMIGA 2000		
REC. RETAIL PRICE \$2999 excluding monitor	MEMORY 1Mb internally expandable to 9 Mb	MULTI-TASKING yes
COLOUR 4096 colours video interface	SOUND 4 independent stereo channels, built in music and voice synthesiser	IBM COMPATIBLE yes*
SOFTWARE More than 500 commercially released programs available		

Too bad you couldn't wait just a little bit longer.

Because Commodore has just released the complete Amiga range.

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There are three computers in the Amiga range, and each one of them has its main processor boosted by three co-processors.

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And we're not just talking about speed and power, either.

*IBM is a registered trademark of International Business Machines Corporation.
*Optional

Every Amiga, from the A500 to the incredible A2000, offers no less than 4096 colour options. The opportunities for graphics and animation are incredible.

Every Amiga can multi-task (run more than one program simultaneously).

And every Amiga has 4 channel stereo sound, a built in music synthesiser, and a pitch and tone modulated speaking voice.

And yet, the most impressive thing about the Amiga is not the features.

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Less than \$1000 for the Amiga 500, \$2495 for the Amiga 1000, and only \$2999 for the Amiga 2000 with optional IBM* compatibility.

With a wide range of business software and specialised graphics tools, the Amiga is the only choice for home, education and business use.

So why invest money in the technology of the past, when the technology of the future is available today.

From Commodore, naturally.

For further information on the Commodore Amiga Range, send this coupon to Marketing Department, Commodore Business Machines Pty Ltd, 67 Mars Road, Lane Cove, NSW, 2066.

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Company _____

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Postcode _____ Telephone _____



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John Singleton Advertising COM0069

an extra 512K (which can't be increased on-board), a clock and a SCSI interface for linking up hard disks and other SCSI devices, which is the way the industry is going.

Expansion Systems also makes a variety of hard disks which can be attached directly to this unit. All designs are based on DMA (Direct Memory Access) which makes them very fast indeed. This unit can be expanded beyond 512K by simply adding one of Proton's pass-through boards (see above) for example, but a total of 1 megabyte in your system is quite sufficient for most purposes.

Anyone who is thinking of adding a hard disk or other SCSI device would do well to think about this unit.

Distributed by Expansion Systems (02) 356 3445 or United Computers (02) 295 088.

Insider

Imported from the US, this is a tried and tested board, mounted inside your Amiga, adding 1.5 Megabytes to your system. It should be installed by a computer technician. Similar in concept to the Spirit Technology board, it is certainly a neater alternative to adding a box onto the Amiga's bus.

Distributed by Computamart (09) 328 9799 RRP \$859.

Other expansion boards

256K Memory Expansion

Skyles Electric Works, Inc.; Mountain View, Calif. 94041

256K Memory Expansion

Starpoint Software; Yreka, Calif. 96097

Alegra

512K memory-expansion unit
Distributed in Australia by Computa-

mart Pty Ltd, (09) 328 9799

Alegra 2MB

Access Associates R.R.P. \$1,539

2 MB memory expansion

Uses Amiga bus, full auto configure, fully populated with RAM, software provided for 1.1 o.s.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

aMEGA Board

1MB memory-expansion board

The aMEGA Board is a 1MB expansion board that features complete auto-config compatibility; asynchronous operation; a fully automatic software-installation routine for use with DOS 1.1 (no installation is required with DOS 1.2); pass-through design that allows optional or additional components; an optional power supply; a small 1-inch footprint; no interference with the mouse/joystick ports; and more.

Included with the board are a variety of free software programs that include Fix-Hunk, which modifies earlier versions of many Amiga programs for use with the aMEGA Board; RAM On/Off, which allows the use of almost any Amiga software with the board; High-Res Screen Dump, which outputs anything on screen to a printer; Modula-2 demos, which are samples of the Amiga language; and Giz-Mos demos, a desktop utility.

C Ltd.; Wichita, Kan. 67211

Amiga Expansion Box

The Gemstone Group; Buffalo Grove, Ill 60089

ASDG Hardware

The .5M, 1M and 2M are Zorro-compatible, 0-wait-state memory boards that give an Amiga an additional .5MB, 1MB and 2MB respectively. The .5M and 1M are upgradeable to 2MB, and each comes with the ASDG Recoverable RAM Disk, which allows any files on the RAM disk to be recovered after machine crash or reset.

The Mini-Rack-C is a powered two-slot expansion chassis for the ASDG memory boards. The rack does not obscure either game port.

The Mini-Rack-D is a two-slot, Zorro-compatible card rack with an internal power supply. The power supply offers currents at +5, -5 and +12 volts. The rack does not obscure either game port.
ASDG, Inc.; Piscataway, N.J. 08854

Auto Pal

Access Associates R.R.P. \$99

Option for Alegra memory board, does not include RAM, allows up to 2Mb in Alegra, easy installation.

Distributed in Australia by Computamart Pty Ltd, 6(09) 328 9799

AX 1000

Comspec R.R.P. \$1039

1Mb expansion

Attaches to Amiga bus, pass-through provided, auto configure under 1.2 o.s., software provided for 1.1 o.s.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

AX 2000

Comspec

R.R.P. \$1,359

As above but with 2Mb

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Board #2

Expansion Technologies R.R.P. \$7999

Option to escort memory boards, board & sockets for 2Mb RAM, use with Escort 2Mb to expand to 4Mb.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Escort 2 OK

Expansion Technol. R.R.P. \$799

Memory expansion box

Sockets only for 2Mb, attaches to Amiga bus, can be expanded to 4Mb.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Escort 2 2Mb

Expansion Technol. R.R.P. \$1,499

As above but with 2Mb installed

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Escort 2 4Mb

Expansion Technol. R.R.P. \$2,199

As above but with 4Mb installed

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Insider 1Mb

Michigan Software R.R.P. \$859

1 Mb memory expansion

Completely internal, fast RAM, auto
configure under 1.2 o.s., software provid-
ed for 1.1 o.s.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Memory Expansion

1MB and 2MB RAM boards

AX1000, AX2000

Comspec Communications, Inc.; Onta-
rio, Canada M6A 2Y6

Cage II OKB

Pacific Peripherals R.R.P. \$729

Memory expansion box

Attached to Amiga bus, expands to
4MB, auto configure under 1.2 o.s, soft-
ware provided for 1.1 o.s.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Cage II 2MB

Pacific Peripherals R.R.P. \$1,399

As above but with 2Mb installed

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Cage II 4MB

Pacific Peripherals R.R.P. \$2,199

As above but fully populated

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

IVS Ramex-1M

RAM memory expansion board

Interactive Video Systems; La Mirada,
Calif. 90638

Megabytes/Amiga

Memory expansion

1.05MB, 2.10MB

Skyles Electric Works, Inc.; Mountain
View, Calif. 94041

Pacific Cypress

RAM expansion boards/RAM disks with
OK memory installed;

XPANDER II 2MB expansion box with
OK memory installed;

XPANDER II 4MB expansion box

Pacific Cypress; Fremont, Calif. 94538

The Advantage

Pacific Peripherals R.R.P. \$699

Option to Cage II board, 2nd power
supply, sockets only for 2Mb RAM.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Plug-compatible, Standard 256K

Compatible, standard memory expan-
sion

MicroBotics, Inc.; Richardson, Texas
75085

Pow-R-Card

Memory expansion board

RS Data Systems; Houston, Texas 77074

Smarts Card

RAM expansion cards

The DSI Smart Net is an EMI/RFI
shielded metal enclosure that interfaces
to the Amiga, provides ports for and en-
cases the Smart 1 and Smart 2 RAM ex-
pansion cards.

The DSI Smart 1 RAM Expansion Start-
er Card provides incremental RAM ex-

pansion and has the microprocessor cir-
cuitry necessary to expand an Amiga to
an additional 2MB of RAM. It also has
an expansion port that allows a user to
connect up to three additional Smart 2
RAM Expansion Slave Cards.

Each Smart 2 RAM Expansion Slave
Card provides up to 2MB of incremen-
tal RAM expansion.

A combination of one fully loaded
Smart 1 Starter Card and three fully
loaded Smart 2 Slave Cards will increase
an Amiga's memory to its maximum po-
tential of 8MB. The Smart cards can be
ordered with 0K, partially loaded or fully
loaded with 2MB of RAM.

DSI; Wichita, Kan. 67211

StarBoard2

2MB memory expansion

512K installed

MicroBotics, Inc.; Richardson, Texas
75085

(for full addresses and telephone num-
bers see the list of distributors at the
end of the Annual.)

Memory hints & tips

If you're thinking of adding a
RAM expansion board to your Ami-
ga, ask these questions: if it atta-
ches to the Amiga's bus (on the side
of the machine), does it have a
"pass-through"?; does it "auto-
configure", ie, will it be immediat-
ly recognised for what it is when you
boot up??; and is it a "no-wait-
state" device, meaning fast???

The difference between "Auto-
configure" and "AddMem": both of
these allow your Amiga to recognise
devices attached to the expansion
bus - Autoconfig is built into the 1.2
system software, and allocates mem-
ory space to the devices on the bus,
and is the preferred way of doing
things. Addmem is not automatic,
but requires that you decide what
devices get allocated what memory,
but doesn't guarantee that devices

will not use the same memory space.
Real products use Autoconfig.

Memory

If you're very low on memory, you
can free some up by closing as many
Workbench windows as possible. To
close up all the windows and still
have a program icon to click on, drag
the program's icon outside its win-
dow onto the Workbench screen
(which is the backdrop window).
When you've finished, make sure
you drag the program icon back into
its usual window.

If you must have some windows
open, you can minimise the memory
requirements by not letting them
overlap. And if you're really des-
perate, you can unplug your extra
drive which takes about 30Kbytes.
And if all else fails, get a memory
expansion board.

Spreadsheet - a table that does calculations

Not just something you lay on the ground before you do any painting - a spreadsheet is a table that does calculations. It has the shape of a grid like the mileage chart on a road map. It can therefore replicate budgets, accounts receivable, balance sheets and almost any financial table.

You can enter figures directly from the table on the page to the table on the screen and everything looks the same. But one thing is different. You can now add formulas and have the table calculate and display results automatically.

Looking more closely at a spreadsheet matrix we see that it has a series of adjacent vertical towers - columns - and horizontal layers - rows. Normally, each column has a letter at its top and each row has a number to its left. These letters and numbers give names to the columns and rows.

Each column intersects each row in a flattish rectangle called a cell. Cells are the building blocks of a spreadsheet. They have addresses or cell names made up of their row and column coordinates, such as C3 or W51. Cells hold the contents of a spreadsheet. Cells can contain labels, words. These set up the framework for your spreadsheet.

And not just financial planning. Spreadsheets can perform a multitude of tasks. They are not only useful for altering projections, but also for keeping records that change very rapidly, or for making tabular computations of some complexity, like statistics in certain fields.

Several qualities to look for when spending the bucks:

Compatibility with other programs: It could happen that you'll get the urge to move the contents of a spreadsheet into a word processing document to show in a report or into a business graphics program to gen-

erate a graph. A spreadsheet compatible with other such software makes these transfers smooth.

Formatting: A good spreadsheet will contain a number of special formatting features. To expand or shrink columns to fit their roles is one such feature. For instance, a column listing the names of customers should be wider than one that lists dates. The spreadsheet should also allow you to express numbers as integers, decimals, or dollar amounts and should make it easy to insert blank lines or columns, label features and move items about.

Good documentation: They sound tough, but spreadsheets are not hard to comprehend. A spreadsheet should come with clearly written and concise documentation to ease you into the beehive happenings on a spreadsheet page. It should also have a reference section that is smooth and comprehensive.

Multitasking: Top three in the acclaimed innovations of the late 1980's software material. Something we humans haven't quite mastered - being able to do more than one thing at once in a broad physical sense. Some Amiga spreadsheets are making good use of multitasking.

Preset formulas: Most spreadsheets come with numerous formulas already configured for your use. They can include mathematical formulas such as logarithms, statistical formulas such as for compound interest, logical formulas such as IF-THEN, and trigonometric formulas...such as sine and cotangent. The number and utility of these formulas is one index of the program's power.

Protection: Certain spreadsheets will let you hide the contents of specified cells so they appear blank on the screen as you work. Normally you use a password to conceal or reveal these cells.

Size: The program should be big enough to handle every chore you

forsee for it. Most spreadsheets are substantial indeed and your major limitation will not usually be software.

Automatic repeat: Generally, and quite frequently you have to enter the same name, figure, or formula in a number of different cells. Instead of typing in each one you should be able to issue in a command and have the computer enter them for you.

Speed: The speed at which a spreadsheet calculates is sometimes hard to assess, yet it becomes very important the larger your table becomes. The most powerful spreadsheets will minimize waiting.

Something called "Relative cell references": coexistence of factors, harmony manuevres. Formulas must refer to other cells because they operate on cell contents. The program can structure these references in two ways. One is absolute cell reference.

Relative cell reference indicates cells by means of directions from the cell with the formula. Usefulness? Well, say you have 24 columns of numbers, each fifty cells high and you want to add each column up. With absolute cell reference you would have to enter a new formula at the bottom of each column since the names of the cells to be added will change each time. With relative cell reference, however, you can enter one formula and copy it right across the row. Time saver, and more impressive to your boss looking on.

Windows: There are a lot of spreadsheets that will let you break the screen into two or more parts - windows - so that you can examine different parts of the spreadsheet at one time. Particularly is this helpful for large spreadsheets or for related ones on the same grid.

For spreadsheet programs see the *Software Guide* in this Annual under "Spreadsheets" and also under "Integrated".

Word Processing - guide to terminology

How long have word-processors on computer been around? Just on ten years. Ever since programmer Michael Shroyer looked around for a system to help him document his own program and had to create one himself. The *Electric Pencil* in 1977. Now the Amiga brings you the *Talker*, synthesized tones more faithful than an overseas darling or doting publisher - reading aloud every word you write.

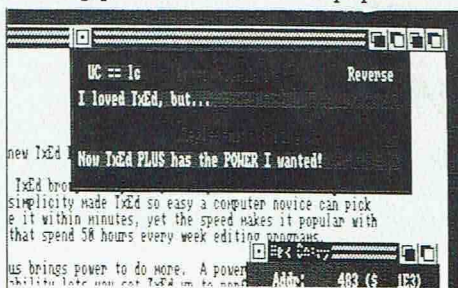
Now, word processing is as big a part of the computer as any other usage, with people buying computers for the sole purpose of writing, and companies maximizing the efficiency of their offices by getting monitors and new-fangled keyboards on their desks and trading in the liquid paper for floppy disks.

Word processing to the newly-introduced users was an initiation into terror. The Save function became an integral life or death manoeuvre to stave off the anger, the agony at the loss of a file.

It took some coaxing to persuade the fearfully wounded writer back to the keyboard and build a trust in something as intangible as video copy as opposed to the security of real life paper and ink. At least it was around to show, than the instant obliteration from the touch of a single key or cut to the power.

But talk to most writers, journalists, editors and secretaries now, and they'll chat affectionately back to you about "their babies" - the little wonders that take the information from your finger tips and breathe an outstanding display of professionalism to the page.

But before the messages go to print, the word processor has enabled the user to choreograph the geometrics of the page and perfect each paragraph and sentence to readable beauty. A transitional momentary stage, an on-screen melting pot before release to paper.



Instead of a marathon jumble of sentences and phrases hammered out in a sweated session of creative ignition and encrusted on the page warts and all, the word processor provides a dress rehearsal for your tentative imagination.

And when it's good, it's great. Enough to make a few copies of anyway. Not lining up behind some eight year old with a class project to photocopy out of an encyclopedia in the local library, but instead, with a printer on automatic, perched falcon-like beside your monitor ready to take and deliver as many copies as you require.

Word processors are applications, equipped with specific specialized knowledge about the duties they must perform.

Automatic carriage return: As you near the end of a line the software tests the words to see when they no longer fit. At that point it moves the text down to the next line.

This feature is called "wraparound". It relieves you of one more chore, and anyone who has written on a typewriter knows the slight but perceptible annoyance of having to interrupt a racing, intricate thought to end a line, perhaps hyphenate a word, and return the carriage.

Fonts: Because the Amiga has a bit-mapped screen, it can represent letters in myriad shapes. You can therefore write in a variety of fonts - airy, block like, tendriled, even Gothic. A font is a kind of design and may even be copy-righted...which makes it more fun to use.

Justification: Word processors execute in magic simplicity the aligning of your prose to the left margin, right margin or centre.

If you justify both left and right you can generate neatly squared pages like those in books. Centre justification simply centers every line and saves you the trouble of counting characters when typing titles and other heads.

Margins: Yes, they can set your margins and keep them there, so you will never have the problem of bell-bottom text - with one inch margins at the top and quarter-inch margins at the

bottom. Moreover you can set them before writing and alter them at any time afterward.

Mobility: The mouse lets you move instantly across your text. You may take the mouse for granted, but without it, editing can be like crawling back and forth on a scaffold.

Paging: Word processors can wrap around from one page to the next. Instead of removing a sheet of bond, threading in another and adjusting it to the horizontal you can continue writing and maintain your train of thought. The software silently shifts you to the next page and often automatically numbers it.

Print Replication: Because the screen is bit-mapped, you can print out exactly what you see on it. This feature frees you forever from the bare, sticklike font of the typewriter and lets you undertake print shop tasks like creating quality letterhead.

Opportunity as well, to write in various type sizes. Many word processors let you chose from the tiny 9 point through 12, 14, 18, 24, 36, all the way up to the grand 72 point size. Others let you expand or condense your print to any size in between. On guard though, for poor letter quality at the larger sizes, where some programs render curves with pronounced steps.

Silence: Yes, S is for silence. The noise alone from a typewriter can fray the nerves after an arduous period of writing. A word processor has been described as being "as quiet as the sunrise."

The word processor yes, and even the keyboard has the sound of a preschool ballet class over that of the closing stages of Vietnam.

Styles: The Amiga can also display styles of type such as italic, boldface, or outline. Styles differ from fonts. Fonts are the fundamental character patterns and involve features like the presence of absence of serifs.

Fonts are not generalizable, that is, they don't interact with other fonts. Styles do. They are the means of playing with fonts, as by slanting or thickening them.

Writing Accessories

Boilerplate Programs: Some professionals, like lawyers, come in contact with boilerplate all the time. They deal with documents like pleadings or standard contracts which have a certain basic form but which normally require alteration to fit the circumstances. Boilerplate programs provide such forms.

It is a complicated term and perhaps not the greatest when it comes to word association, but a boilerplate in reality is a piece or a sheet of steel welded to other metal surfaces. In most cases it would be to repair damage, holes, slashes in say, the hull of a ship. Or, it may be to expand on an existing structure.

In the case then, of a program used by a lawyer, it may have to be specialized to fit a particular precedent or law

or clause in whatever way it is used in computer communication or processing.

Font programs: Some programs consist of nothing but fonts you can load into your word processor. These can dramatically extend the esthetic range of your work. Fonts impart tone to your prose.

The right font can make a business report seem more authoritative, a brochure more futuristic, a newsletter more distinctive. And anyone who spends more time in front of a video screen will appreciate the importance of pleasant text.

Layout programs: Useful for newsletters and other small publications. They let you arrange copy, headlines, and pictures on the page.

Most word processors have a crude layout capacity letting you array prose on the page in a certain way. Few, though, allow you to do such things as setting prose into columns or turning a headline on end.

