

SPECIAL AMIGA GAMES SECTION ALBEDO BATTLECHESS PIONEER PLAGUE HYBRIS

...AND MUCH MORE!





TORCH 2081



BOMBUZAL



KINDWORDS

Impressive reviews? They'll be lost for words when they see the new KindWords 2.0. It's still as easy to



use as its famous predecessor but now boasts a new 100,000 word English dictionary licensed from Collins, and automatic hyphenation.

So it knows the difference between 'colors' and 'colours' and how to use them. Because with KindWords you can easily import graphics into your text documents and produce professional documents that really impress.

As it was designed specifically for the Amiga, KindWords works with your computer, not against it. Pull down menus and full help facilities are used to the



maximum advantages — so advanced features such as spell checking and mail merging are easily accomplished.

There's a new extensive font library which combines



with graphic editing facilities that make KindWords an extraordinary word processor at an unbelievable price.

Which only goes to prove

that sometimes you should believe what you read in the press.

Existing KindWords users can upgrade their software

for £14.95 inc VAT by calling 010 331 455 310 53 or write to Disc Company Europe, 1 rue du Dôme 75116, Paris, France. Visa, American Express accepted.



Dealers should call Amiga Centre 031-557 4242, GEM 0279-412441, HB Marketing 0895-444433 or Microdealer 0908-74000.



MORE KINDWORDS

"The excellent KindWords includes everthing you'd expect to see in an Amiga word processor with many extras."

ST Amiga Format

"KindWords is considerably cheaper than most Amiga word processors... its documentation is well produced and readable... contains quite a number of advance features... good value for money"

Amiga Computing

"KindWords is stylish and uncluttered... simple
"KindWords is stylish and uncluttered... KindWords
and elegant with a lot going for it... KindWords
and elegant with a with care, everything
is a program written with care, everything
is a program written of the user."
Amiga User International

"I found KindWords both powerful and flexible... I think most users will be delighted with KindWords' logical design and power."

Commodore Magazine

"KindWords Superfonts produce attractive, high-quality printouts even from inexpensive dot-matrix printers."

THE AMIGA DIMENSION

ONLY THE AMIGA MAKES IT POSSIBLE

n the almost three years since this has been an Amiga magazine, many changes have swept across this scene. The Amiga was first launched by Commodore, against its original creators wish, as a high-end expensive computer. Although even CBM would now admit that they had not really worked out at which market it was aimed. It was immediately and perhaps somewhat strangely quite sucessful in parts of the U.S. but failed to take off strongly elsewhere.

At the AmiEXPO in Los Angeles recently a number of those original, A1000 buyers were still to be seen. Some of

them, and other Californians, had already upgraded to the Amiga 2000. To the surprise of visiting Europeans, there were, however, very few A500 owners at the Show. No-one could come up with a good explanation for that except perhaps that the prosperous Californians would not buy the cheaper machine.

More likely it was because as early buyers of the more expensive Amigas the Commodore machine had already penetrated the 'innovators', the more adventurous computer users.

These "serious" users also seemed a little bewildered by the growing prevelance of games on the Amiga scene. This

issue of **AUI** echoes that change too. We have enlarged the magazine to accommodate the flood of 'entertainment' software that is arriving. Of course, we still include all the 'constant factors' that have made **AUI** the most popular international Amiga magazine. But change too is a constant factor and we must reflect it . . . especially in a magazine for a technological leading edge computer like the Amiga. After all it is at the leading edge that change keeps on happening . . .

Antony Jacobson, Managing Editor and Publisher.