If you want to use the Amiga to produce a publication, particularly with a laser printer, you will find a layout program very handy.

Spelling checkers: A spelling checker examines each word you type, compares it against the words in the dictionary, and flags it if it isn't recognized.

It thus catches not just ordinary misspellings, but typos as well, though it won't notice mistakes which substitute for other legitimate words, like affect for effect. A good word processor dictionary can have as many as 50,000 words.

Word Processing and Text Editing

The original main use of personal computers was Word Processing, and so it remains, in spite of the explosion of program genres of all kinds. WP itself has gone through a number of rapid developments, from the first key-combination controls (as *Wordstar* for the IBM still is) to mouse- and menu-driven WPs such as are available for the Amiga. And word processing has moved on to Page Processing and Idea Processing - in other words, Desktop Publishing. All of these are fairly vague terms and they overlap a lot. They overlap so much in fact that you can now set up a seamless publishing system on your Amiga.

There are a number of WP packages available for the Amiga and the list is growing. The best known are *Textcraft* (provided with the Amiga) and *Scribble!*, but there are also *Wordwright*, *E.T. Writer* (which turns the Amiga into a full-featured electronic typewriter), *Talker* (which speaks as you type!), *Viza-Write*, *Write Hand*, *ProWrite*, *LPD* and others.

Scribble 2

Scribble! 2 is a real word processor, with practically everything you'd need, and it uses the capabilities of the ma-

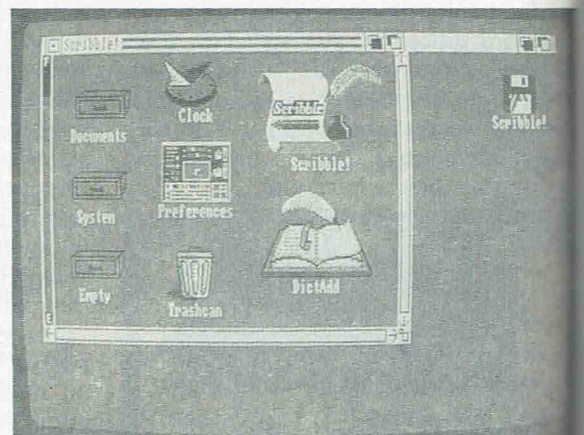
chine. So the windows are resizeable, up to four windows can be opened at once on screen, high resolution mode is possible with a full-screen page to allow you to see twice as much of your document and all the usual Intuition gadgets are used to good effect. There are Amiga-key commands available for most operations if you prefer not to use the mouse. And for partial converts from the IBM world, all the *Wordstar* keyboard commands are available - though I think that inevitably, such people would move towards Amiga-style use in time.

Scribble! 2 works best under *WorkBench1.2* - you can enter information in requestors without clicking in them; all requestors accept the first letter of commands from the keyboard (so C for Cancel will work); and for storing, getting or replacing a file you don't have to wait until the requestor is fully loaded, you can interrupt at any time.

There is a nice touch, where you can save a file as a .DOC extension, and select only those files to appear in the requestors, saving time and space.

The other benefit of using 1.2 software is that you can use Interlace from Preferences. In spite of what you may hear, it is possible to get a flicker-free screen in hi-res, by simply selecting the right combination of colours, and you get much more space available, whether you want to have one full-screen project running, or a combination of two or three simultaneous programs. I would recommend using this for your normal *WorkBench/CLI* screen for the same reasons.

Along with these functions come a few useful extras: there is a Dictionary provided with the program to which you



can add words - this may be necessary, since it's not huge. The best way to use it is to load it into RAM, for the sake of speed, and check the spelling of your documents at will.

The screen display is not WYSIWYG, but there is a Preview command which allows you to see the document as it will appear printed, before printing. There are also numerous menu selections for formatting your document on screen and for printing.

The other good extra is a Mail-Merge facility, allowing you to set up form letters with variable names, etc. Not everyone will need this, and it takes a little study of the explanation (on disk), but a powerful facility it is, extending the range of the program.

In short, *Scribble! 2* is a powerful, easy-to-use Word Processor, and has set something of a standard for the Amiga, with the result that other programs, such as *PageSetter* (see under Desktop Publishing), have been devised to accept output specifically from it. Another plus is that Brown-Wagh Publishing, who market it, also have available a spreadsheet called *Analyse!* and a database called *Organise!*, both of which use the same "look and feel" as *Scribble! 2*, with easy transfer of data among the three.

Distributed by Imagineering (02) 697 8666 and Computamart (09) 328 9799.

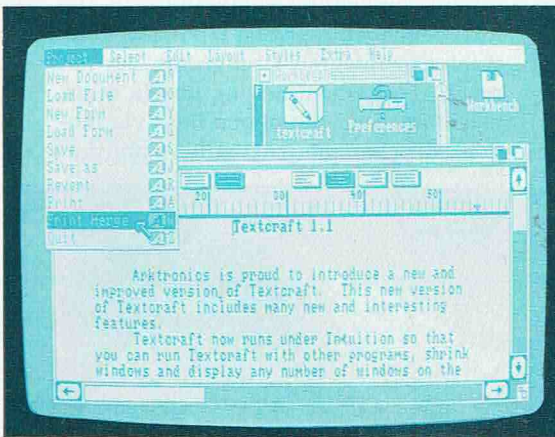
Textcraft

Version 1 of *Textcraft* had quite good online help in the form of semi-animated tutorials, though the flapping pigeons became a little irritating. These took you through most of the capabilities of the program, and the virtue of it was that you were very soon doing real word processing, a fact much appreciated by newcomers to computing. For simple WP requirements, *Textcraft* was quite sufficient, and I'm sure that there are many packages still being used.

There are, however, a few drawbacks to the program, which will become serious limitations to anyone who wants serious word processing which uses the power of the Amiga. The first of these is access to external disk drives: this is al-

most impossible the way the requesters are set up, and requires you to load and save from the system disk. There are ways around this, but getting around it implies you know a good deal about the machine, which further implies that you've moved on to other word processors.

Secondly, the multi-tasking abilities of the machine are not really used: only one *Textcraft* window can be opened, and there are no "depth arrangement"



Textcraft

or "resizing" gadgets provided, so that you're essentially stuck with the window you've got (it is possible to use the Right-Amiga-N and M key combinations to switch to Workbench and back, however; and it is best to have opened some other program such as the Clock first, to allow access to the rest of the system).

There are other limitations on the extent of the formatting of the text possible compared to other packages, and of course there are no exotic features like vertical block manipulation (as distinct from the usual horizontal block operations).

None of the keys is programmed or programmable as macros (to allow a series of keystrokes or operations to be performed with a single keystroke), and in general, what you see is all you get.

In short, considering the program comes free, it's good value. It's what you'd call an "entry level" word processor, and quite sufficient for simple

needs - in fact, programs such as *Wordperfect* have so many features and capabilities, you start wondering if anyone has ever regularly used half of them.

Textcraft Plus is now available with many of the original version's problems solved - multiple windows, external disk access, and so on.

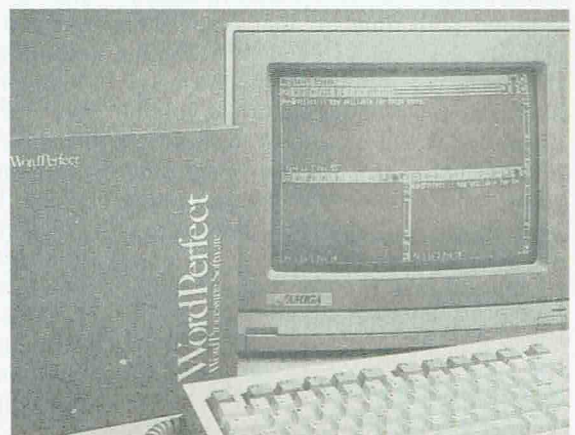
WordPerfect

For some years, *WordPerfect* has been a standard in the IBM world and is a very powerful text manipulator. Now WordPerfect Corp. has adapted the program for the Amiga, and by the look of the package, started to do so some time ago.

The package comes on four disks, none of which is copy-protected: the WP program on a bootable disk; the spelling checker and thesaurus; the Print disk with a stack of printer drivers; and the Learning disk with copies of all the tutorial files referred to in the manual. The manual itself would account for a couple of felled redwoods, stretching to about 600 pages in a ring binder and very attractively put together.

Oddly enough, you can only have one copy of WP running at a time, unlike other Word Processors and Text Editors for the Amiga. However, if you have a lot of RAM, you can have up to 32 documents open at any time (only two on the IBM). It is a large program, and would be best installed on a Hard Disk, especially if you tend to use spelling checkers often. There is also a

Wordperfect



RAM-consuming feature which allows you to do "Timed Backups", ie, you can tell the program to save a copy of the document every x minutes. Likewise, backup files of documents in their pre-edited state are kept.

The online HELP facilities are truly extensive, more so than any other program I've seen: press the Help key, followed by a function or cursor key and you'll get a screenful of information about it. Or Help followed by the first letter of the operation you want to perform will give you a screenful of explanations about all tasks starting with that letter. Not bad, considering how many functions are possible.

The way these functions are accessed is necessarily schizoid - you can either go via the IBM-style key-combinations, or you can use the mouse-menu interface. With greater familiarity, you'll undoubtedly end up combining both methods, as each has its advantages. The nice thing is that with the Amiga you have that choice. There are so many control key combinations in this program that you'd have to be a full-time word processor to ever get to use them. Most people need a limited array of commands, and the more intuitive the better - less to remember.

As a result, however, the program is deep, and a fully professional tool for the serious word-cruncher. To help the ailing memory, there are summaries and templates provided.

Price for the package at this writing is \$595, though I'm sure that will be discounted with time. At that price, it's a serious investment, and considering that there is a number of much cheaper alternatives, I wonder about the volume of sales that will occur. But for business applications which require very professional and intensive word processing, you won't get anything better than *WordPerfect*.

Distributed by Computamart (09) 328 9799 and Sourceware (02) 411 4711.

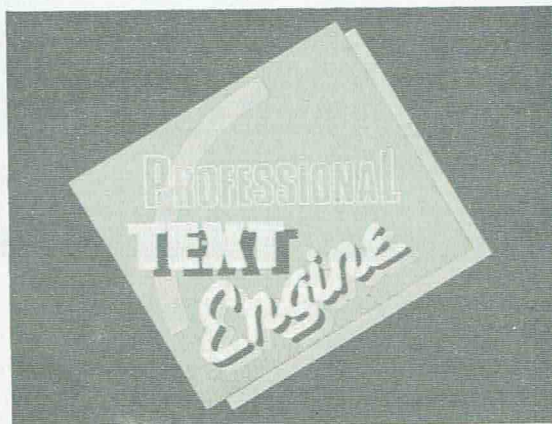
Professional Text Engine

This is a heavyweight, high quality

text editor from Zirkonics, with a wealth of unobtrusive features, sufficient to make it a very passable word processor as well.

The history of text editors versus word processors comes down to ASCII versus embedded codes. ASCII documents are most useful for transferring to other machines in various ways, since they will appear on another computer in a generally similar format.

Most word processors tend to incorporate "embedded commands" in the text, which is fine when talking to your printer or integrated programs, but not much good when moving text to other machines, over the phone lines via modem, for example. Text editors are pre-



ferred by power users and programmers for this reason and because of the many specific features possible which allow for all kinds of manipulation.

Zirkonics PTE is a powerhouse of features - it stops just short of making the coffee. It is a program which has stepped up a level beyond the usual text editor genre by making it possible to customise your environment completely. As an example, one of the "environments" or "definitions" is a full emulation of the entire IBM *Wordstar* Word Processor - ie, the definition (which can be modified as you like) programs the keyboard to behave just as if you're running *Wordstar*!

This has been provided on disk by Zirkonics among about eight different environments, including straight vanilla text editor, "manual" mode (ie, ideal for writing manuals) and so forth. Just as a butler is a "gentleman's gentleman" so

PTE is a "tool's tool".

The upshot of all this is that you are provided with a tool which can be any number of tools, and you can define the environment you want, by a series of DEF commands in a file, to do things exactly as you'd like. Any key can be defined as you wish for any definition, and you can have as many of these definitions as you like.

I think most users would find themselves very well catered for in the definitions provided by Zirkonics on the disk, but it is totally open-ended. It has, for example, the ability to operate on vertical blocks, rather than just the usual horizontal blocks, meaning that you can cut, copy and paste any section of your display - every other text editor or word processor I've come across always does full horizontal "marking".

Very useful for those who get into heavy text editing.

The interface/appearance is clear and simple, with a window for text input and a command line below, for the many commands possible.

A further line provides messages and help. There is extensive on-line help in the form of a 10-page summary which is nicely designed, and there is a number of files to explain specific aspects of the program, and to complement the manual. The program is not copy-protected, and comes on a single disk.

One drawback I found with this program is its inability to open to a full Hi-Res screen (640 X 400) - however, there are many people who don't use the hi-res mode, and this will not be a problem for most.

There's a lot more that could be said about this program, which is really a user-friendly meta-program. For anyone who does a lot of text editing, whether for programming purposes or Desktop Publishing or whatever, this package is definitely going to do it if it can be done.

For more word processing programs see the *Software Guide* in this Annual.

For full addresses and phone numbers of distributors, see the list of distributors at the end of the Annual.

Quick Reference Card to 2.3 AmigaDOS Commands

User's Commands

File Utilities; comment character

<>	.....	direct command input and output respectively.
ADDBUFFERS	.....	reduce the disk access time by adding buffers.
CHANGETASKPRI	.....	change priority of CLI task.
COPY	.....	copies one file to another or copies all the files from one directory to another.
DELETE	.....	deletes up to 10 files or directories.
DIR	.....	shows filenames in a directory.
DISKCHANGE	.....	tell AmigaDOS that you've changed disks in 51/4" disk drive.
DISKDOCTOR	.....	fix corrupted disk in drive.
ED	.....	enters a screen editor for text files.
EDIT	.....	enters a line by line editor.
FILENOT	.....	attaches a note with a maximum of 80 characters to a specified file.
JOIN	.....	concatenates up to 15 files to form a new file.
LIST	.....	examines and displays detailed information about a file or directory.
MAKEDIR	.....	creates a directory with a specified name.
PROTECT	.....	sets a file's protection status.
RENAME	.....	renames a file or directory.
SEARCH	.....	looks for a specified text string in all the files of a directory.
SETDATE	.....	change the timestamp associated with a file or directory.
SETMAP	.....	change the key map for the keyboard to one for another country.
SORT	.....	sorts simple files.
TYPE	.....	types a file to the screen that you can optionally specify as text or hex.
BREAK	.....	sets attention flags in a given process.
CD	.....	sets a current directory and/or drives.
ENDCLI	.....	ends an interactive CLI process.
NEWCLI	.....	creates a new interactive CLI process.
PROMPT	.....	changes the prompt in the current CLI.

RUN	.....	executes commands as background processes.
STACK	.....	displays or sets the stack size for commands.
STATUS CLI	.....	displays information about the CLI processes currently in existence.
WHY	.....	explains why a previous command failed.

Command Sequence Control

ECHO	.....	displays the message specified in command argument.
EXECUTE	.....	executes a file of commands.
FAILAT	.....	fails a command sequence if a program returns an error code greater than or equal to this number.
IF	.....	test a specified action within a command sequence.
LAB	.....	defines a label (see SKIP).
QUIT	.....	exits from a command sequence with a given error code.
SKIP	.....	jumps forward to LAB in a command sequence (see LAB).
WAIT	.....	waits for, or until, a specified time.

System & Storage Management

ASSIGN	.....	assigns a logical device name to a filing system directory.
DATE	.....	displays or sets the system date and time.
DISKCOPY	.....	copies the contents of one entire floppy disk to another.
FAULT	.....	displays messages corresponding to supplied fault or error codes.
FORMAT	.....	formats and initializes a new 31/2-inch floppy disk.
INFO	.....	gives information about the filing system.
INSTALL	.....	makes a formatted disk bootable.
RELABEL	.....	changes the volume name of a disk.

Developer's Commands

Development System

ALINK	.....	links sections of code into a file for execution (see JOIN).
ASSEM	.....	assembles MC68000 language.
DOWNLOAD	.....	downloads programs to the Amiga.
READ	.....	reads information from the parallel port or serial line and stores it in a file.

Running the Workbench

All of the operations connected with using the mouse, menus, and icons are handled by the Workbench, and for some users, no more will ever be required. After mastering the techniques of the Workbench (WB), however, you may find it interesting to go further and explore the CLI or Command Line Interface as well.

A NOTE FOR THE CAUTIOUS:

Don't be! Nothing you do, short of taking a tomahawk to the machine, will destroy it, it's tough. So experiment as much as possible, try out the techniques described here as soon as you read about them. The main advice to heed is to avoid ejecting disks while the red disk light is on - this might trash your disk. Otherwise go for your life, try everything, life is short!

Icons

First and foremost, on the WB everything runs from Icons, which is the graphic representing a program (or Tool in WB terms) or a Directory (or Drawer) or a Disk or a file (or Project). An icon just gives you something to manipulate in some way: double-click on it to "open" it; single-click to "select" it; "drag" it with the mouse to move it to another place. The icon is directly associated with the file it represents, in the sense that it contains instructions about it - where it is on the disk, how big it is, whether it needs another program to run it or show it (if it's a graphic, for example).

It's quite possible for a file not to have an associated icon, in which case it exists all right, but you can't see it or manipulate it on the WB - you have to enter the CLI to do anything with it. Or you can attach an icon to it by using the Icon Editor.

Workbench Techniques

A. Opening an icon:

You "double-click" on the icon with the left mouse button. Similarly a Drawer icon will open a window to display its contents; a Project icon (like a Word-processing document) will call on the associated main (Word-Processor in this case) program to display itself; a Tool icon will run the program associated with it (the NotePad, for example); and

the Trashcan icon is just like a drawer except that you can drag icons over it, like any other drawer, and they will sit there until you give them the sentence of death by selecting "Empty Trash" from the Disk Menu.

B. Selecting an icon:

This is done by clicking once on an icon with the left mouse button, which will cause the icon to highlight or change colour. The point of this is to then go to the WB Menu bar, keep the right mouse button pressed down, move to one of the options (which will also be highlighted), and then release the button. This will perform the task you selected, such as Rename or Snapshot (see below).

Note that sometimes some Menu items are "ghosted", rather than clearly outlined: this means that whatever you're doing at the moment doesn't need those operations.

In the same way, instead of double-clicking on an icon to Open it, you could just as well Select it, then go to the Workbench Menu item, and move to Open at the top of the list, and release the button. However, you'll probably find it easier to double-click.

C. Dragging an icon:

To move an icon, in order to tidy it up, or put it in another drawer or on another disk, simply position the pointer on it, hold down the left mouse button and then drag the mouse in the direction you want to go. When the icon is where you want it to be, let go the button and that's where it will stay.

You don't have to have a Drawer or Disk window open to accept a dragged icon - you can drag the icon on top of the icon for a Drawer or Disk and it is the same as dragging it into an open window. (See Extended Selection below). Note that if you dragged it to another disk, the original icon will still be there on your original disk, as well as a copy on the "Target" disk. If you dragged the icon from one place to another on the same disk, then it has been moved, not copied. If you just moved it within the drawer or window it was in, to straighten up its position for the sake of tidiness,

you'll have to Snapshot it if you want it to remain there the next time you open the drawer or window, as follows...

D. Snapshotting icons:

Select the icon, having dragged it into the position you want, go to the Special menu, and move down to Snapshot. Release the button, the computer will whirr, and that's it. (See Extended Selection below).

E. Deleting an icon:

There are two ways of doing this, by using the Trashcan, or by using Discard in the Workbench menu. To discard an icon, drag it over the icon for the Trashcan, and release the left mouse button. You can do this to as many icons as you like, and if you open the Trashcan icon you'll see them all sitting there waiting for your verdict. If you decide you definitely don't need them, select the Empty Trash option in the Special menu, and all the contents of the Trashcan will be gone. If you're more decisive, simply select the icon you want to banish, go to the Discard option in the Workbench menu, and release the button. A Requestor will appear which seems to question your judgement - click on the "OK to discard" box and that's the end of that icon. (See Extended Selection below).

F. Duplicating an icon:

You may want to have two copies of a file on the same disk, in different drawers, or you may want to create another Drawer for purposes of disk re-organisation. So select the icon you want to duplicate, and select the Workbench Duplicate option, and soon you'll see the same icon with "Copy of ..." as its name. You might want to Rename this to the same original name, or if you duplicated the Empty drawer you might want to rename it to "MyDocuments" or whatever.

Try it - Go to the window of your WorkBench disk, select the Empty drawer, and select Duplicate from the Menu bar.

If you don't need it right now, select it again, and go to the Discard menu option.

About Gadgets

If you can't see the window you need on screen, because it's behind other windows, just click on the Back/Front Gadgets in the top right of whatever window happens to be in front. The inner of the two will cause the current window to move to the back of the stack, while the outer one will bring it to the front. The other way of moving things round the screen, is to use the Resize gadget at the bottom right of any window - place the pointer on it, keep the left mouse button down and drag the window to the size you want it. Then just release the button. The third main window gadget is the CLOSE gadget in the top left corner of most windows or programs - click once on it, and presto! no more window. (The exception to this is the window you're using to read this article - you need to click twice on its close gadget to get rid of it.)

G. Copying a disk:

Like most operations on the Amiga, this is a tedious process if you don't have an extra disk drive. However, in either case simply select the Disk icon which you want to copy, then select the Duplicate option in the menu bar. A requestor will appear telling you what to do next, and in the case of one drive you'll be presented with other requestors asking you to swap disks (Source and Destination disks) several times as the Amiga loads sections of the Source into memory then dumps it to the Destination disk.

The other method is to load your blank disk so that the icon appears on screen (saying DF1:BAD, or DF0:BAD for one drive), then drag the Disk icon of the disk you want to copy on top of the icon for the Destination or Target or blank disk. Once again, requestors will tell you what to do. Making a copy of your disk is a good habit to get into, since you never know when a disk will give up the ghost for no good reason, and you may be left with a trashed disk and no programs to run.

H. Initialising or Formatting a Disk:

This is the process of turning a brand new blank disk into a disk that is recog-

nised by the Amiga. The procedure is similar to doing a DiskCopy - select the icon of the new disk, go to the menu bar and select Initialise from the Disk menu, and the machine will go through its paces. Once it's finished you may want to rename it for your own purposes.

As an Initialised disk it is ready to take data, so you might use it as a disk to hold all your Word Processing icons, or to store your *Deluxe Paint* graphics on, or whatever. Just drag them across from wherever they are, and you might also drag an Empty drawer across from your Workbench, so that you can duplicate it on the new disk and create a series of your own drawers.

About Extended Selection

Sometimes you may want to copy a number of icons from one place to another together, rather than one after another; or you may want to discard several at once; or snapshot a whole drawer-full once you've arranged it as you like it. In such cases, there is a simple way to do it. With the Shift Key pressed down, click once on each of the icons you want to copy, discard or snapshot. When you've done that, they'll all be highlighted. Now take your finger off the Shift key, and go to the appropriate selection in the Menu Bar as usual and select it (this is for Discard and Snapshot, not Copy). The computer will whirr, and it'll be done. In the case of Copying several at once, select them all with the Shift key down, then drag the pointer to the drawer or window you want them to be copied to. You'll see them all move together. Release the mouse button when they're where you want them to be. This is a technique which saves a bit of time, especially in the case of Snapshotting. Just be a little careful with the Discard.

The Remaining Menu Items

I. Special - Version:

Simply tells you the versions of Kickstart and Workbench that you're using. Of more use to owners of the A1000, who have been known to use various versions of the system software to run the odd program which won't work

with certain versions.

J. Special - Clean Up:

You can use this for tidying up your windows instead of Snapshot. If a drawer is open and the icon you selected to open it is selected (highlighted), choose Cleanup and you'll find all your icons nicely tidied up.

K. Special - Last Error:

Occasionally you'll get an Error message in the title bar, as a result of doing something that's vaguely illegal, like trying to open a project icon without having an actual project attached, or asking your computer to take out the garbage.

If you want to check which error it was, select this option, then look it up in your AmigaDOS book (which you should get).

L. Special - Redraw

Sometimes a tool/program will affect the screen in some strange way - to restore the proper appearance just choose this one.

M. Workbench - Info

Selecting this option will bring up a screen which tells you all about the icon you've selected. You'll be able to find out what type it is, how big, what "tool" it calls on if it's a Project icon, and generally you can manipulate the icon by changing some of the defaults in the dialog boxes.

Missing Workbench

Usually when you're running a program, you can drag your screen down with the left mouse button depressed to find Workbench waiting behind. But sometimes it vanishes, because a program closes it down to save on memory - *ABasic*, the original Basic for the Amiga, does this, as does *Deluxe Video*, and so does *MaxiPlan Plus*. If you want to avoid this problem (say to run something else from the Workbench), all you have to do is have a window open on Workbench when you start any other program - having a CLI window open is both effective and useful, since you may want to use it for a bit of file manipulation at times. The clock will do too.

Software Guide

This Guide lists software under the following headings: Accounting, Communications, Databases, Desktop Publishing, Education, Graphics - Business & CAD, Graphics - Creative, Integrated, Music, Programming, Specific Application, Utilities, Fonts & Desktop Accessories, Word Processing, Games, Sports

Games, Strategy & Simulation, Personal & Home Finance, General Business, Other Software.

At the end of the Guide hardware is listed under Hardware & Peripherals, Hardware Software Combinations, and Miscellaneous.

You can order from overseas by telephone with an international credit card.

Accounting

B.E.S.T. Business Management System

Integrated business management

A truly integrated accounting/information management system with automatic account updating. Includes order processing, inventory, management, services management, receivables, payables and general ledger.

Distributed in Australia by Able Products Australia, (02) 816-3700, and Computamart Pty Ltd, (09) 328 9799

CCI Bottom Liner-A

Personal, small business full accounting system

An accounting system designed for personal, home and small-business use. The program handles up to 1,000 accounting entries and 1,000 customers per disk per year. It is expandable to the CCI Super-A Merchandiser.

Clockwork Computers Inc, Rockville, Md. 20853.

CCI Merchandiser-A

Transaction accounting, inventory control for point-of-sale, customer lists, quotations, job orders.

Handles transactions, inventory records for point-of-sale, up to 1,000 items, and provides financial reports and analyses, accounts receivable and more. Cash drawer is optional and the program is expandable to the CCI Super-A Merchandiser.

Clockwork Computers Inc, Rockville

CCI Super-A Merchandiser

Integrated accounting and point of sale
Provides a fully integrated quotation, customer list, accounts receivable, job order, sales transaction, inventory con-

trol, inventory costs and a complete accounting program for cash flow, P&L and balance sheet. It handles up to 98,000 inventory items, 98,000 accounting transactions and 5,000 customers (or more with greater memory). The program requires a 20Mb hard drive.

Clockwork Computers Inc, Rockville.

Financial Plus

Integrated business accounting

An integrated accounting package that incorporates general ledger, accounts payable, accounts receivable, payroll and word processing.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

KEEP-Trak

General-ledger accounting

512K Amiga

KEEP-Trak is a double-entry, general-ledger accounting program that can be used for assets, liabilities, net worth, income, expense and more, and will operate with 5,000 journal entries before consolidation is needed.

Reports generated include balance sheet, income and expense statements, general journal, general ledgers, trial balance and chart of accounts.

Other features are as follows: entries are entered through a program that allows a running "proof"; the current entry is shown for user approval; the last entry added to the journal is displayed with the associated record number; incorrect entries can be deleted; journal entries verify with account numbers to assure validity; and more.

The Other Guys; 5 Logan, Utah

Major Accounting

Integrated accounting suite

512K Amiga & 20Mb Hard Disk

Major is the first Australian released

professional accounting suite. The suite consists of nine different modules that can be used as either stand alone packages or integrated together. Major is written in C which gives you the power and speed required for any business. The complete suite has been in use for many years on much larger computers making it bug free.

The nine modules available are:- General Ledger, Creditors, Debtors, Stock Control, Job Costing, Payroll, Order Entry, Fixed Assets, Purchase Ordering.
Distributed in Australia by Multisoft, (09) 322-6637

MiAmiga Ledger

General-ledger accounting system

A double-entry, general-ledger accounting system designed to be used in both the home and in small business.

SoftWood Company, Santa Barbara, Calif 93120.

Rags to Riches IV

Accounting

Modules include General Ledger, Accounts Receivable and Ac/s Payable

Distributed in Australia & Asia Pacific by Commodore Business Machines Pty Ltd, (02) 427 4888

Communications

Amiga Term

Communications

R.R.P \$119

512K Amiga

Amiga Term enables your Amiga to communicate with other computers.

Amiga Term can display 132 columns of text without scrolling and give simple VT52 and VT100 terminal emulation. Supports Hayes compatible modems.

Commodore Business Machines Pty

Ltd; (02) 427-4888 also Computamart Pty Ltd, (09) 328 9799

A-Talk 1.1 Communications

Includes support for Kermit, XMODEM, XMODEM-CRC and Plain Text file transfers. Emulators for VT100, VT52, Heath H19, ANSI and TTY are provided, including 132 char/line and graphics fonts.

Felsina Software; Los Angeles, Calif.

BBS-PC!

Bulletin board system R.R.P. \$199

A versatile electronic bulletin board system that transforms an Amiga into an online information network.

Muti-level, completely configurable, permanent user records, individual passwords.

Distributed in Australia & Asia/Pacific by Imagineering; (02) 697 8666 also Computamart Pty Ltd, (09) 328 9799

Casa Mi Amiga BBS

Bulletin board system Casa Mi Amiga BBS is a 24-hour, on-line bulletin board system for all Amiga computer owners or interested persons.

It supports extensive upload/download file, message base, Fidonet mail and more. More than 8MB of public domain software is available for downloading, plus weekly additions.

Kinetic Designs; Fla. 32067

DIGA!

Communications R.R.P. \$159

Diga! combines both sophisticated terminal emulation and telecommunications into one powerful software system.

VT52, VT100 and Tektronix (including graphics) terminal emulations allow high speed communications with mini and mainframe computers. Diga! also has an exclusive DoubleTalk mode that allows two Amiga users to simultaneously transfer files in both directions while chatting via keyboard - all using one phone line and a standard 300, 1200 or 2400 baud modem.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888 also Computamart Pty

Ltd, (09) 328 9799

Digital Link

File transfer; telecommunications
R.R.P. \$155

Enables a user to transfer programs, data and text from IBM PCs, PC compatibles and the Macintosh to the Amiga and back. It also offers full terminal emulation for VT52, VT100, Televideo 925 series, ADM-3A, ANSI and TTY terminals.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Genie

Integrated Communication software

An integrated information management/electronic communications application program for computer conferencing and electronic mail in a networked environment.

Data Dynamics, Inc.; Portland, Oreg. 97208;

MacroModem

Telecommunications

Simplifies telecommunication sessions by allowing users to create sets of macro commands and companion help screens and direct log-on procedures.

MacroModem 1.2 allows a user to operate a remote system almost entirely with the mouse by writing macro command sets that mimic the menu and command structure of a remote system. Point-and-click operation of the function key commands is another facet of this new feature.

Kent Engineering & Design; Mottville, N.Y. 13119

MaxiComm Version 3.6

Communications; file transfer utility

An ANSI terminal and file transfer utility program that allows a user to connect an Amiga to public database services, public bulletin boards and another local computer.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888 also Computamart Pty Ltd, (09) 328 9799

MiddleMan

VT100 terminal emulator

A true DEC VT100 emulator that supports numeric keypad emulation, text file transfers, macros and more.

Benaiah Computer Products, Inc.; Huntsville, Ala. 35814;

Online!

Telecommunications R.R.P. \$170

A telecommunications program that can transform any Amiga into a terminal capable of interacting with micros and mainframes, so users can exchange information, news and data with other computers.

Distributed in Australia by Oxford Systematics; (03) 459-9671 also Computamart Pty Ltd, (09) 328 9799

Teleport II

Micro to mainframe connection

256K or larger Amiga; Hayes-compatible modem.

Teleport II is a complete software communications product used for both local microcomputer terminal operations and transfer of files between local and remote computer systems. It communicates mainframe to micro, micro to mainframe, or micro to micro for an integrated office and field environment.

It can be used for software distribution, data downloading, off-line data entry, micro-to-micro communication, micro-to-micro disk conversion and integrated system.

Features include built-in help messages; command menus; VT100 terminal emulation; automatic dialing and set up to system configuration for multiple remote sites; printer output; terminal-session review; unattended execution of command sequences; multiple buffers; micro and mainframe server modes; local DOS commands without leaving the program; and more.

Cherokee Data Systems; Cupertino, Calif. 95014

TY-100 Version 1.2

VT100 look-a-like

256K or larger Amiga.

TY-100 is the only true DEC VT100 look-a-like. It supports the scrolling region

concept of the VT100 to allow full use of the various screen editors available from Digital Equipment Corporation on their VAX and PDP lines of computers. TY-100 supports the special graphics character set as well as normal fonts; supports 128 of the 132 columns in compressed mode; supports VT100 function keys and keypad-editing mode; supports screen capture of data as well as file-transfer protocols; and more.
Tychon Technologies, Inc.; Cleveland, Ohio 44177

Databases

Abase

Database application manager and tool kit

A relational database manager implemented through a set of library routines or through a menu-driven interface. It also provides a library of form processing routines and a parser to develop applications. Multiple databases, indexes and forms are supported.

Computer Power Unlimited; Santa Ana, Calif. 92704

Acquisition

Relational Database

512K Amiga

Acquisition is a database management system utilising the power and invention that the Amiga has to offer. It incorporates a mapped filing system organised around paths, which allow both relational and hierarchical filing structures or a combination of both. *Acquisition* provides multi-tasked access to the filing system, handling up to 16 files in one application. *Acquisition* comes complete with its own 250 different function programming language and is C, Pascal, BASIC and *dBase* compatible. IFF graphic images can also be stored as fields within each record.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888 also by Computamart Pty Ltd, (09) 328 9799

Amiga Record Manager

Information Base features include 16

fields with user definable input and length; sorts on any field; arranges into zip code order or alphabetically; prints mailing labels; on-line help and tutorials; and more.

Accounts features include 17 fields with 15 user definable input and length; sorts and prints by any field; full ledger display; complete access to file for editing, modification and review with search facilities; data disk history; text processor with full editing capabilities; graphics display; and more.

Labelmaker features include the ability to print 1-or 2-up labels; a mini-database of addresses; can read Record Manager: Accounts files for addresses; printing of records is limited only by disk space; full editing of records; sorting by any field; and more.

HC Software Australia; 08-428 377

DATAMAT

Database manager

A menu-driven relational database management system for micro, mini and mainframe computers. It currently runs on AmigaDOS, MS-DOS, XENIX, UNIX and VMS.

A-200(AmigaDOS)

A-300(AmigaDOS)

MX-200 (MS-DOS)

MX-300 (MS-DOS)

A-100(AmigaDOS)

ZX-400 (XENIX)

ZX-EBU optional module

DATAMAT XL (UNIX)

Transtime Technologies Corp.; Tonawanda, N.Y. 14150

dBMAN

Relational database manager

R.R.P. \$359

A *dBASE*-compatible relational database manager that can be used for developing databases and database related application programs.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

FoxFile

File management

A file manager that will accept up to 65,536 records. Features include alphanumeric, number, date, time and inte-

ger field types; the ability to use all available system memory to speed searches and sorts; sort five levels deep in mixed ascending and descending order; 50 fields available in each record; and more.

Foxware; Atlanta, Ga. 30319

InfoBase

Database

A database program that allows users to store and retrieve information in an organized way. Features include up to 200 fields of information for each record; the ability to create custom print forms to produce mailing labels, listings, reports, etc.; sorting of records by any field; and more.

Harvsoft; Kenmore, N.Y. 14217

LPD Filer

Digital Solutions R.R.P. \$239

Professional filer, integrated with other LPD software packages, full function, easy to use

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

MiAmiga File

Database management

A database management system that presents its databases in both list (spreadsheet-like) and form formats. Sorting and selection capabilities are also provided. Up to 32 levels of progressive sorting are supported.

SoftWood Company; Santa Barbara, Calif. 93120

Omega File

Database, mail merge R.R.P. \$179

512K Amiga

A database and mail-merge program that can be used for check register, invoicing, inventory control, mailing labels, recipes, financial tables, simple accounting, check writing, teachers' student grading and more.

Features include full-screen editing; 200 characters per field; 256 fields per record; 5,000 characters per record; 32,000 indexed records per database; math fields; two databases open at one time for transfer of data; import/export options; clone database function for rec-

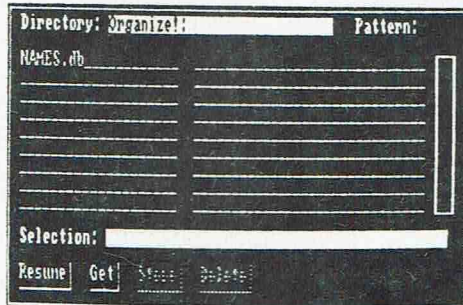
reation and editing of field types, length, etc.; actual text can be merged with database text; multiple field sorts; multiple searches; mailing labels not limited to single wide (one up); linked fields formatted to produce sentences and paragraphs; and more.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Organize!

Custom filing system R.R.P. \$179

Helps a user create a custom filing system for organizing business records, contact lists, recipes, etc. The program features up to 128 fields for each form or



record and up to 254 bytes per field, with a maximum of 4,096 bytes per record.

Distributed in Australia & Asia/Pacific by Imagineering; (02) 697 8666 also distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Softwood File

Softwood Co. R.R.P. \$199

Professional filer

Integrated with other Softwood software packages, full report creation, variable print formats

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Softwood Filer SG

Softwood Co. R.R.P. \$249

All the features of the standard filer plus, expanded use of graphics, expanded use of sound, colour support.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Superbase Personal

Database manager

Allows business and home users to simplify, control and organize information. Features include access to its dataBAS-IC database management language to create custom applications, and the program offers unlimited files, open files, fields per record, sort levels, search criteria, reports and screen formats and more.