CONTENTS Stellaryx MENTOR CONSTANT FACTORS Albedo 52,53 **Battle Chess** 54,55 Amiga Assembler 14 **Amiga Dimension** Pioneer Plague What's Under The Lid 56 16 5,6,8,12,13 Newsfile Strip Poker MIDI an Introduction 56 Subscription Form Street Sports Basketball Games Chart 58.59 (Part 2) 29,30,31 104,195 PD Reviewed The CP/M Connection 59 86,87 Amiga Graphics (Part 2) Spidertronic 60 100,102 TEST DRIVE **Power Styx** 61 Compiling A C Program 106 Ultima IV 62.63 **Programming Techniques** Forms In Flight II 18,19 Pacmania 66 110,111,112 26,27 Modeler 3D Torch 2091 Incontrol Joystick/Yoke 32 Fernandez Must Die 90,91 SPECIAL OFFERS 85 Stereo Sound Sampler **MIDI Magic** 92,94 FIELD REPORTS Lattice Compiler Companion **Amiga Covers** 63 95,96 **Games Master Subscriptions** 64 **Amiga Communications** 23,24 **AUI Binders** 89 *ENTERTAINMENT* Heard It On The Grapevine 46,48 76,78 AmiEXPO L.A. 88 Bombuzal 34,35 Mobile T.V. 98,99 Super Ski 36 USER PORT 38,39 **Daley Thompson** PRINTER SPECIAL Revenge II 40 **Adventures With A** Qume ScripTen 72 42 **Hybris Bridge Board** 21,22 Star LC10 Colour 82,83 45 ADVERTISERS DIRECTORY

Fusion
Managing Editor and Publisher
Antony Jacobson
Editorlan Bennett
Staff WriterTony Horgan
Consultant Art Editor
Graham Baldock
Artwork Rico Gusman
Production Manager Keith Miles
Production Controller
Sandra Gallagher
Senior Advertisement Manger
Billy Brown
Advertisement Executive
Paul Monaf
Financial Director
B.J, Lewis M.Sc. F.C.A.
Special Offers Executive
Sammi Gaist
Contributors
Al Meric
Andy Moss
Betty Clay
Bill Donald
Bob Chappell

THE RESERVE THE PERSON NAMED IN	The second second second
De	ennis Gortmans
	Giulio Zicchi
	Les Cooke
Paul /	Andreas Overaa
	Ron Webster
***************************************	Stuart Williams
	The Control of the Co
	Yuri Large
Telephone	01-278 0333
Editorial ext: 274	. 01 270 0000
Advertising ext: 280/28	6
Subscription ext: 274	
Published by Croftward	
Finsbury Business Cen 40 Bowling Green Lane	
London EC1R DNE	
Distributed by Comag. 1	avistock Road
West Drayton, Middx U	87 7QE
Printed by Chase Printe	
Typesetting by Kittiwaki	Graphics Ltd
Arrige User International - public an Independent magazine for billy	athers do not accept le- for any encorrect state-
Convenadore correputer users mens	or errors contained in
way with Commodore Busi- soun	os or authors which may
published 12 littles per year time. by Croffward Littled. The	

C Croftward Limited 1988

6 Bit Centre	99	Gain Star	108
6Bit Software	97	George Thompson	
7Bit Software	108	Services	9,97
Soft	79	Gifford Soft	70,71
Amiga Business Centres	31	Grand Slam	47
Amiga Centre Scotland	113	Hammersoft	114
Amiga User Group	99	HiVoltage	7
Anco Marketing	IBC	Hobbyte	79
RB Computers	87	Humgold Computers	108
riadne Software	103	Imageworks	17
shcom	107	Incontrol	109
Non Printer Technology	109	Kingsway Computer	
Brown Wagh UK	20	Services	105
Burocare	OBC	Lan Computer Systems	73
lytes & Pieces	105	Megaland	65
lik	88	Microtext	113
Compumart	25.33	Miracle Systems	15
Computer Trading	111	Mirrorsoft	4
computer Wize	107	NewTek	28,67
ottage Software	103	Official Secrets	114
ovcom	109	Postronix	50,51
ustom Built Computers	55	Power Computing	103
atel Electronics	74,75	Precision Software	41
Petta PI	114	Robson Electronics	110
rigipro	81	S.C.C.	93
igita International	22	Siren Software	101
Discopy Lab	101	Softville P.D. Library	97
iscovery Software	37	SubLogic	57
isk Company	IFC	Syntax	113
azyprint Electronic		Triangle T.V.	97
Arts	10,11	TVS Marketing	114
ncom	77	U.S. Gold	44
vesham Micros	69	Wizard Software	101
romate	109	Y2 Computing	107





With the zapping of ray guns and the cries of Zombie Women Rocket Ranger brings back all the action, romance, thrills and spills of the Saturday morning serial!