Distributed in Australia & Asia Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888

Desktop Publishing

City Desk

Microsearch R.R.P. \$259

Postscript support

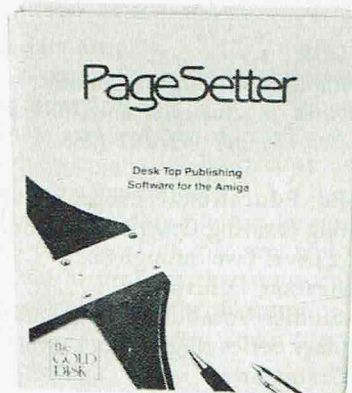
Fast screen update, built in text & graphics, embedded command option.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Pagesetter

Gold disk R.R.P. \$229

Multiple column, both bitmap and vector graphics, font sizes to 127 point, im-



ports from all Amiga W.P.'s, auto text flow.

Distributed in Australian by Computamart Pty Ltd, (09) 326 9799

Pagesetter Professional

Gold Disk R.R.P. \$599

Pagesetter features +; uses H.A.M. files, full word processor, accuracy to 1/1000 point

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Professional Page

Gold Disk

Design your own templates, word editor, precise alignment, kerning, select colours for for separations, free hand capability, typographical control.

Distributed in Australia by Computamart (09) 326 9799

Publisher 1000

Northeast Software R.R.P. \$375



Full page composition, multi fonts and point sizes, mix text and graphics, laser printer support, graphics Editor

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799 also distributed by Imagineering (Questor) (02) 662 7944

Prowrite

New Horizons R.R.P. \$249

Multiple fonts, mix text and graphics, supports laser and colour printers, imports IFF files, what you see is what you get

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Education

Analogies I And II

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888

Comprehensive Grammar Review I And II

Distributed in Australia & Asia/Pacific

by Commodore Business Machines Pty Ltd; (02) 427-4888

Conversation With A Computer

Logic games and Amiga BASIC programming guide
Jenday Software; Garden Grove, Calif. 92642

Discovery

Interactive educational space adventure
There are three different education games in this series. They are;-
Discovery Maths
Discovery Trivia
Discovery Spell
Commodore Business Machines Pty Ltd; (02) 427-4888

First Shapes

Basic geometric shapes with built-in speech
Distributed in Australia & Asia/Pacific
by Ozi-Soft Pty Ltd; (02) 211-1266

French And Spanish Grammar

French Grammar I, Spanish Grammar I, II, III
Intellectual Software, Bridgeport, Conn.
06610

Geography

U.S. Geography Adventure, World Geography Adventure I, II, III, IV
Commodore Business Machines Pty Ltd; (02) 427-4888

Grade Manager

Associated Computer R.R.P. \$199
Tracks student grades, individual or group, creates charts, printed output, user defineable.
Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Great States USA

Educational game
512K Amiga.
Great States USA is an entertaining educational game that is based upon a map of the United States and features high-quality graphics, music and speech. The program teaches U.S. geography; state locations and shapes; state capitals, birds, trees and flowers; state abbreviations and nicknames; and the spelling of all of the above.

The program can be used by a single player, or it can offer a competitive motivation for two players.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

History

American History Adventure, How A Bill Becomes A Law, World History Adventure
Commodore Business Machines Pty Ltd; (02) 427-4888

Keyboard Cadet

Typing instruction
Distributed in Australia & Asia/Pacific
by Imagineering; (02) 697 8666

KidTalk

Reading, writing instruction with built-in speech
Distributed in Australia & Asia/Pacific
by Ozi-Soft Pty Ltd; (02) 211-1266

Lessons In Reading And Reasoning

Lessons I, II, III
Lessons IV
Commodore Business Machines Pty Ltd; (02) 427-4888

MathTalk

Mathematics with built-in speech
Distributed in Australia & Asia/Pacific
by Ozi-Soft Pty Ltd; (02) 211-1266

MicroEd Educational Programs

Beginning Reading One through Four
Spelling Level Two through Six
Capitalization, Punctuation
Social Studies Vocabulary (elementary)
Vocabulary Series (high school level)
Basic Grammar
Word Demons
The Spelling Detective Game
The Lewis and Clark Expedition
Across the Plains
Fur Trade of the Great Lakes
Making Our Constitution
Transcontinental Railroad
Introducing Maps
MicroEd, Inc.; Eden Prairie, Minn. 55344

Music Student 1

Associated Computer R.R.P. \$89
Music theory concepts
178 lessons on disk, intervals, triads, ters, symbols & more, beginner to Intermediate.
Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Paraclete

Music aid
Associated Computer Services; Springfield, Mo. 65804

Practical Composition And Sentence Completion

Practical Composition I: Making Words Work
Practical Composition II: Logical, Clear Sentences
Practical Composition III: Selecting The Best Approach
Practical Composition IV: Making Sentences Work
Practical Composition V: Using Words Correctly
Practical Composition Package I; includes Practical Composition I, II and III
Practical Composition Package II; includes Practical Composition IV and V
Sentence Completion
Commodore Business Machines Pty Ltd; (02) 427-4888

Quiz Master

Associated Computer
R.R.P. \$99
Creates unlimited tests, quizzes and drills
Group by categories, incorporate sound
Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Reading

College Aptitude Reading Comprehension Exercises
Reading Adventure I
Reading Adventure II, III
Reading and Thinking I, II, III
Commodore Business Machines Pty Ltd; (02) 427-4888

Senior Tutor

Conversational Spanish tutor

Finally Software; Newport Beach, Calif.
92663

Speller Bee

Spelling instruction with built-in speech
Distributed in Australia & Asia/Pacific
by Ozi-Soft Pty Ltd; (02) 211-1266

Starting A New Business

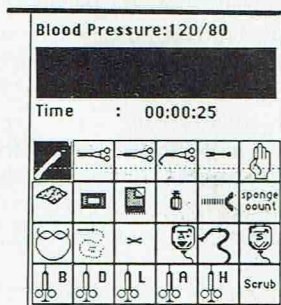
Simulation game
Commodore Business Machines Pty
Ltd; (02) 427-4888

Talking Colouring Book

JMH Software
R.R.P. \$99
Teaches young children colours, shapes
through high quality voice, predefined
pictures, graphics editor.
Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

The Surgeon

R.R.P. \$119



Simulation game; medical terminologies

Distributed in Australia by Computa-
mart Pty Ltd (09) 328 9799

True BASIC Educational Software

Algebra, Pre-Calculus, Calculus, Chance
(probability theory), Discrete Math,
Trigonometry

True BASIC Inc.; Hanover, N.H. 03755

Typing Tutor And Word Invaders

Typing instruction
Academy Software, Inc.; San Rafael, Cal-
if. 94903

Unicorn Educational Software

Decimal Dungeon,
Fraction Action,

Math Wizard,
Animal Kingdom,
Read and Rhyme,
Kinderama

Distributed in Australia & Asia/Pacific
by Ozi-Soft Pty Ltd; (02) 211-1266

Vocabulary

Antonyms
Practical Vocabulary
Vocabulary Adventure I, II, III
How to spell

Distributed in Australia by Commo-
dore Business Machines Pty Ltd; (02)
427-4888

Graphics - Business & C.A.D.

AmigaPlot Version 1.0

Graphs, data plots
256K or larger Amiga
AmigaPlot utilises the hi-res capability
of the Amiga to produce technical
graphs and non-technical data plots.

The program supports axis labeling,
"tick" marks, data scaling, multiple plots
(up to 30), graphic line choices and vari-
able data formats.

The program is controlled by data files
and command files that determine the
formats and layouts of graphs. After a
graph is created, a hard copy can be
output to a line printer.

Virtually any data file can be used for
input to AmigaPlot, and any editor can
be used to produce the command files
necessary to drive the program.

Tychon Technologies, Inc.; Cleveland,
Ohio 44177

Dynamic CAD

Micro Illusions R.R.P. \$899

Printed circuit board C.A.D.

Auto routing, Symbol library, Full edit-
ing, Plotter support

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Impact

Graphics

Displays numeric data in graphic form.
There are two parts to the program: the
first allows a user to create slides of
graphics, charts, text and symbols in a
free format; the second plays the slides
back in a predetermined sequence and
fashion.

Distributed in Australia & Asia Pacific
by Commodore Business Machines Pty
Ltd; (02) 427-4888 also Computamart
Pty Ltd, (09) 328 9799

Logic Works

Capilano Systems R.R.P. \$189

Digital design aid

Full C.A.D. functions, 30ft x 30ft page,
Symbol library, Cut and paste

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

EFX Station Manager

Associated Computer R.R.P. \$449

TV weather graphics

User definable maps & symbols, hi res
maps (672 x 4444), capable of download-
ing information from weather services.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Graphics - Creative

Aegis Draw

CAD drawing package R.R.P. \$229

An entry level drawing system used to
create structured drawings that can be
sent to a plotter or pinter. Commands
can be issued via the mouse, the key-
board or a digitizer.

Distributed in Australia & Asia/Pacific
by Commodore Business Machines Pty
Ltd; (02) 427-4888 also Computamart Pty
Ltd, (09) 328 9799

Aegis Draw Plus

CAD drawing package R.R.P. \$465

512 Amiga; two disk drives.

Aegis Draw Plus is a computer-aided
design package that allows up to six in-
dependent drawings of 256 layers each
to be worked on. Full 16-colour capability
is available and drawings can be saved
in the Amiga's standard IFF file format
for use in other programs such as Aegis

Images, Graphicraft and Deluxe Paint programs.

The program is controlled either with the mouse and pull-down menus, or entirely with the keyboard.

Advanced features include a parts library for storage of often-used objects; a "stats" function for precise numeric adjustment of any item; a hook tool for distorting polygons; an array tool for creating repeated objects in a pattern, automatic dimensioning and scaling; plot spooling; locked font sizes; customizable plotter driver; and more.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888 also Computamart Pty Ltd, (09) 328 9799

Amiga Colouring Book

Clip art

Each Amiga Colouring Book is a one-disk volume that contains 20 IFF format - compatible files that a user can cut and paste to create his own graphics. Volumes include The Sampler, The World and Borders.

The Dragon Group, Inc.; Elkview, W.V. 25071

Analytic Art

Graphics, pictures

R.R.P. \$119

A graphics program with special effects such as zoom, preview, colour animation, three-dimensional relief, fractals, dragons, striping, nudging, three-dimensional stereo pairs, colour valuation and attractors. Mathematically produced drawings can exhibit striking beauty and infinite complexity without requiring floating point calculations.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Animator

Animation package

R.R.P. \$245

A metamorphic animation package that uses a concept called "tweening", which allows movement and change within each segment of the animation.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888 also Computamart Pty

Ltd, (09) 328 9799

Art Gallery I & II

Unison World R.R.P. \$79.95

Clip art for Printmaster

Symbols & signs, holiday art, fonts.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Art Pak, Vol. 1

Clip art R.R.P. \$89

Art Paks consist of precreated art that can be used with *Aegis Images, Animator* or *Draw*. Other programs that can read IFF file-formatted paint files can also be used.

Art Pak, Vol. 1 includes photograph-quality artwork of buildings for use as backdrops and pieces of cell animations for creating walking and moving animations. Because *Aegis Animator* can do both metamorphic and cell animations, these images can be used with both styles.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888 also Computamart Pty Ltd, (09) 328 9799

Bobshop; Soundshop

Animation, sound

Bobshop is a Blitter-Object and animation editor that exploits the Amiga's custom graphics circuitry.

Soundshop exploits the sound production circuitry of the Amiga. Waveforms may be read from files on the disk, displayed on the screen graphically and played through the Amiga's digital to audio converter. It supports the IFF standard for sampled sound data files.

Revolution Software; West Chester, Pa. 19381

Butcher

Eagle Tree Software R.R.P. \$79

IFF file converter

- H.A.M. to 32 colour & back

- Hi to Med to Low resolution

- Bit plane editing

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Brush Works

Associated Computer

R.R.P. \$79.95 *IFF clip art*

Hi, Med, Lo res files, solid & multicolour brushes, colour palette file, patterns.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Brush Works II

Associated Computer R.R.P. \$69

More custom graphics

All IFF compatible, colour palette files, colour & monochrome files, patterns.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Caligari

Three-dimensional video animation 2MB memory; coprocessor; single-frame controller; video recorder.

Caligari is a three-dimensional video animation system that produces high-quality images.

Features include solid object generation; faceted and smooth shading; diffuse and specular lighting; multiple light sources; hierarchical three-dimensional database; interactive script generation; real-time wire frame rendering; 4,096 simultaneous colours; 704 x 460 pixel resolution; fast frame-generation time; mouse-driven interface; a wide range of editing and storyboard commands; and more.

Octree Software, New York, N.Y. 10036

Custom Screens

Soft Touch R.R.P. \$130

Paint utility for programming

Creates basic code from screen drawings, Edit, draw, & paint screens, Convert IFF to basic code

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Desktop Artist

Sunrize R.R.P. \$66

Graphics editor

Works with all IFF files, multiple fonts, cut & paste, colour printouts

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Digi Paint

New Tek R.R.P. \$149

4096 colour editor

Import 32 colour graphics, mix & blend

any colour, uses 'hold & modify' mode, gradient & spread colour fill.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Express Paint

Par Home R.R.P. \$179

Multiple brush & cut active

Unlimited fonts, poster size prints, 1024 x 1000 scrollable screen, not copy protected.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Prism

Impulse R.R.P. \$139

H.A.M. paint program

4096 colour on screen, colour mix and blend, mix multiple 32 colour graphic images.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Pro-clip

Impulse R.R.P. \$69

Clip art

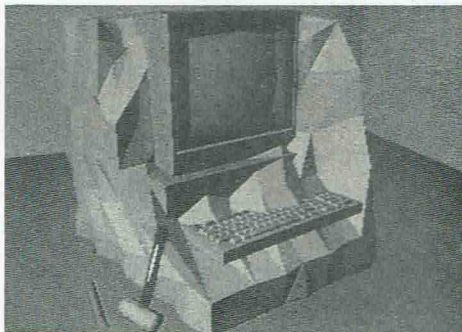
Graphic art in IFF, works with most paint programs, multicolour & monochrome.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Sculpt 3-D

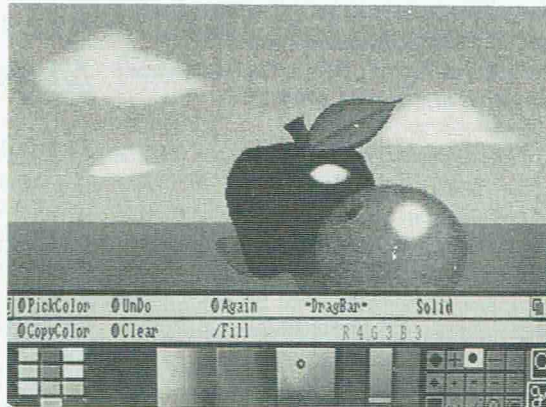
Byte by Byte R.R.P. \$179

Wire frame editing



Spin, grab, & extrude, reflect, slice, & unslice, auto shading, auto textures.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799



Silver

Impulse R.R.P. \$259

3d animation, combines ray tracing with animation.



Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

The Calligrapher

Font design package R.R.P. \$199

512K Amiga

The Calligrapher is a full-featured font design package that includes multiple colours and variable-sized characters, ease of use with existing software, full editing and special effects.

Features include eight predefined-brushes; spin, flip and rotate brushes; dotted and smooth freehand drawing; both filled and outline circle and square drawing; colour fill mode; magnification; proportional or fixed-space fonts; banner-style viewing of fonts; and more.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

D'Buddy

Creativity set

D'Buddy is a creativity set that contains a collection of "buddies" that can be

used separately or with another tool or program.

The collection includes Freeze Frame!, Print It!, Touch Up!, Poster Maker!, Slide Show, Scissors, Scrap Book, Color Match and Joy Mouse.

Digital Creations; Sacramento, Calif. 95825

Deluxe Help for DeluxePaint

Painting tutorial program

512K Amiga

Deluxe Help teaches a user how to create paintings with *Deluxe Paint* from Electronic Arts.

The program includes 10 help screens, 22 tutorial demos, 10 sample paintings and keyboard shortcuts on a two-sided laminated card.

Deluxe Help, Inc.: West Palm Beach, Fla. 33409

Deluxe Paint

Colour graphics; drawing; design

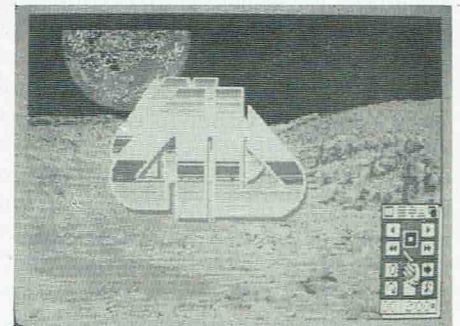
A paint program loaded with special features such as zoom enlarging, split-screen magnification, colour cycling, blend, smear, stretch, bend and rotate.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 42704888

DeluxeVideo

Video production

Deluxe Video can be used to produce video slide shows, point-of-sale videos, animated commercials, business presentation videos, interactive educational videos, animations and home versions of MTV.



Distributed in Australia & Asia/Pacific

by Commodore Business Machines Pty Ltd; (02) 427-4888

Forms in Flight

Micro Magic

R.R.P. \$139

3-D Graphic and Animation

Surface revolution, variable shading, auto frame generation, full perspective control.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Graphicraft

Graphics creation RRP \$109

An entry-level graphics design and paint program that features 32 colours and special effects such as colour animation. Commodore Business Machines; 602) 427-4888 also distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Images

Creative R.R.P. \$79

Allows a user to create paintings with as many as 32 different colours. Colours can be mixed and changed on a palette to get the exact colours needed. There are 20 different brushes and 16 patterns available, all of which can be modified for custom designing.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888 also by Computamart Pty Ltd, (09) 328 9799

PrintMaster Plus

Graphics package R.R.P. \$109

512K Amiga.

PrintMaster Plus allows a user to design, edit, preview and print signs, banners, calendars, schedules, logos, stationery, greeting cards, announcements, invitations and more.

Features include preview and escape keys; a graphics editor to edit existing graphics or original creations; 111 picture graphics; 11 patterns; 11 borders; 10 type-faces; 5 type styles for each font; the ability to place two different graphics on one page; the ability to use more than one font; flexible placement of graphics on one page; the ability to use more than one font; flexible placement of graphics; edit stored designs; save/

load; Art Gallery I and II, two supplementary programs; and more.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Videoscape 3-D

Aegis R.R.P. \$339

3-D Animation

Solid modelling, multiple viewpoints, gradient fill & shading, variable timing.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Waveform Easel

Allows a user to draw with the mouse a sound table of 256 values to create different sounds and tone qualities.

Silver Software; Bridgeport, Conn, 06610

Zuma TV*TEXT

A video production tool that enables a user to produce high-resolution, animated video titles on the Amiga.

Distributed in Australia & Asia/Pacific by Imagineering; (02)697 8666

Integrated

Logistix

Project management; database; graphics

A spreadsheet-based integrated program that incorporates project-management, database and graphic functions. It uses Lotus 1-2-3 style commands and reads 1-2-3, SuperCalc, dBASE, DIF and many other file formats.

Distributed in Australia & Asia/Pacific by OziSoft Pty Ltd; (02) 211-1266

VIP Professional

Integrated spreadsheet, database, graphics

A combination spreadsheet, database and graphing utility. Modeled after Lotus 1-2-3, the program helps users do home budgets; loan schedules; retirement, investment and insurance planning; accounting; inventory; payroll; business plans; check ledgers; and bookkeeping.