Yes Rocket Ranger has arrived at last.

Now available for the Amiga £24.99 and C64 (Disk) £14.99

ROCKET-RANGER

INEUSFILE

Disc Company is Image 4D

The Disc Company is launching Image 4D, an innovative 3D graphic program with animation that enables users to create realistic computer animation on their Amiga computer.

"Imagine 4D is the first 3D program to offer an easy-touse user-interface along with all the features to quickly creating long-play animations on a 512k Amiga", according to Howard Marks, Director of International Operations. The Disc Company.

Imagine 4D lets the user design 3D objects from a list of ready-made ones to use the objects provided with the 3D cli-art disk that includes an alphabet 3D font. "Image 4D is the first Whatyou-see-is-what-you-get 3D program," says Maths. "We call it Imagine 4D, because it let's your imagination design three dimensional scenes with motion, which is the fourth dimension."

Several features of the program include rendering in three modes, wire-frame in black and white or colour, polygons and ray-tracing. Supported graphic modes are, low-resolution, HAM and high-resolution. In the HAM mode, the user can choose colours from 4096 choices for the objects. Animations support the PAL mode along with the PAL Video overscan resolution.

Imagine 4D also offers a host of powerful features sought by professional video specialists. It supports the 68020 and the math coprocessor chip. Imagine 4D outputs standard IFF ANIM files that can be used with programs such as the Director or other video show programs.

Imagine 4D has suggested retail price of £99.95.

Contact: Amiga Centre, Scotland, Tel. 031-557 4242.

The One Billion Byte Drive

Recently in Paris, Imprimis Technology introduced the computer industry's fastest one gigabyte (one billion bytes) eight-inch disk storage product: the Sabre two-head parallel disc drive. This quarter-rack disk drive has an industry-leading transfer rate of six megabytes per second, and can store 1154 million data bytes.

"The product said James E. Ousley, vice president, is

The best car racing game?

'The ultimate model racing game for the Amiga', is what Microdeal call Turbo-Trax (what another 'ultimate' game?).

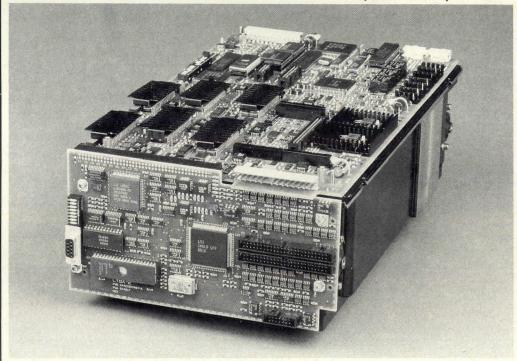
'Choose your car, get those revs going, wait for the green flag — you're off!' Microdeal claim you will feel all the

little modification to achieve uses both thin film media and thin film heads.

the six megabyte per second transfer rate. It achieves an average seek time of 16 milliseconds and tension and danger as if you were really in a racing car racing in the Grand Prix.

With eight additional track options, four channel stereophonic sound, split screen four-way scrolling, chicanes, cross-overs, and pit stops, three difficulty levels, time trials for up to six players and lap records saved, 'this must be a good contender', boasts Microdeal, 'for the best racing car game ever on the Amiga'. Price £19.95.

You can buy a Sabre two head parallel unit at a mere \$7040. Imprimis Technology is a subsidiary of Control Data, a U.S. Minneapolisbased company with \$3.4 billion in revenues in 1987. Imprimis' Billion-byte drive



aimed at high-performance markets such as graphics imaging, sismic analysis and scientific computing where high speed data transfer is essential to success. In terms of space, power and price, the Sabre two-head parallel drive reduces the cost of ownership by a five to one ratio over current parallel drives offering comparable performance," he said.

The Sabre two-head

The Sabre two-head parallel product incorporates a new and faster standard IPI-2 1/O interface which enables simultaneous read/write functions from two heads so there is very

Come into my PC parlour!

Protect your PC and peripherals with a spider and a fly! They are two touch-sensitive alarms which can be fixed to a PC and cost £72 including batteries.

The Fly is a detector alarm which is triggered by the slightest movement. An adhesive pad sticks it to a PC and it is turned on and off with a security key.

The Spider is an alarm for several items — a VDU, keyboard, printer or modern. It has five 1.4-metre legs which attach to each peripheral.

Both the Fly and the Spider are available separately for £30 and £42 and are supplied by Sussex-based SBS Computer Supplies.

Marketing director Jill Wadman said: "Companies are becoming increasingly aware of the need to protect valuable computer and office equipment against thieves. We believe that these products provide users with a simple and yet cost-effective means of theft prevention."

Printer Buffers speeding print

A range of printer buffer now available from Action Computer Supplies is designed to speed print throughout by allowing printer files to be downloaded from the micro at high speed, leaving it to carry on with other tasks. The files are held in the buffer, and fed automatically to the printer at the maximum speed it will accept.

Using the buffer is easy. The printer cable is simply unplugged from the micro and plugged into the buffer, and the buffer itself is plugged into the micro using an extension cable. The buffer is controlled by the normal print commands from the micro, so that its operation is completely automatic and there is nothing extra for the operator to do.

Single channel buffers, for

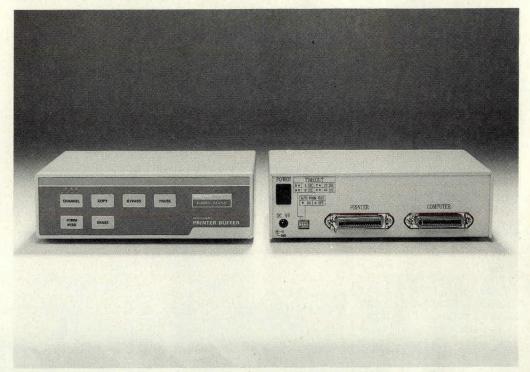
use with a single micro and printer, are made with capacities of 64K and 128K; multi-input buffers, which will handle up to three micros, are made with capacities of 256K and 512K. All types are

available in both 25-pin serial and 36-pin parallel versions.

The buffers are covered by Action's own 24-month warranty, and prices range from £125.00 for the 64K, single-channel parallel buffer, to

£295.00 for the 512K, multiinput serial buffer.

Contact: Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middx, HA0 1WL. Tel. 0800 333 333.



A500 Impact

Great Valley Products of Pennsylvania, USA, are releasing a combination hard disk and memory expansion add-on subsystem from the Amiga A500.

The Impact A500-HD/RAM Controller combines ANSI X3T9.2 compatible SCSI controller, 3.5" hard disk drive and up to 2MB FAST RAM expansion for the A500, in a single compact, snap-on unit. It uses its own power supply, fully meets the Commodore specification for maximum power drain on Amiga A500® expansion connector. In has an internal connector for installing the optional, zero wait-state FAST RAM expansion module, which provides up to 2MB of Fat Ram expansion.

There is also an external SCSI connector for connecting up to 7 external SCSI devices. The 16-bit Direct Memory Access (DMA) data transfers to onboard 4K disk buffer provides high per-

Amiga Guides the Tourists

The New Forest in the UK plays host to thousands of tourists every year, every one looking to get the most out of the holiday. From now on organising trips and finding places of interest will be easier than ever before thanks to a clever, interactive and computerised tourist guide.

Two of CBM's Amiga 2000s have been installed in the New Forest Museum and Visitor Centre with a state-of-the-art interactive database that includes pic-

formance not affected by any other Amiga DMA activities (e.g. Amiga Blitter, etc).

The Impact A500-HD/RAM Controller is priced at \$795.00.

Contact: GVP, 225 Plank Avenue, Paoli, PA 19301. Tel: 215-889-9411. tures, sounds and information on the New Forest. The computers hold hundreds of digitised photographs of a local animals, villages, sports facilities, and places of general interest.

When a visitor wants more information regarding any picture a single keystroke will lead to a series of menus and displays on the subject. Visitors can plan their own expedition by using the specially designed keypad. Children can then be shown an animated sequence of what each particular activity involves.