Distributed in Australia & Asia/Pacific by Imagineering; (02) 697

Miscellaneous Management

Computer Co-Pilot

Assists a user with his communication tasks, while learning about the user and his relation to the world. It maintains a complete personal database and world model.

Alive Systems Group; Big Sur, Calif. 93920;

Gizmoz Productivity Set 2.0

Desktop accessories R.R.P. \$159

Desktop accessories include: calendar, rolodex, memo pad, black book, calculator set, hot key, free list display, cuckoo, alarm clock, terminal package, announcer, graph package, pop-up cards, data compressor, data encryptor, joy-mouse, icon maker and fast preferences.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

MaxiDesk Version 2.0

Business tools

Comprised of a set of useful business tools, including a calculator, appointment calendar, alarm clock, phone book, keyboard helper and notepad.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888

Music

DNA Music; Protein Music; Fractal Music

Sequence mapping

DNA Music allows a user to "hear" DNA by mapping a DNA sequence directly into a musical sequence.

Protein Music allows a user to "hear" protein by mapping a protein sequence directly into a musical sequence.

Fractal Music generates music and synchronized high-resolution graphics based on fractal mathematics.

Silver Software; Bridgeport, Conn. 06610

FutureSound*Digital sound recorder*

FutureSound makes it possible to record, play back and store any sound directly on the Amiga.

Features include multi-track recording, variable recording speeds and variable playback speeds.

Applied Visions; Cambridge, Mass. 02139

Instant Music*Music composition, recording, playback*

Instant Music allows a user to create his own compositions, record them and play them back. The program comes with more than 80 complete songs to experiment with and more than a dozen digitized instrument sounds to choose from.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888

Pro Midi Studio*Mimetics*

R.R.P. \$440

Professional sequencing software

Complete editing, input from MIDI, 256 MIDI channels

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Music X*Micro Illusions* R.R.P. \$469*Professional music software*

Uses smpte codes, compose, full editing, playback through MIDI.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Studio Magic*Sunrize* R.R.P. \$129*Digital sound studio*

Multi-tracking editing, variable sample rate, reads standard digital sound files.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

The Music Studio*Music composition* R.R.P. \$79

A music program that features stereo composition and MIDI capabilities and includes a complete library of instruments, sound effects and music.

Distributed in Australia & Asia/Pacific by Imagineering; (02) 697 8666 also by Computamart Pty Ltd, (09) 328 9799

SONIX*Music synthesiser and composer*

R.R.P. \$179

512K Amiga

Sonix from Aegis is the first sophisticated but easy to use synthesiser and composer for both the professional and amateur alike. SONIX is IFF compatible allowing the user to bring in digitally sampled sounds. Also compatible with Deluxe Music.

Distributed in Australia & Asia Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888 also by Computamart Pty Ltd, (09) 328 9799

Sound Effects Library

512K Amiga.

The Sound Effects Library is a collection of six disks that contain 290 sounds such as baby cries, jets, footsteps, breaking glass and more.

They are designed to be used with programs such as Deluxe Video, Instant Music, Deluxe Music, Soundscape or any program that uses the IFF standard for sampled sounds.

The sounds can be used to add effects to presentations, slide shows, video games and more.

Karl R. Denton Associates; Westland, Mich. 48185

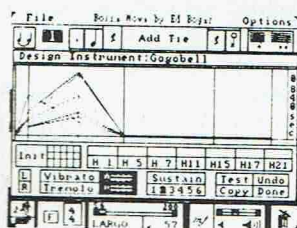
Waveform Easel

Allows a user to draw with the mouse a sound table of 256 values to create different sounds and tone qualities.

Silver Software; Bridgeport, Conn, 06610

XPress Patch*DX7/TX7, FB01 patch librarian*

256K or larger Amiga; MIDI interface. XPress patch is a Yamaha DX7/TX7 and FB01 patch librarian that utilizes the Amiga's pull-down menus and allows a user to save and load voice



and performance data to and from a diskette.

Digitools; Buffalo Grove, Ill

Programming

ABSOFT FORTRAN/020*ANSI FORTRAN 77 compiler with debugger*

256K or larger Amiga; 68020/68881 upgrade

FORTRAN/020 is a version of AC/FORTRAN specially designed to generate code for 68020/68881-based Amigas such as Computer system Associate's Turbo Amiga. Full support for a standard 68000-based Amiga is also included.

Features include a full-screen debugger, overlay and virtual array support, linker, library manager, IEEE single- and double precision floating-point software, complex number support, VAX extensions, C interface, option to generate assembler source and a user reference manual. Not copy protected

Distributed in Australia by Oxford Systematics; (03) 459-9671

AC/BASIC*Microsoft-compatible BASIC compiler with debugger*

R.R.P. \$399

256K or larger Amiga.

AC/BASIC is a high-speed compiled BASIC, compatible with the Amiga (Microsoft) BASIC interpreter.

Most programs written using the Amiga BASIC interpreter need only be compiled to run, and stand-alone applications can easily be created.

Features include full access to Amiga libraries to allow a user to take full advantage of an Amiga's sophisticated graphics capabilities; BLOCK IF, CASE statement and STATIC keyword extensions; executes up to 50 times faster than the interpreter; and more.

Not copy protected

Distributed in Australia by Oxford Systematics; (03) 459-9671 also by Computamart Pty Ltd, (09) 328 9799

AC/FORTRAN

ANSI FORTRAN 77 compiler debugger
R.R.P. \$599

256K or larger Amiga

AC/FORTRAN is a full-feature ANSI FORTRAN 77 compiler with debugger designed to run mainframe programs downloaded to an Amiga with little or no code change.

To facilitate development of large programs on a standard 256K machine, AC/FORTRAN requires 46K of RAM and supports overlays, virtual arrays and dynamic linking at run time.

It generates directly executable native object code for the MC68000 and includes IEEE single- and double-precision floating-point software, complex number support, VAX and 8X extensions, has no limitations on code or data size and generates assembler source.

The program interfaces to C and Amiga graphics are also included.

Not copy protected

Distributed in Australia by Oxford Systematics; (03) 459-9671 also by Computarmart Pty Ltd, (09) 328 9799

Amiga C

Commodore

Program development

High portability, compiled language, language of choice for 68000 cpu

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Assembler

Commodore

R.R.P. \$199

M68000 syntax

Linker, libraries, include files, includes developers manual

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Assembler

Metacomco R.R.P. \$250

M68000 syntax

Linker, libraries, include files, overlay support

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Aztec 68000/AMC

Manx Software R.R.P.

Commercial \$899

Developer's \$599

Professional \$499

C, fast execution, rapid compile, minimised code, subroutines included.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

BASIC

Pecan Software R.R.P. \$260

Alternative basic for Amiga

Full graphic & sound support, interactive execution, windowing, multitasking.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

BASIC Professional

Pecan Software R.R.P. \$435

Advanced Basic

Same as Pecan Basic with added commands, sample programs.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Fortran 77

Pecan Software R.R.P. \$260

Mathematical & scientific language

Full Ansi implementation, accepts mainframe programs, dynamic link & overlay, no limit on RAM

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Fortran Professional

Pecan Software R.R.P. \$435

Same as Fortran 77 with more features

Extra subroutines, sample programs.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Lisp 1.3

Metacomco R.R.P. \$400

Artificial intelligence language

Excellent for Knowledge based programs, compiled language, structured programming.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Modula-2

Pecan Software R.R.P. \$260

Enhanced Pascal

Dynamic arrays, procedural variables,

type casting, bit manipulation.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Modula-2 COM.

TDI Software

R.R.P. \$599

Commercial version

Superset of Pascal, supports ROM kernel, supports multitasking, highest level of support.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Modula-2 DEV

TDI Software R.R.P. \$329

Developer's version

Superset of Pascal, supports ROM kernel, supports multitasking, extra subroutines.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Modula-2 Professional

TDI Software R.R.P. \$435

Enhanced Modula-2

Extra subroutines, separate compilation, full ROM kernel support.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Pascal

Metacomco R.R.P. \$250

Structured Programming

Language developed as a programming education tool, Amiga implementation.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Pascal Professional

Pecan Software

R.R.P. \$435

Advanced version of Pascal

Extra subroutines, sample programs, extensive manual.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

True Basic

True Basic R.R.P. \$240

First truly transportable Basic language Code compatible with MSDOS, Apple, Mac, CP/M, & others, powerful, easy.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

UCSD

Pecan Software R.R.P. \$260

Standard Pascal

Structured language, multitasking support, full manual.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

Advanced String Library

Programming tools

True BASIC, Inc.; Hanover, N.H. 03755

AEdit

Screen editor

DRM Programs; Las Vegas, Nev. 89101

Amiga Lattice Products

Lattice C

Amiga Lattice dBC III Library

Amiga Lattice Maclibrary

Amiga Lattice Make Utility

Amiga Lattice Screen Editor

Amiga Lattice Text Utilities

Amiga Lattice Panel Forms Manager

Amiga MS-DOS C Cross Compiler

Distributed in Australia & Asia Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888

Amiga-Lint

Diagnostic facility for C

Gimpel Software; Collegeville, Pa. 19426

Amiga Programmer's Library

Software development; file transfers

Intuitive Technologies; Pebble Beach, Calif. 93953

APL.68000 for the Commodore

Amiga

Programming Spencer Organization, Inc.; Westwood, N.J. 07675

Aztec C68k/Am

C software-development system

Aztec C68k/Am-d

Aztec C68k/Am-c

Aztec C MS-DOS to C68k/Am Cross Compiler

Distributed in Australia by Oxford Systematics; (03) 459-9671

C.A.D.S.

Computer-aided design of software

512K Amiga; external drive.

C.A.D.S. is a computer-aided design program for software developers. It is unique from code generators in that its design tools are centered around a flexible editor.

A user is able to see what the parts of his program will look like in minutes, including the effects any changes will make. Produced source code, which is highly structured, can be changed and regenerated.

C.A.D.S. is comprised of many subprograms, each of which makes designing and implementing structures, such as screens, windows, menus, requesters, images, borders and text, more reliable and efficient.

Many files can be loaded into memory for editing. A user can step through the files, mark multiple blocks and copy the blocks from one file to another.

Future Computer Applications; Santa Fe, N.M. 87502

Commodore-Amiga

Programming languages

Amiga LISP

Amiga C

Amiga Pascal

Amiga Macro Assembler

Commodore Business Machines Pty Ltd, (02) 427 4888

Developer's Toolkit

Program development aids

512K Amiga; True BASIC

The Developer's Toolkit gives a user easy access to many of the special features available on an Amiga.

Included are libraries for animation (sprites and bobs), pull-down menus and screen dumps. Also included are high-level DOS routines for direct commands (askdir, chdir, read dir, etc) as well as low-level utilities (peeks and pokes of signed/unsigned words) and system calls (more than 400).

Source code is provided for all routines, and the program requires the True BASIC Language System.

True BASIC, Inc., Hanover, NH 03755

Expert System Kit

Development utilities

256K or larger Amiga

The Expert System Kit consists of three development utility programs plus examples that enable a user to implement a rule-based expert system. The produced system can then exchange data with other programs, execute other programs and execute DOS commands.

The development utilities include The Editor, used for creating and modifying knowledge bases; The Trainer, which uses an example file to train a knowledge base; and The Runner, a run-time package that allows the knowledge base to be used independently of the editor.

Interactive Analytic Node; Minneapolis, Minn. 55441

EXPLORER

R.R.P. \$130

256K or larger Amiga.

The EXPLORER is a utility that displays and alters the contents of Amiga hardware registers, MC68000 registers and memory.

It supports program development with disassembly and program trace functions and operates under AmigaDOS at the CLI (Command Line Interface) where program development will normally take place.

Distributed in Australia by Computarmart Pty Ltd, (09) 328 9799

JForth

Forth compiler

256K or larger Amiga.

JForth contains both an interpreter and a compiler in one language, providing a user with an interactive programming environment. It utilizes a technique known as "JSR-Threading" to tie together compiled programs. This allows all code produced by the compiler to be directly executable.

Features include object-oriented dialect; ASCII or SCREEN files; a complete debug package; a complete floating-point package; local-stack variables; assembler and disassembler; complete 32-bit implementation; optimizing-target compiler; utilities; and more.

Delta Research; Palo Alto, Calif. 94306

Key to C

Developer's package

Data Research Processing, Inc.; Huntington Beach, Calif. 92649;

Metacomco

*Programming
Cambridge LISP
ISO Pascal*

Macro Assembler

Amiga Shell

Tenchstar, Inc./Metacomco; Scotts Valley, Calif. 95066

Metacomco Shell

*Programming environment
512K Amiga.*

The Metacomco Shell is an improved version of the standard Amiga CLI (Command Line Interpreter) and contains features familiar to users of UNIX. Features include Command Line History, Command Line Editing, resident commands, aliases, variables, CLI documentation, push and pop directories, customizing, support of complete path searching and is compatible with all standard CLI commands.

Tenchstar, Inc./Metacomco; Scotts Valley, Calif. 95066

The Metacomco Toolkit

Programming aids

Tenchstar, Inc./Metacomco; Scotts Valley, Calif. 95066

Metadigm Software

Programming tools

Metascope: The Debugger

Metascribe: The Editor

Metatools I

Metadigm, Inc.; Irvine, Calif. 92715

Micro-shell

Programming

Meta-Soft, Inc.; Las Cruces, N.M. 88006

Multi-Forth for the Amiga

Software development

Creative Solutions, Inc.; Rockville, Md. 20852

PowerWindows

Interactive programming aid

512K Amiga.

PowerWindows, an interactive programming aid, provides a user with the ability

to quickly create and edit windows, menus and gadgets for assembly or C language programs without the fuss of coding the necessary structures.

It provides instant feedback, allowing a user to see exactly how a creation will look without the trial-and-error edit / compile / examine loop. A user can effectively see a window outside of a program, complete with menus, menu items, subitems, text and gadgets. A user must then select source code for C or assembly language and PowerWindows creates the structures. The window can then be saved in an editable-file form for further modifications or additions.

Inovatronics, Inc.; Dallas, Texas 75229

Programmers Toolkit

MicroDimensions, Inc.; Provo, Utah 84601

Sorting & Searching

Subroutines for sorting arrays

True BASIC, Inc.; Hanover, N.H. 03755

TDI Modula-2

Programming language

512K Amiga.

TDI Modula-2 is a programming language designed to make it easier to conceive, write and maintain software.

The Regular Version of the program features full interface-to-ROM kernel, intuition, Workbench and AmigaDOS; true native code implementation; sophisticated multi-pass compiler that allows forward reference and code optimization; streams, MathLib0 and all standard modules; supports real numbers and transcendental functions; three-dimensional graphics and multi-tasking demos; CODE statement for assembly code; an error lister that will locate and identify all errors in source code; support of single-character I/O; programs may be broken up into modules for separate compilation; dynamic strings of any size; and more.

The Developer's Version contains additional Amiga modules, macros, demonstration programs, a symbol-file decoder, link and load-file disassemblers, a source-file cross referencer, the kermit

file-transfer utility, a Modula-2 CLI and modules for IFF and ILBM.

The Commercial Version contains all of the Amiga-module source files.

Distributed in Australia by Oxford Systematics; (03) 459-9671

True BASIC Language System

Programming language

True BASIC, Inc.; Hanover, N.H. 03755

True BASIC Runtime Package

Application development

Non-commercial licensing

Unlimited commercial licensing

True BASIC, Inc.; Hanover, N.H. 03755

Specific Application

3-D Graphics Library

Three-dimensional graphics

Allows a user to create three-dimensional images. Both parallel and perspective projections are supported as well as circles, grids, areas, text plotting and contour plots.

True BASIC, Inc.; Hanover, N.H. 03755

AMT

Amortization and cost-evaluation tool

512K Amiga.

AMT is a cost-evaluation program that calculates almost any type of sales or purchase outcome.

It can be used for calculating direct deposits, verifying utility charges, growing investments, verifying credit charges, small and large purchases of any type, negative amortizations, balloon payments, automotive loans and more.

The program computes monthly, quarterly, semiannual or annual payments, using positive or negative amortization options.

The Other Guys; Logan, Utah 84321

Digital Building System

Graphically simulates digital electronic circuits on the Amiga's hi-res screen. Standard schematic, logic and integrated circuit symbols are used to build the circuit on the screen using the mouse or keyboard to move parts around.

MicroMaster Software; Monaca, Pa. 15061

Dynamic-CAD

Computer-aided design

A two-dimensional drafting system with isometric capabilities that can be combined with many models of printers, plotters and digitizers.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888

ES5C Calculator

Programmable scientific calculator

A software module that emulates a programmable scientific calculator. It resides in its own window and can run concurrently with other applications.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888

Grade Manager

Gradebook and statistics

Allows for the entry of any type of grade entry with full category weighting and renaming, automatic conversion of grades to a true 100-point scale and after-the-fact grade maintenance.

Associated Computer Services; Springfield, Mo. 65804

Lionheart Business Software

Business analysis books with software

Business Statistics

Experimental Statistics

Multivariate Analysis

Forecasting and Time Series

Sales and Market Forecasting

Decision Analysis Techniques

Linear and Non-linear Programming

Pert and Critical Path Techniques

Optimization

Exploratory Data Analysis

Quality Control and Industrial Experiments

Statistics for Marketing

Monte Carlo Simulations

Distributed in Australia & Asia/Pacific

by Commodore Business Machines Pty Ltd; (02) 427-4888

LogicWorks

Integrated logic design

A tool that contains schematic diagram entry and simulation capabilities, built-in symbols for common devices and interactive operation.

Capilano Computing Systems, Ltd.; N. Vancouver, B.C., Canada

NUC+MED/DK

Nuclear medicine radionuclide decay

512K Amiga; external drive; printer.

NUC+MED/DK contains the decay rates of the most commonly used radionuclides in nuclear medicine.

Decay charts of selected nuclides, or of any other entered by the user, are easily generated at any time. Corrections are automatically made for calibration dates and times, and current vial activity or required-dose volumes are easily obtained.

Compuphysics; Lafayette Hill, Pa. 19444

NUC+MED/IV

Nuclear medicine in vitro-analyses package.

512K Amiga; external drive; printer.

NUC+MED/IV is a series of routines, all menu-selectable from a main program, that perform the most common nuclear medicine wet studies. These include Red Cell Sequestration (Red Cell Survival), RBC Volume, Plasma Volume, Ferrokinetics, T-3 Uptakes and Schilling Test.

All computations are performed according to well-established protocols. Reports are automatically generated and appropriate graphs of input data may be optionally dumped to the printer.

This eliminates tedious hand calculations or graphing of input data.

Compuphysics; Lafayette Hill, Pa. 19444

OBSTETRICA

Obstetrical ultrasound analyses for fetal-growth assessment

512K Amiga; external drive; printer.

OBSTETRICA determines fetal age in utero from various measurements made from ultrasound scan images of the fetus. These include Biparietal Diameter, Head Circumference, Femur Length, Abdominal Circumference and combinations of the same.

Several concurrent calculations are per-

formed using the approaches of various experts in the field and all results are displayed for comparison.

Complete reports are printed automatically and data may be retained on disk for the term of the pregnancy for the continued evaluation of fetal development.

When Genlock became available, it was incorporated into the system to enable measurements to be made directly from the displayed ultrasound image.

Compuphysics; Lafayette Hill, Pa. 19444

PCLO

Printed circuit-board layout

A professional multiple layer, interactive autorouting CAD tool for engineers and technicians who want complete control over their printed circuit-board artwork.

SoftCircuits, Inc.; North Lauderdale, Fla. 33068

Pro Video CG I

Video production

1Mb Amiga (A2000).

Pro Video CG I, the first of a series of software releases designed to harness an Amiga for video production, gives a video professional a character-generator production tool equal to stand-alone hardware.

Basic character-generator features include offering various styles and sizes of text; character-by-character color; character shadow and edging; and 32K plus of text memory.

More advanced features include background grids, animated page transitions and automatic operation. It also includes 640 horizontal pixel resolution and a palette of 4,096 colors. Vertical resolution is 512 pixels interlaced making it suitable for Australian PAL systems.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888

QUALITX

X-ray film-processor quality-control management

512K Amiga; external drive; printer.

QUALITX charts film-processor param-

eters obtained from the daily analysis of sensitometric control strips. These include speed (density), contrast, base + fog and temperature measurements.

Information stored and displayed includes all of the above plus daily comments and warning messages relating to parameter trends, dates, times and program commands.

Monthly graphs may be dumped to the printer at any time to facilitate efficient record keeping, and data may also be output in tabular format. Facilities are included for processor optimization and interprocessor comparison.

Compuphysics; Lafayette Hill, Pa. 19444

Quiz Master

Music

Allows a teacher to create and give tests or quizzes directly on the computer. Two additional support packages, *Music Student I* and *II*, take the student through all major areas of music theory such as symbol recognition, scales, chords, etc.

Quiz Master

Music Student I and II

Associated Computer Services; Springfield, Mo. 65804

SciCalc

Scientific calculator

A full featured scientific calculator. Features include algebraic hierarchy with automatic constant, 10 memories, powers, logs, trig, hyperbolics, statistics and polar/rectangular conversion.

Deskware; St. Petersburg, Fla. 33743

Station Manager

A full featured television station management system. The first module to be completed is the weather graphics system.

Additional modules will be available to handle interoffice mail, teleprompting, downloading from news and weather services and production of news "copy." This will link together all newsroom services.

Associated Computer Services; Springfield, Mo. 65804

Spreadsheet

Amiga Lattice Unicalc Spreadsheet

An electronic spreadsheet that provides a 256 column by 8,192 row processing area.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888

Amiga Lattice Unicalc Template Pack I

Electronic templates

512K Amiga; Amiga Lattice Unicalc Spreadsheet.

The Unicalc Template Pack I is an assortment of 30 electronic templates, or spreadsheet formats, to be used in conjunction with the Lattice Unicalc Spreadsheet. They provided examples of Unicalc's advanced spreadsheet features and have been designed for easy expansion and customization to meet both home and business requirements. Business templates include financial ratio analysis, productivity analysis, bond-portfolio valuation, stock-portfolio valuation, consultant time sheet, auto-expense log and more.

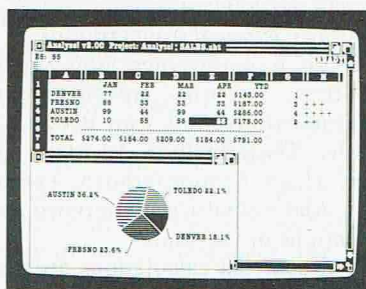
Home templates include personal, financial net-worth statement; personal-property inventory, loan-payoff calculator, a renting versus owning calculator, checkbook coordinator and more.

Miscellaneous templates include loan-amortization sheet, collectors' value tracker, teacher's gradebook, economic-order quantity, survey-results database and more. *PO Box 3072; Glen Ellyn, Ill. 60138*

Analyze!

Micro Systems R.R.P. \$219

Full colour graphs, IFF files, intuition in-



terface, multiple Windows, definable column widths.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Analyze! 2.0

Spreadsheet R.R.P. \$219

A spreadsheet program that provides a 256 column by 8,156 row processing area.

Distributed in Australia & Asia/Pacific by Imagineering (Questor) (02) 697 8666 also by Computamart Pty Ltd, (09) 328 9799

Haicalc

Haitex

R.R.P. \$119

9000 x 9000, accurate to 8 digits, pie, bar, line, point charts, sparse matrix, multi-tasking multiwindows.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Logistic

Grafox England R.R.P. \$299

Integrated software

Spreadsheet, time management, database, graphics.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

LPD Planner

Digital solutions R.R.P. \$239

Comprehensive spreadsheet

Integrated with other LPD software packages, multiple graphs, printed output.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

MaxiPlan Version 1.5

Spreadsheet R.R.P. \$249

A spreadsheet, graphics and database program that provides a 512 column by 16,384 row processing area and what-if analysis with numerical data.

MaxiPlan Plus, R.R.P. \$369, which contains the features listed above, also includes a macros feature as well as additional utilities.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888 also by Computamart Pty Ltd, (09) 328 9799

VIP Professional

VIP Technologies R.R.P. \$399

Lotus compatible, charts & graphs, macros, database function, imports 123 files.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Utilities**Amiga Calculator Construction Kit**
256K or larger Amiga.

The Amiga Calculator Construction Kit is a multitasking program that allows a user to build a calculator to meet his specific needs.

A user can choose from more than 80 functions to create a customized calculator for computational needs such as financial, reverse polish notation, octal, binary, hex, decimal, surveying and algebraic. A user can also include a print capability for hardcopy printouts.

Quicksilver Software; Sioux City, Iowa 51103

AmigaDOS Express

On-line AmigaDOS manual

R.R.P. \$59.95

256K or larger Amiga.

AmigaDOS Express provides instant and comprehensive on-line reference for the commands and features of AmigaDOS.

Utilizing the Amiga's multitasking capability, the program remains in the computer's memory while other software is being run. When a user needs quick information on any aspect of the operating system's features, the appropriate portion of the on-line manual can be called up through a window on the screen without interrupting the program currently running.

AmigaDOS Express contains descriptions and helpful information on devices, directories, DOS-error messages and more. All AmigaDOS commands are broken down by function into submenus, and the program includes multi-page descriptions of each command, including its format, typical usage, remarks, examples and "see also" cross references.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Amiga PowerPak Utilities

Encore is a mouse/keyboard record and playback.

Wow is a floppy disk performance enhancement that allows a floppy to work faster than a hard disk.

ShortCut is an abbreviation handler for word processing and programming.

AmigaShare is a real-time data sharing program using two Amigas.

Intuitive Technologies; Pebble Beach, Calif. 93953

Clip

ECE Research R.R.P. \$149

DOS file utility

Gives complete CLI commands under workbench, command tutorial.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Clock For Amiga

Utility

A small cartridge that plugs onto the side of the Amiga. The time of day is set automatically each time the computer is turned on, and the clock will run for two years even when the Amiga is turned off.

Skyles Electric Works, Inc.; Mountain View, Calif. 94041

CLI Mate

Progressive Peripherals

R.R.P. \$79.95

Additional command for CLI

Full help & tutorial, show pic from one button, displays ASCII or Hex, supports floppy or hard disk

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

D.A.S. Disk Editor

Utility

A utility program that allows a user to change any byte(s) on a disk and display sectors in Hex, Octal, ASCII and Decimal format.

Developers of Advanced Software; Houston, Texas 77014

Disk to Disk

Central Coast R.R.P. \$109

File transfer

-Converts Amiga data files to Commodore 64 and back.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

DiskCraft

Disk utility

512K Amiga; external drive.

DiskCraft is a mouse-driven program that enables a user to repair damaged disks as well as recover otherwise lost data with the use of a menu-selecting process.

For a novice user, the program facilitates the recovery and repair of a crashed diskette through the use of a single menu function.

For a more sophisticated user, DiskCraft supplies a series of complex editing functions that include: formatting a single sector or group of sectors; copying or comparing a sector or a group of sectors from one location on a disk to another; searching for data in either character or hexadecimal format; displaying and modifying an individual sector; and other complex functions.

Rankin Systems Software; Cleveland Heights, Ohio 44118

Disk Library

Provides a way to organize the contents of a disk for easy access.

Classic Images, Inc.; Cherry Hill, N.J. 08002

Disk Pro Plus

Par Home R.R.P. \$59

Disk file utility

Make multiple backups, compress & decompress files, reduce file sizes by 50%, fast backups.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Diskwik

Disk utility package

Gives a user total access and control of his disks. Features include restoring deleted files; eliminating any errors on a disk (except those due to defective disks); editing in hex or ASCII; copying

blocks to the same or another disk; re-formatting tracks; correcting checksums; and more.

Tigriss; Glendora, Calif. 91740

DOS-2-DOS

File transfer

A disk file transfer program that transfers all file types from PC/MS-DOS to AmigaDOS and vice versa.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Drive Alignment Kit

ECE Research

R.R.P. \$499

Software package for disk drive alignment

Graphic representation of oscilloscope patterns to match

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

F.A.C.C.

ASDG R.R.P. \$69

Dynamically allocated disk buffer

Buffers directory sectors, decreases drive access, graphic display, auto start.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Go-Encrypt

File encryption/decryption

256K or larger Amiga.

Go-Encrypt is a fast and efficient file encryption/decryption program. It will encrypt both text and binary files, virtually guaranteeing break-proof security.

The program provides multipass encryption, allowing a user to re-encrypt a file several times.

It can be included in the Workbench C directory so that it may be executed as any other system utility.

DataTalk Information Systems, Inc.; Selden, N.Y. 11784

InfoMinder

Information resource

An information resource program that allows a user to access stored data. The program consists of three parts: an access/display program, a text compiler and a programmer's interface.

Distributed in Australia by Oxford Sys-

tematics; (03) 459-9671

Reason

AT&T

Alternative operating system

Created by AT & T labs, the people who created Unix.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

The OnLine AmigaBASIC Manual

An online resident help utility that displays multiple screens of information on most Microsoft AmigaBASIC topics using pull-down menus.

Not copy protected

Omega Star Software; Clemson, S.C. 29633

T-Util

File recovery

Consists of four programs: Recover-All, Recover-Deleted, Un-Kill and Diskedit.

These files are designed to run from the CLI environment, and instructions are provided in the manual for users who are not familiar with CLI.

Techni Soft; Murray, Utah 84123;

Wow

Oxxi Inc. R.R.P. \$79

Disk buffer

Dynamically allocated, decreases access time, buffers directory sectors, auto start software.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

ZING!

Productivity software R.R.P. \$159

Allows a user to bypass typing cryptic commands through CLI. With the program, a user can copy, edit, delete, rename, sort, search and organize files and programs using the mouse.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888 also by Computamart Pty Ltd, (09) 328 9799

also by Imagineering (Questor) (02) 697 8666.

Flipside

Micro Systems R.R.P. \$129

Print Utility

Prints files sideways, great for spreadsheets, custom print sizes, works with graphic printer.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Lazerscript

Gold Disk R.R.P. \$69

Postscript driver

Reads *Pagesetter* files and converts to postscript, works with any Apple, T.I. or any Postscript printer.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Deluxe Print

Colour printing program

Contains 15 formats for creating a variety of customized printouts, in either colour or black and white.

Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888

LaserUp! Graphics

Printer utility

Allows a user to print virtually any Amiga screen on an Apple LaserWriter printer.

S. Anthony Studios; San Francisco, Calif. 94107

LaserUtilities Vol. 1

A collection of PostScript procedures for formatting text on the Apple LaserWriter or other PostScript printers.

S. Anthony Studios; San Francisco, Calif. 94107

PRINTZ 1.0

Spreadsheet and printer helper

256K or larger Amiga. PRINTZ, a spreadsheet and printer helper, contains three programs on disk that allow the printing of large spreadsheets and make any printer easier to use.

The programs include: SIDEWIZE, a program that allows a spreadsheet to be printed sideways on a printer; TYBANNER, a banner program that produces large text output of either string or file input; and PRINT, a printer formatter.

Tychon Technologies, Inc.; Cleveland, Ohio 44177

Tychon Utilities 1.1
Utilities

256K or larger Amiga.

Tychon Utilities contain five programs and numerous data files on a Workbench version 1.1 disk.

The programs include: TALKEY, a CLI interface that reads input from the input command, echoes it verbally to the Amiga sound device and then executes the input command; PRINT, a listing formatter program that formats text files with varying page lengths and margin sizes with or without page-header information; POLYDRAW, a freehand paint program with file save-and-read capabilities in IFF format; TERMINAL, a generic communications program that supports file upload and download capabilities, file capture of screen information, variable baud rates and on-line help to the function key commands; and HELP, a CLI-entered command that features textual information and examples on all AmigaDOS commands as well as the Tychon specific commands.

Tychon Technologies, Inc.; Cleveland, Ohio 44177

Fonts and Desktop Accessories

D'Buddy*Digital Creations R.R.P. \$182**Screen grab utility*

Output to file or printer, auto start ram/resident, creates IFF graphics files, works on any software.

*Distributed in Australia by Computamart Pty Ltd, (09) 328 9799***Font Set 1***Gold Disk R.R.P. \$65**New fonts for the Amiga*

Variety of sizes & styles, works with most software (just add to startup disk), keyboard accessible.

*Distributed in Australia by Computamart Pty Ltd, (09) 328 9799***Dimmer***Par Home R.R.P. \$39.95*

Ram resident, automatic or manual, prevents monitor "burn in".

*Distributed in Australia by Computamart Pty Ltd, (09) 328 9799***Encore***Oxxi Inc. R.R.P. \$79**Keyboard Utility*

Records keyboard & mouse sequences, creates macro command for any length sequence.

*Distributed in Australia by Computamart Pty Ltd, (09) 328 9799***Fast Fonts***Microsmiths R.R.P. \$93**Font editor*

Font generator, works with most software, creates fonts in different sizes & styles.

*Distributed in Australia by Computamart Pty Ltd, (09) 328 9799***Maxidesk***Oxxi Inc. R.R.P. \$129**Desktop add-ons*

Black book, calculator, rolodex, calendar.

*Distributed in Australia by Computamart Pty Ltd, (09) 328 9799***Grabbit***Discovery R.R.P. \$65**Screen grab utility*

Ram resident, saves or prints on screen, simple macro key function, creates IFF files.

*Distributed in Australia by Computamart Pty Ltd, (09) 328 9799***Order***Northeast Software R.R.P. \$115**Desktop organiser*

- Ram resident

- Not copy protected

- Makes file access & DOS commands easier

*Distributed in Australia by Computamart Pty Ltd, (09) 328 9799***Zing Keys***Meridian R.R.P. \$99*

Macro functions, screen dump, record mouse movements, hot keys, window select.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799 also distributed by Imagineering (Questor) (02) 697 8666.

Word Processing

Dynamic Word*Micro Illusions R.R.P. \$339*

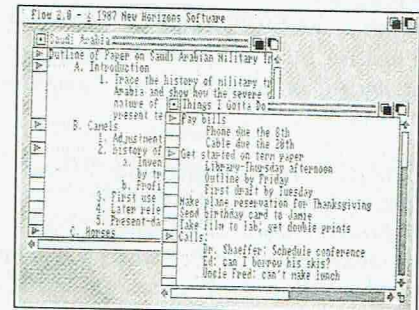
- Professional package, speller and thesaurus, multiple fonts, styles & sizes, does calculations, generate index and contents.

*Distributed in Australia by Computamart Pty Ltd, (09) 328 9799***E.T. Writer**

Turns an Amiga computer and printer into a full-featured electronic typewriter or standard word processor.

*T.R. Software; Chicago, Ill. 60624***Flow***Idea processor R.R.P. \$199*

A tool that assists in creating sales reports, school papers and novels; helps plan business strategies and schedule



appointments; and organizes thoughts and ideas.

*Distributed in Australia & Asia/Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888 also in Australia by Computamart Pty Ltd, (09) 328 9799***Gold Disk Desktop Publishing***Desktop publishing and accessories**512K Amiga*

Gold Disk in Canada have produced three packages that are used with each other.

PageSetter - A full desktop publishing

system that can integrate IFF images created on other Amiga packages like GraphiCraft, Images and Deluxe Paint I & II.

LaserScript - allows PageSetter pages to be manipulated and output to any PostScript compatible laser printer or type setter.

GoldSpell - a 90,000 word spelling checker that will operate on PageSetter, TextCraft, Scribble! 2.0 or generic package.

Commodore Business Machines Pty Ltd; (02) 427-4888 also distributed in Australia by Computamart Pty Ltd, (09) 328 9799 (See also Desktop Publishing Section.)

LaserFonts Vol. 1

A collection of three downloadable analytic (not bit-mapped) fonts for the Apple LaserWriter or other PostScript printers.

S. Anthony Studios; San Francisco, Calif. 94107

L.P.D. Writer

Digital Solutions

R.R.P. \$239

Integrated with LPD planner and filer, full feature, built in speller, mailmerge
Distributed in Australia by Computamart, (09) 328 9799

MIAMIGA Word Softwood Writer

Softwood Company R.R.P. \$199

Full function word processor

Integrated with other Softwood software packages, cut and paste, search and replace

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Nancy

Spelling checker and utilities

R.R.P. \$99

A spelling checker with a compressed dictionary file containing more than 80,000 words. It can search up to four user-supplied word lists of unlimited length which can, for example, hold names and technical words and can automatically correct repeat occurrences of previously discovered misspellings.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

mart Pty Ltd, (09) 328 9799

ProWrite

Word processor R.R.P. \$199

A word processor that allows a user to edit and print in different fonts, styles and colors, and include IFF graphics in their documents.

Only graphics-capable printers can print in the font used on screen, however, and only color-capable printers can utilize the program's color-printing capabilities.

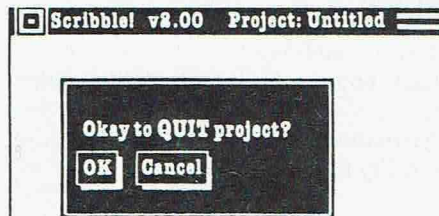
Available February, 1987

Distributed in Australia & Asia/Pacific by Imagineering; (02) 697 8666 also distributed by Computamart Pty Ltd, (09) 328 9799

Scribble! 2.0

Word processor

A full-featured word processor that con-



tains a 40,000-word spelling checker, basic word processing capabilities and advanced features.

Distributed in Australia & Asia/Pacific by Imagineering (Questor) (02) 697 8666 also distributed by Computamart Pty Ltd, (09) 328 9799

Talker

Talking word processor R.R.P. \$185

An easy-to-use, what-you-see-is-what-you-get word processor that speaks as a user types. It includes all standard word processor features such as word wrap, margin setting, bold, italic, cut, paste, copy, headers, footers, page numbering, underlined text and more.

Distributed in Australia & Asia/Pacific by Ozi-Soft; (02) 211-1266 also distributed by Computamart Pty Ltd, (09) 328 9799

Textcraft

Word processing R.R.P. \$159

An entry-level word processor that stresses ease of use, on-screen documentation and templates for business letters, memos, etc.

Commodore Business Machines Pty Ltd; (02) 427-4888 also distributed by Computamart Pty Ltd, (09) 328 9799

Word Perfect

Word Perfect R.R.P. \$595

Speller and thesaurus, multitasking, multiwindows, professional word processor, file compatible with IBM version.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799 also distributed by Sourceware (02) 411 4711, (03) 600 0344

Vizawrite

Viza Software

Mix text and graphics, entry desktop publishing, full feature, zoom functions.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Wordwright

Word processing

A word processor with support for macros, conditional statements, string variables and DOS commands. It also includes a primitive outliner.