The Amiga 2000s are protected from prying hands by a Perspex screen and in a workstation made from trees felled in the New Forest, Installed by Aspen Interactive, which has done much to pioneer the use of such systems, the interactive Amgia 2000 set-up is similar to that produced for the Guiness Book of World Records which is in constant use at London's Trocadero Centre and New York's Empire State building.

Mirrorsoft's "Sick Disk" Clinic

Following the success of the File Rescue Plus sick disk clinic event at this year's PC User Show, Mirrorsoft has decided to "go national" for the health of disks.

Dealers in major centres throughout the country have been appointed as sick disk clinic sites, to whom users with corrupted or damaged data can turn in times of crisis. There is, of course, no cast-rion guarantee that the File Rescue Plus treatment will succeed — but if everything else has failed, there's nothing to lose by giving FRP a chance.

The participating dealers have been trained in the air of making an initial "disk diagnosis" over the telephone to ascertain whether the user's data in question is still rescuable, and to demonstrate the rescue process to the customer.

Contact: Mirrorsoft 01-377 4637.

LONDON'S LARGEST DISPLAY OF PRINTERS MONITORS COMPUTERS AND PERIPHERALS

London WAMIGA Centre

AMIGA A500

INCLUDING:- MODULATOR · MOUSE · WORKBENCH · BASIC · TUTORIAL ·

UTILITIES · MANUALS

AMIGA A500 + 1084S

COMPUTER WITH STEREO MONITOR

£538

GA B2000

INCLUDING:- MOUSE · WORKBENCH · BASIC · UTILITIES · MANUALS ·

FREE 3.5" INT DISK DRIVE

AMIGA B2000 + 1084S

£24

£28

£7

£17

£35

£48

£30

As above plus

STEREO MONITOR

£1199

Citizen 120D

Citizen 180E

Citizen MSP15E

Citizen HQP40

Citizen HQP45

9

£139

£189 £229 £379 £444 £129 £179 £328

£274

£474

£598

£139

£469

£198

£299

£329

£379

£439

£449

£559

£669

Commodore MPS1200 EpsonLX800 EpsonFX850 £414 Epson FX1050

Epson EX800 £459 Epson EX1000 £469 £279 EpsonLQ500 Epson LQ850 £428 £574 Epson LQ1050 £939 EpsonLQ2550 Epson DFX5000 £1269 MicroPMP135+ £139 Hewlett Packard Deskjet £629

NEC P2200 NECP6+ NECP7+ Panasonic KXP1081 Panasonic KXP1540 Star LC10 Star NX15

StarLC2410 Star ND15 Star NR15 Star NB2410

Star NB2415 Star NB15

COLOUR PRINTERS Citizen HQP40 £429 Commodore MPS1500C £215

Epson EX1000 £479 Hewlett Packard Paint

£799* Jet. NECP6+ £559 NECP7+ £683 Start C10 £239 £1100 Xerox4020

LASER PRINTERS

£2795* Ast Postscript. £1595 Brother HL-8 Epson GQ3500 £1219 Hewlett Packard

£1449* Laser Jet II £1429* Star LP8

* inc. 1 yr. on site maintenance

£160

£33

£29

£45

£33

£55

£35

£37

£25

£79

£40

£34

£52

£35

£45

£45

£83

£280

£17 Home Accounts COMMUNICATIONS **DIGA by Aegis** £37 £17

ACCOUNTS

K-Comm2 Online Ruby Comm £63 **DATABASES**

Acquisition VI.3 Data Retrieve

K-Data Microfiche Filer Superbase Personal Superbase Personal II £131

Superbase Professional **GRAPHICS**

£80 Animate 3D Animation Effects £24 £28 Animation Flipper £24 Animation Stand £18 Butcher 2 Deluxe Paint Art Disks £7 Deluxe Paint II £42 Deluxe Print £16 Deluxe Print II P.O.A. Deluxe Productions £93 Express Paint 2 £42 FancyFonts3D £33 £26

Fantavision Introcad Lights Camera Action! Page Flipper PageFlipper + F/X Photon Paint