RTL Programming Aids; Lowell, Mich. 49331

Zuma Fonts

Video; presentation graphics

Designed for use in video and presentation graphics applications. Each of the volumes contains 3 different typestyles in sizes ranging from 20 to 100 points.

Distributed in Australia & Asia/Pacific by Imagineering; (02) 697 8666 also distributed by Computamart Pty Ltd, (09) 328 9799

Games and Entertainment

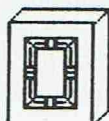
Activision Games

Hacker,
Mindshadow,

Borrowed Time,
Shanghai,



Red
Dragon



White
Dragon



Green
Dragon

Tass Times in Tonetown,
GBA Championship Basketball:
Two On Two
The Domsday Papers;
The Activision Little Computer People
Discovery Kit
*Distributed in Australia & Asia/Pacific
by Imagineering; (02) 697 8666*

Aldaron

Reversi board game
*Microsmiths, Inc.; Cambridge, Mass.
02140*

Arazok's Tomb

Adventure, role-playing game
*Commodore Business Machines Pty
Ltd; (02) 427-4888 also Computamart Pty
Ltd, (09) 328 9799*

Bowling

Action game
Silver Software; Bridgeport, Conn. 06610

The Chessmaster 2000; Software Golden Oldies Volume 1

Strategy; entertainment
The Chessmaster 2000
Software Golden Oldies Volume 1
*Distributed in Australia & Asia/Pacific
by E.C.P.; (02) 949-7300*

Chessmate

R.R.P. \$79.95
Computerized chess game
*Commodore Business Machines Pty
Ltd; (02) 427-4888 also Computamart
(09) 328 9799*

Computer Baseball

R.R.P. \$85
Sports game
*Distributed in Australia by Computa-
mart (09) 328 9799*

Cosmos

Space game
HC Software Australia; (08)428377

Defender of the Crown

Graphic adventure



*Distributed in Australia & Asia/Pacific
by Imagineering (Questor); (02) 697
8666 also distributed by Computamart
Pty Ltd, (09) 328 9799*

Diablo

Maze-like, arcade-style game
*Classic Image, Inc.; Cherry Hill, N.J.
08002*

Dr. Xes

Psychotherapeutic game
*Distributed in Australia & Asia/Pacific
by Ozi-Soft Pty Ltd; (02) 211-1266*

Electronic Arts Games

Archon,
Dr. J and Larry Bird Go One-On-One,
Skyfox,
Arcticfox,
Return To Atlantis,
Seven Cities of Gold
Adventure Construction Set
Star Fleet 1
*Distributed in Australia & Asia/Pacific
by E.C.P.; (075) 96 3488*

Epyx Games

Strategy
Temple of Aphai Trilogy,
Rogue,
Winter Games
*Distributed in Australia & Asia/Pacific
by E.C.P.; (075) 96 3488 also Computa-
mart Pty Ltd, (09) 328 9799*

The Faery Tale Adventure

R.R.P. \$79
Adventure game
*Commodore Business Machines Pty
Ltd; (02) 427-4888 also Computamart
(09) 328 9799*

The Financial Time Machine

Interactive investment simulation
*Commodore Business Machines Pty
Ltd; (02) 427-4888 also by Computamart
Pty Ltd, (09) 328 9799*

Flight Simulator II

*Distributed in Australia & Asia/Pacific
by Imagineering (Questor); (02) 662-4499
also by Computamart Pty Ltd, (09) 328
9799*

Games Gallery I, II And III

Classic computer games
*Meridian Software, Inc.; Houston, Texas
77289*

GRIDIRON! The Football Simulator

Football simulation
GRIDIRON!
Pro DataDisk
*Bethesda Softworks; Bethesda, Md.
20817*

Infocom Games

Starcross,
Suspended,
Deadline,
Seastalker,
Infidel
Spellbreaker
Planetfall,
The Hitchhiker's Guide To The Galaxy,
A Mind Forever Voyaging,
Cutthroats,
Wishbringer,
Enchanter,
The Witness,
Ballyhoo,
Suspect,
Trinity,
Leather Goddesses Of Phobos,
Moonmist
Zork I,
Zork II,
Zork III,
Sorcerer

Enchanter Trilogy

Distributed in Australia & Asia/Pacific by Imagineering; (02) 697 8666

Leader Board

Golf simulation
Distributed in Australia & Asia/Pacific by Imagineering; (02) 697 8666

Mean 18

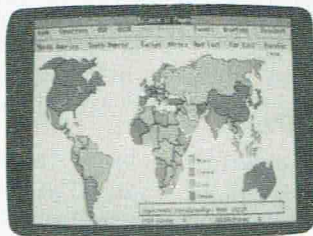
Golf simulation
256K or larger Amiga.
Supplemental course disk (includes Harbor Town, Hilton Head, S.C.; Inverness, Toledo, Ohio; Turnbury, Scotland)
Distributed in Australia & Asia/Pacific by Ozi-Soft Pty Ltd; (02) 211-1266

Micro League Baseball

Sports game
Micro League Sports Association;
2Newark, Del. 19711

Mindscape Games

Deja Vu: A Nightmare Comes True,
Brataccas,
Balance Of Power,

**Racter**

Distributed in Australia & Asia/Pacific by Imagineering; (02) 697 8666 also by Computamart Pty Ltd, (09) 328 9799

The Pawn

Illustrated text adventure
256K or larger Amiga.
Distributed in Australia & Asia/Pacific by Ozi-Soft Pty Ltd; (02) 211-1266 also Computamart Pty Ltd, (09) 328 9799

Triclops Invasion 2.0

Three-dimensional space-age war game
512K Amiga.
Geodesic Publications; Willow Creek, Calif. 95573

Video Vegas

Slots, blackjack, draw poker, keno
Baudville; Grand Rapids, Mich. 49506

Alien Fires

Jagware R.R.P. \$79
Animated graphics adventure
Full 3-D graphics, talking characters, become a time lord & solve space mystery.
Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Guild of Thieves

Firebird R.R.P. \$85
Text & graphics adventure
Intelligent text parser, hi res graphics, treasures, traps, rogues & maps.
Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Phantasie

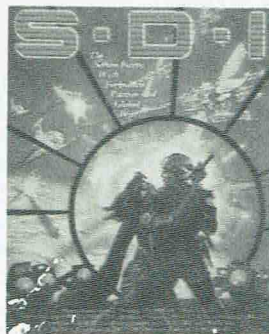
S.S.I. R.R.P. \$85
Animated graphic adventure
Character statistics, dungeons & dragons style fantasy adventure, multiple game plays.
Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Roadwar 2000

S.S.I. R.R.P. \$59
Animated graphic adventure
Character statistics, futuristic war waged with cars and trucks, multiple game plays.
Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

S.D.I.

Mindscape R.R.P. \$79

**Animated graphic adventure**

Cinemaware series, space station based defence, flight sequences, satellite war.
Distributed in Australia by Computamart Pty Ltd, (09) 328 9799 also by Imagineering (Questor) (02) 697 8666

Shadowgate

Mindscape R.R.P. \$79
Text and graphic adventure

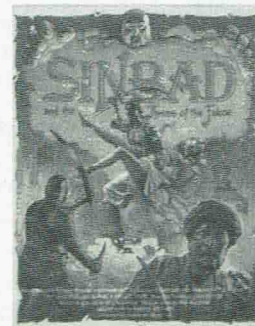


Some animation, text input via mouse, hi res graphics & sound, hundreds of screens.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Sinbad & the Falcon

Mindscape R.R.P. \$79
Animated graphic adventure

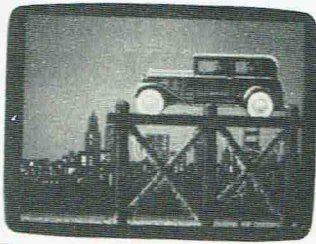


Cinemaware series, Sinbad returns home to find the king turned into a falcon, character conversations.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799 also by Imagineering (Questor) (02) 697 8666

King of Chicago

Micro Illusions R.R.P. \$79
Animated graphic adventure
Cinemaware series, very high quality graphics, battle mobs of old Chicago, movie like animation.



Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Knight Orc

Firebird R.R.P. \$69

Text and graphic adventure

Excellent sound, large landscape, intermediate level.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Land of Legends

Micro Illusions R.R.P. \$79

Animated graphics adventure

Full 3-D graphics, multiple view points, character statistics, large play field.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Silicon Dreams

Firebird R.R.P. \$69

Text and graphic adventure

Intelligent text parser, high quality sound, high res graphics, some animation

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Uninvited

Mindscape R.R.P. \$79

Text and graphics adventure

Unique text input from mouse, secret passageways, ghosts and monsters.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Jewels of Darkness

Firebird R.R.P. \$69

Text and graphics adventure

Intelligent text parser, high quality sound, hi res graphics, some animation.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Sports Games

Computer Baseball

S.S.I. R.R.P. \$85

Statistical baseball

Large player rosters, vital statistics on players, you become the manager, full league play.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Grand Slam Tennis

Infinity software R.R.P. \$109

High quality sound & graphics

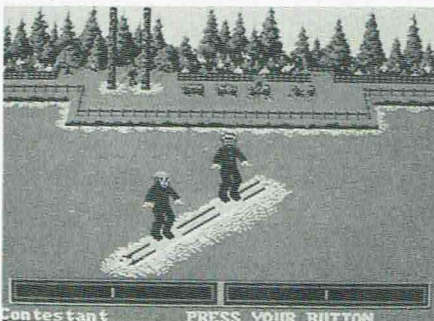
Full mouse control, shadowing to determine height, includes tennis trivia quiz.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

World Games

Epyx R.R.P. \$59.95

World class Olympics



Multiple players, karate, Sumo wrestling, pole tossing, & more.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Strategy and Simulations

Bridge 4.0

Artworx Software R.R.P. \$69

Computer Bridge

1 to 3 players, computer scores, multiple skill levels.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Bridge 5.0

Artworx Software R.R.P. \$79

Computer Bridge

1 to 3 players, improved bidding, multiple skill levels.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Chessmate

Dark Horse R.R.P. \$79.95

Computer Chess

Multiple skill levels, tutorial built in, high quality graphics, mouse or keyboard control.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

F-15 Strike Force

Microprose R.R.P. \$79.95

Jet simulator

Based on F-15 assault jet, high speed graphics, full instruments, multiple missions.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Kampfgruppe

S.S.I. R.R.P. \$79

Battle simulation

Based on WWII battles against Nazi Germany, plan & execute various battle strategies.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Quintette's

Miles Computing R.R.P. \$109

Strategy game

High res graphics, unique play, based on penté, multiple skill levels.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Scenery Disks #7, #11

Sublogic R.R.P. \$69

Add on scenery for Sublogic flight simulator & jet

New airports, maps etc., includes cities.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

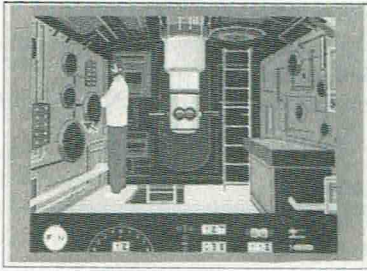
Silent Service

Microprose R.R.P. \$59

Submarine simulation

Includes tactical operations manual, very detailed, multiple screens.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799



mart Pty Ltd, (09) 328 9799 also by Imag-
ineering (Questor) (02) 697 8666

Galileo

Infinity Software R.R.P. \$129

Planetary simulation

Accurate astrological motion and plot-
ting, learn names and locations of con-
stellations etc.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Gunship II

Microprose R.R.P. \$79.95

Helicopter simulation

High speed graphics, full battle armour,
variety of missions, multiple levels.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799 also by Imag-
ineering (Questor) (02) 697 8666

Halley Project

Mindscape R.R.P. \$79

Solar system simulator

Solar motion mechanics, beginning at
Halley's comet you must travel to each
of the planets to unravel mystery.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Jet

Sublogic R.R.P. \$129

F-16 flight simulator

High speed graphics, full armour,
H.U.D., scenery disk compatible.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799 also by Imag-
ineering (Questor) (02) 697 8666

Super Huey

Cosmi R.R.P. \$59.95

Helicopter simulation

Based on the Huey chopper, high speed
graphics, full battle armour, multiple
Levels.

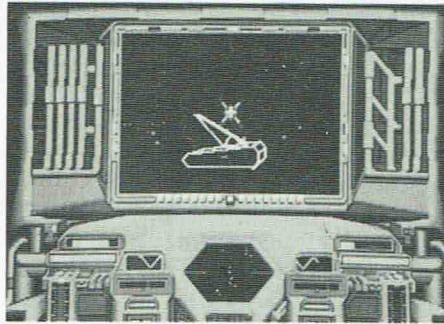
Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Star Glider

Firebird R.R.P. \$85

3-D space simulation

Pilot a hi-tech attack ship, fast wire



frame graphics, large playfield, many
different opponents

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

The Surgeon

ISM Inc. R.R.P. \$119

Surgical simulator

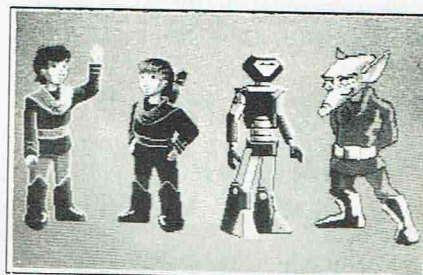
Diagnosis of illness, high detail human
body, educational as well as enjoyable,
medical theory manual.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Discovery Trivia

Micro Illusions R.R.P. \$79.95

Adventure style game



Requires players to answer trivia ques-
tions to gain access to various rooms,
multiple categories.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Fire Power

Micro Illusions

R.R.P. \$49

One on one tank battle

Split screen viewpoint, multiple tank
characteristics, various battle scenarios,
one or two players.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Galactic Invasion

Micro Illusions R.R.P. \$49

One on one space battle

Split screen viewpoint, large real time
starfield, two complete galaxies, one or
two players.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Karate Kid II

Michtron R.R.P. \$85

Arcade style game

Based on popular movie, fast moving
graphics, very faithful to movie, karate
action at its best

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799 also by Ozi-
Soft (02) 211 1266

Mind Walker

Commodore R.R.P. \$119

Unusual arcade style game

Go into the human mind to correct per-
sonality conflicts, hi res graphics &
sound.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Strip Poker

Artworx R.R.P. \$95

Adult style card game

Hi res 'graphics screens', multiple oppo-
nents, various poker games.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Turbo

Micro Illusions R.R.P. \$49

One on one race game

Split screen viewpoint, oil slicks, spiked
wheels, police chases, hi res landscapes.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Personal and Home Finance

2 + 2 Home Management System

A home management system that features an integrated database to help organize financial transactions and daily activities for the home and small businesses.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

D.A.S. Home Finance

Assists the homeowner in making financial decisions and in planning for future investments.

Developers of Advanced Software; Houston, Texas 77014

EASY LOANS

R.R.P. \$79

256K or larger Amiga.

EASY LOANS is a program dedicated to helping a user obtain and manage credit cards, loans, mortgages or even money borrowed from a friend. It includes everything needed to make a professional quality presentation to a bank executive or loan officer.

Amortization schedules may be balloon payments, partial principal payments, variable rates, variable payments, programmed increasing and decreasing payments, any combination of these and more.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Financial Cookbook

Financial analysis

The program offers 32 financial calculation "recipes" that contain formulas that produce answers about taxes, investments, savings, mortgages, IRAs and other personal finance questions.

Distributed in Australia & Asia/Pacific by E.C.P.; (075) 96 3488

Money Mentor

Personal finance R.R.P. \$189

A financial accounting system that manages up to 30 separate accounts, keeps track of transactions, computes balanc-

es, projects and budgets expenses and alerts a user when a balance or budget has been exceeded.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

PAR Home I, PAR Real I

Financial software R.R.P. \$89

PAR Home I is an integrated checkbook and budgeting program that also handles most major areas of personal financial planning and management.

PAR Real I is a professional level real estate analysis program that incorporates most major types of creative financing. The program uses three-dimensional bar charts and speech.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Par Home II

Par Home R.R.P. \$179

Home finance manager

All the features of Par Home + additional features, more records, complex sorts.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

PHASAR

Home/small-business financial and list management system

PHASAR (Professional/Home Accounting System And Register) is a financial management system that allows up to 40 bank/charge accounts and 130 income/expense categories.

Distributed in Australia & Asia/Pacific by Ozi-Soft Pty Ltd; (02) 211-1266

Trendrider

Talking investor's tool

Uses artificial-intelligence techniques and speech synthesis in tracking fluctuations in the mutual-funds market.

Finally Software; Newport Beach, Calif. 92663

General Business

Cash Register

Soft Touch R.R.P. \$179

Complete point of sale, inventory, drawer reconciliation, daily reports, printed

output.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Nimbus 1

Nimbus R.R.P. \$290

General ledger, accounts rec/pay, built in chart of accounts, account kept on cash basis, equity & retained earnings.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Paymaster Plus

Soft Touch R.R.P. \$249

Payroll system

Complete package, multiple structures, tax scales, printed output.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Softwood Ledger

Softwood R.R.P. \$199

Full general ledger

Integrated with other Softwood software, multiple reports, printed output.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Par Real I

Par Home R.R.P. \$249

Real estate manager

Income management, property analyzer, profit reports, printed output.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Easy Checks

Par Home R.R.P. \$89

Chequebook budgeting

Maintains multiple accounts, balances accounts, general accounting, printed reports.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Other Software

Amiga Editor

TDI Software R.R.P. \$129

Full screen text editor

Search and replace, macro function, generates ASCII of IFF, merge files function.

Distributed in Australia by Computa-

mart Pty Ltd, (09) 328 9799

Business Card Maker

Intracorp

R.R.P. \$125

Multiple fonts and styles

Full graphic editor, mix text & graphics, full printer support.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Eye Play 1 Graphics routines

A collection of graphic routines that are randomly generated for a kaleidoscope-like visual effect.

Each program is 40K large, written in C and has 40 routines.

Silver Software; Bridgeport, Conn. 06610

Go 64

SIS Inc. R.R.P. \$229

Hardware & software

Fully emulates C64 cpu, runs C64 software on Amiga, supports 5 1/4" drive.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Intercompatibility (Interaction)

Intracorp R.R.P. \$195

Psychological reaction tool

Interactive questionnaire evaluates personal profile, printed output.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Jumpdisk

Magazine on disk

A monthly magazine on disk that contains at least 10 programs and 10 articles. Each issue includes product news and reviews, and reader submissions of programs and articles are invited.

Distributed in Australia by Computer Discounts (02) 436 2976

Kickstart Eliminator

Creative Micro R.R.P. \$285

ROM chips eliminated need for Kickstart disk

Boot directly from workbench, frees up to 256 kB of RAM.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Kwickstart

Michigam Software

R.R.P. \$399

Replacement ROM

Eliminates Kickstart, works with both 1.1 7 1.2 software, fast power up, completely internal.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Lexcheck

Complete Data Austomation

R.R.P. \$99

Spelling checker

Reads most files in less than one minute, 100,000 word dictionary, reads Ascii, textcraft, scribble.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Love Quest

Intracorp R.R.P. \$125

Matchmaking software

Personal trait questionnaire, capable of uploading data.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Megadisc

Australian produced monthly magazine on a disk for Australian and Asia/Pacific Amiga owners. Each disk consists of reviews, hints & tips, tutorials, utilities, games and graphics.

Distributed in Australia & Asia/Pacific by Megadisc Digital Publishing; (02) 959-3692

Outline

Par Home R.R.P. \$89

Outliner

Quick cut & paste, arrange with mouse, auto save, not copy protected.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Promise

The Other Guys R.R.P. \$119

Spelling checker

User definable dictionary

Import ASCII or IFF files, multitasking, intuition interface.

Distributed in Australia by Computamart Pty Ltd, 622 Newcastle Street, Leederville W.A. (09) 328 9799

Quickmerge

Associated Computer R.R.P. \$119

Reads IFF & ASCII files, merge multiple text files, formatted output, variable merge functions, raw, draft, & final printouts.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

Telegrams

Software Terminal R.R.P. \$69

Classic games

Modem adaptation for play with opponent, Chess, Draughts, Backgammon, 2-D or 3-D perspective.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

The Movie Database

256K or larger Amiga.

The Movie Database is a diskette containing information on more than 3,000 motion pictures, selected for their availability on videotape.

Included are (if available) title, names of major cast members, date of release, name of director and names of writers.

It is in the form of ordinary ASCII text and can be searched, edited, printed, etc. A search program included with the diskette allows a user to retrieve movie entries based on any word or words in the entry.

Packet Press; Gaithersburg, Md. 20878

Timesaver

CLTD. R.R.P. \$145

Real time clock

Battery backed up, uses no ports, works with all software, auto startup.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

TxED

Microsmith R.R.P. \$93

Full screen editor

Macro keys, search & sort, cut and paste, very powerful.

Distributed in Australia by Computamart Pty Ltd, (09) 328 9799

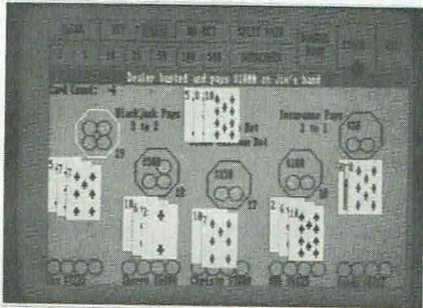
Video Vegas

Baudville R.R.P. \$85

Computer Las Vegas

Blackjack, Roulette, Poker, Craps, learn

strategy, high stakes betting.
Distributed in Australia by Computa-



mart Pty Ltd, (09) 328 9799

Video Wizard

Intracorp R.R.P. \$125

Video tape database

Full function, keep track of title, length, starting counter number, print labels, logs.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Hardware and Peripherals

68881 Floating Point Coprocessor Board

Math coprocessor board

Distributed in Australia by Oxford Sys-
tematics; (03) 459-9671

ADC-1 Data Acquisition And Con- trol System

Measurement; monitoring hardware

Remote Measurement Systems, Inc.;
Seattle, Wash. 98102

Amiga PAL Genlock

This genlock device is designed for at-
tachment to the Amiga and be suitable
for the Australian and Asia/Pacific PAL
television and video systems

Distributed in Australia and Asia/
Pacific by ACME Software; (03) 596-6732

Aprotek Printer Drivers

Daisy wheel and dot matrix printers

Aprotek Daisy 1120

Seikosha SP-1000A

Aprotek; Camarillo, Calif. 93010

A-TIME

Clock/calendar card

256K or larger Amiga.

A-TIME is a clock/calendar card with a
battery backup that leaves all of the
ports of an Amiga available for expan-
sion.

It plugs into the parallel port and pro-
vides a completely transparent printer
port with total compatibility to all I/O
operations.

It includes a leap-year capability and
comes in a custom case with a small
footprint of 2 1/4 x 3 1/4 inches.

Akron Systems Development; Beau-
mont, Texas 77705

Bright-1

MIDI interface card

Micro Engineering of Northern Virginia;
Alexandria, Va. 22312

Buss Station

DSI; Wichita, Kan. 67211

Comspec Printer Enhancements

Microshar MCS 6550 (256K printer net-
work)

Microshare MCS 1050 (IEEE printer in-
terface)

Microshare MCS 8008 (eight-channel,
256K printer network)

Comspec Communications, Inc.; Toron-
to, Ontario, Canada M6A 2Y6

Converter+

Universal interface and buffer

64K Version

256K Version

512K Version

1MB Version

Johnathon Freeman Designs; San Fran-
cisco, Calif. 94188

CSA Turbo-Amiga

Turbo chassis

The CSA Turbo-Amiga is an expansion
unit that combines the power of the
Motorola 68020, 32-bit microprocessor
and the Amiga into one, powerful work-
station. Designed for professional
use, the Turbo-Amiga runs at 14MHz
packs up to 8MB of 32-bit memory and
sports an optional 80-bit, Motorola 68881
math floating-point coprocessor.

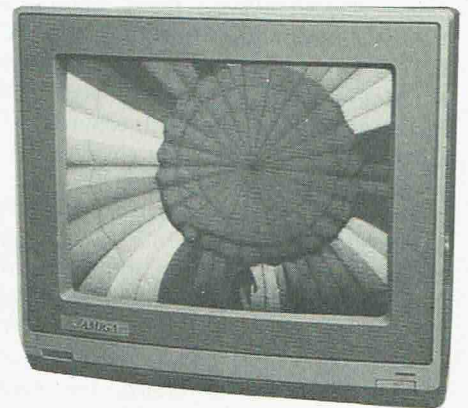
It attaches to an Amiga via a 100-pin ex-
pansion bus. In addition to the copro-
cessor board, the unit is equipped with a
512K, 32-bit static RAM board, a 20MB
harddisk drive with an SCSI controller
and a power supply. A 40MB hard disk
is optional. The unit's two remaining ex-
pansion slots can accommodate addi-
tional boards.

Computer System Associates; San Die-
go, Calif. 92121

Digi-View

Digitizer

Allows black & white video cameras or
TV studio RGB cameras to be attached
to the Amiga and digitised stills may be
produced in both HAM and IFF formats
and stored on floppy for later use.



Distributed in Australia & Asia/Pacific
by ACME Software; (03) 596-6732 also by
Computamart Pty Ltd, (09) 328 9799

Easy1

Pressure-activated drawing pad

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

ImaJet

Ink-jet color-image printer

Illustrated Images, Inc.; Portland, Oreg.
97219

IVS Busbox

Bus expansion box

Interactive Video Systems; La Mirada,
Calif. 90638

Linq Technologies

Linq provide a complete range of paral-

lel and serial cables along with a range of print buffers, print switch boxes, mains filter boxes and 240V battery backup power systems. All products made in Australia.

Distributed in Australia and Asia/Pacific by Linq Technologies; (02) 406-5855

MediaPhile System

Computer-controlled audio/video center

EV-A80 Deck

EVS 700U Deck

Interactive MicroSystems; Boxford, Mass. 01921

MIDI For Amiga

Standard MIDI IN, two MIDI OUTs and MIDI THRU interface

Skyles Electric Works, Inc.; Mountain View, Calif. 94041

MIDI For Amiga 1000

MIDI In, Out and Thru connections.

Distributed in Australia by Garry Rayner Electronics; (066) 84-2740

MIDI GOLD

MIDI interface

Golden Hawk Technology; Nashua, N.H. 03063

Model RM-2 Sync Generator And Genlock Subsystem

RM-2

Keyer module (if required)

Burklund & Associates; Fairfax, Va. 22031

MTA Series 1000

Optical computer components

Media Technology Associates; Bethesda, Md. 20817

Multiport Controller

Multiport asynchronous RS-232C/RS-422 port controller

Component Systems, Inc.; San Francisco, Calif. 94103

The Pal

Expansion chassis

Byte By Byte; Austin, Texas 78759

Parallel Printer Buffer

64K

256K

Johnathon Freeman Designs; San Francisco, Calif. 94188

Penmouse

Input device system (graphics tablet)

Distributed in Australia & Asia/Pacific by Minicomp; (02) 957-6800

ProtoBoard

Blank hardware prototyping board; card

The Amiga 86 pin ProtoBoard securely plugs into the 86-pin connector on the side of the Amiga with provisions for an extra edge connector for easy bus expansion.

The Zorro 100-pin ProtoBoard plugs directly into the 100-pin expansion bus.

Delta Research; Palo Alto, Calif. 94306

SCSI Multifunction Board

The multifunction board plugs into the expansion slot of the XPANDER II 2MB expansion box to provide an SCSI interface for hard disk drive installation, additional RS-232 and printer port, clock calendar with battery backup and separate power supply. The board comes complete with driver software.

Pacific Cypress; Fremont, Calif. 94538

Series One

Graphics tablet

Distributed in Australia & Asia/Pacific by Minicomp; (02) 957-6800

Side Effects Hardware

Side ARM (Amiga Resource Module)--features include a six-slot back plane, 86-pin bus pass-through, small footprint, space for two half-height drives and a 150 watt power supply.

Side Store (memory card)--features include 2MB per card, no wait states and a RAM disk that survives resets/reboots.

Side Track (Disk & Clock)--features include DMA access to disk, Reed-Soloman error correction code, a 20MB half-height disk, ST-506/412 compatibility and a battery backed real-time clock. Generic Power Supply--for 3.5-inch drives.

Generic Track 5 1/4-inch drive--includes power supply and case.

Generic ARM--single slot Zorro expansion.

Side Effects, Inc.; Raleigh, N.C. 27615

TIC

Battery-backed clock/calendar

Byte By Byte; Austin, Texas 78759

Universal Printer/Plotter Buffer

Printer/plotter accessory

64K model

256K model

Johnathon Freeman Designs; San Francisco, Calif. 94188

Accessories

Amiga Cables And Data Switches

Amiga parallel printer cable

Two-way parallel data switch

Three-way parallel data switch

Four-way data-transfer switch

Five-way parallel data switch

Belkin Components; Hawthorne, Calif. 90250

Amiga Parallel Printer Cables

Amiga 1000 2Mtr Cable

Amiga 500/2000 2Mtr Cable

Distributed in Australia and Asia Pacific by Commodore Business Machines Pty Ltd; (02) 427-4888

DSI Accessories

The Data Switch--six Data Switch models allow port expansion and sharing of computer and peripherals.

The Director--a surge, spike, RFI and EMI interference-suppressed, five-outlet power-control center for computers and peripherals.

Interex System Interface Cables--connect an Amiga to virtually all of the most popular analog RGB or digital RGB TTL color monitors, as well as composite monochrome and color monitors, serial printers and modems, parallel printers,

keyboards, disk drives and other peripherals devices.

Voices--a stereo amplifier with two full-range speakers designed to fully utilize

the stereo-output ability of an Amiga where the use of a home stereo unit is not available or desired.

Visions--a video circuit designed to convert the non-standard RGB TTL video output of an Amiga to a standard IBM PC RGB TTL video output, allowing a user to choose from the widest-possible variety of monitors available.

DSI; Wichita, Kan. 67211

IVS Magnus

Computer audio system

Interactive Video Systems; La Mirada, Calif. 90638

MouseTime

Battery-backed, real-time clock

MicroBotics, Inc.; Richardson, Texas 75085

Universal Interface Converter

Interface conversion

Johnathon Freeman Designs; San Francisco, Calif. 94188

Hardware Software Combination

Perfect Sound

Sunrize R.R.P. \$199

Audio digitiser with software

Stereo or mono samples, variable



sample rate, variable sample length, produces IFF sound files.

Distributed in Australia by Computa-

mart Pty Ltd, (09) 328 9799

Sound Sampler

Mimetics R.R.P. \$315

Audio digitiser with software

Works with Pro MIDI studio, attached to mouse port, high quality sample, produces MIDI.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Future Sound

Applied Visions

Audio digitiser with software

Variable sample rate to 14 kHz, include microphone, attaches to parallel port, port pass-through provided.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Hard Disks

Supra Drive

Supra Corporation

20 Mb \$1,999

60 Mb \$3,999

External hard disk, attached to Amiga bus for high speed data transfer, full 1.2 o.s. support, auto startup software support, includes clock & calendar.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Miscellaneous

BASIC Overlay

Slipped Disk R.R.P. \$24.95

Keyboard overlay

Quick reference to Amiga Basic, commands & syntax printed on overlay.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

DOS Overlay

Slipped Disk R.R.P. \$24.95

Keyboard Overlay

Quick reference guide to CLI and Intuition, commands & Syntax printed on overlay.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Jitter Rid

Ideas Created R.R.P. \$49.95

Polarised monitor filter

Cuts back flicker in Hi res interlace mode, attaches via Velcro pads.

Distributed in Australia by Computa-
mart Pty Ltd, (09) 328 9799

Books and Publications

The AmigaDOS Manual Second Edition

R.R.P. \$39.95

Corgi Bantam; Level 1; 20 Young Street; Neutral Bay N.S.W. 2089; (02) 601-7122

The Amiga: Image, Sound and Animation on the Commodore Amiga

Microsoft Press; Redmond, Wash. 98073

The Amigan Apprentice & Journeyman

Reference journal

The Amigans; Hatteras, N.C. 27943

Amiga Schematic Drawings

A seven-sheet set that contains drawings of the CPU, RAM/ROM board, power supply, mouse, expansion RAM, keyboard and a physical layout of the CPU board. These large schematic drawings are easy to read and take the guesswork out of repairs, memory expansion, video enhancements and more. (NTSC 110V)

Cardinal Software; Woodbridge, Va. 22191

Mastering AmigaDOS

Arrays, Inc.; Van Nuys, Calif. 91406

Progressive Peripherals & Software Books

The Amiga Handbook

The Amiga System--An Introduction

Progressive Peripherals & Software, Inc.; Denver, Colo. 80204

Sybex Books

Amiga Programmer's Handbook, Vol. 1 (second edition)

Programmer's Guide to the Amiga
Sybex, Inc.; Berkeley, Calif. 94710

NOTE: ● Indicates Australian manufacturer or distributor.

- Able Products Australia; 616-957-3036
PO Box 232,
St Leonards, NSW 2065
(02) 816-3700
- ACME Software;
290 Bay Street;
Brighton Victoria 3186;
(03) 596-6732
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PO Box 6277;
San Rafael, Calif. 94903;
415-499-0850
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PO Box 6408;
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- Alive Systems Group;
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415-332-8018
- Applied Visions;
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Huntsville, Ala. 35814;
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9208 Burning Tree Rd.;
Bethesda, Md. 20817;
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3903 Carolyn Ave.;
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4612 Holly Ridge Rd,
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714-641-1348
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415-856-3669
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- Future Computer Applications; Intellectual Software,
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84321;
800-942-9402 or 801-753-
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PO Box 665;
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818-334-0709

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797 Sheridan Dr.;
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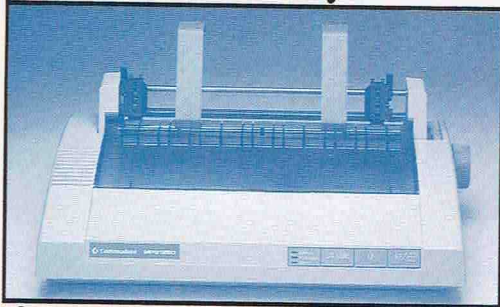
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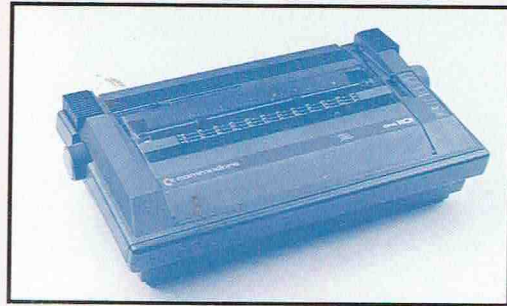
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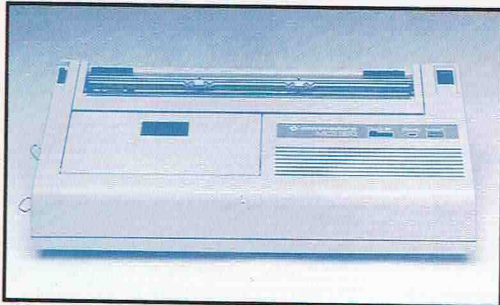
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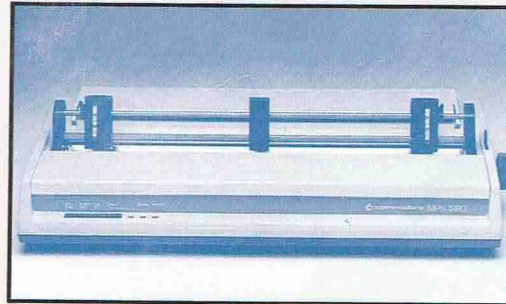
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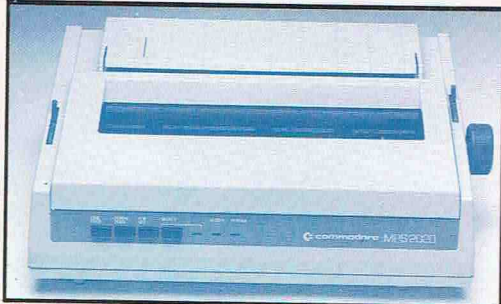
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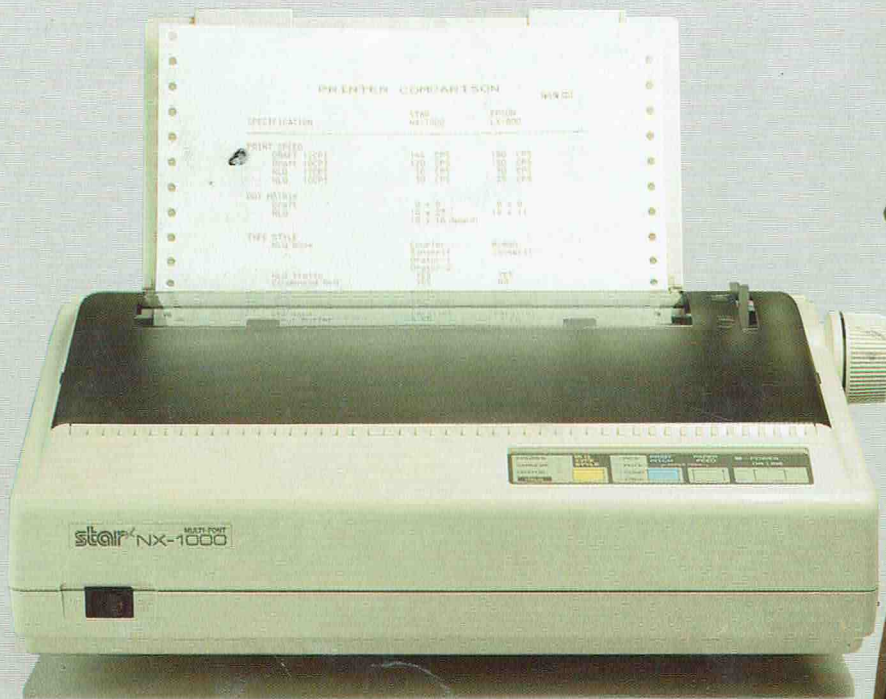
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*Source: Pacific Computer Weekly, November 24, 1987

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