Pixmate Sculpt.3D Sculpt 4D The Director TV Show TV Text

Videoscape 3D

Videotitler £70 INTEGRATED £99 Critic's Choice The Works £75

EXPORT CUSTOMERS SUPPLIED TAX FREE. Contact our specialist export department on 01-686 6362

SOFTWARE

Tool Kit

ADrum Audiomaster Deluxe Music Data Instant Music Sonix V2 £33 Studio Magic

LANGUAGES

£115 AC-BASIC AC-FORTRAN £148 £40 Devpac £28 K Seka Lattice CV4 £110 Macro Assembler £42 £54 Pascal 2 £32 Shell

MUSIC

WShell £22

SPREADSHEETS Analyse 2 £43 Digicalc £23 £53 K-Spread 2 £61 Logistix Super Planner £55

> WORD **PROCESSORS**

£117 Excellences Kind Words £30 ProWrite V2 £60 £43 Scribble V2 Word Perfect 4.1 £130

UTILITIES

£24 Climate £27 Diskmaster FACCII £18 £21 Flipside £19 GOME £27 Project D Quarterback £35

ACCESSORIES

AMIGA 2000 £77 NEC3.5"External Drive NEC3.5"Internal Drive £69 A1010 3.5" External

£149 Drive A2010 3.5" Internal £149 Drive

A2088D XT £435 Bridgeboard £499 A209420MbHardDisk A20582MbBoard P.O.A. Impact 20Mb Hard Card £505

Impact 45Mb Hard Card £710 Micron 2Mb Board £500 Flicker Fixer £330

AMIGA 500

A501 1/2MegRAM £124 A520 Modulator £21 £5 Dust Cover £77 NEC3.5" External Drive A1010 3.5" External £149 Drive

> VIDEO AND SOUND

£105 Digiview V3PAL Genda Changer £18 Perfect Vision £175 £200 Digipic Genlocks: Rendale

A8802 £245 £705 A8806 CBMA2300 P.O.A. £142

Futuresound Pro Sound Software + £52 Hardware Perfect Sound £65

MONITORS

CBM1084S £209 £225 Philips 8833 Taxan 770+ £485

Mail Order + Export Hot Line Phone 01-686 6362 **DELIVERY FREE OF CHARGE**

Send off or order by 'phone quoting your Access, Visa No. 'Phone O1-686 6362. Immediate despatch on receipt of order or cheque clearance. Or Telex your order on: 946240 Attn 19001335.

ALL PRICES EXCLUDE VAT.

ALSO A VAST RANGE OF DISK DRIVES, JOYSTICKS, DISK BOXES, INTERFACES, SHEETFEEDERS, ETC.

Dept. AUI, 53-59 High Street, Croydon, Surrey CRO 1QD. Fax: 01-681 8939. Tel: 01-686 6362 Prices correct at copy date. Subject to change without notice due to currency fluctuations etc. E. & O.E.

Hacking not a crime?

The Law Commission has opened up the debate on whether computer hacking should be treated as a criminal offence by publishing a working paper discussing possible changes to the law.

At present, hackers can only be successfully prosecuted if they damage a computer or instigate a fraud.

Points in favour of new laws include standardisation with countries such as the US, Canada and France. Also legitimate users may be deterred from using computers to store information unless they know that unauthorised viewing will result in prosecution.

Arguments against criminalisation include the difficulty of enforcing such a law and the fact that penalties for theft and fraud by computer already exist.

The Scottish Law Commission recommended in June 1987 that a specific offence for computer hacking be introduced with a maximum penalty of five years imprisonment. But no steps have been taken yet to implement the recommendations.

The Law Commission is inviting comments and recommendations by 28 February 1989.

New Mice emerge

A new range of mouse packages from Action Computer Supplies includes two serial mice from Microsoft, two serial mice from Microsoft, two serial mice and one bus mouse from Logitech, an Epson bus mouse and a Genius serial mouse.

The Microsoft mice are all IBM.PC/XT/AT and PS/2 machine compatible; the Logitech and Epsom mice are PC/XT/AT compatible; and the Genius mouse is PC/XT compatible.

Price range from £60.00 for the Genius serial mouse, including the Halo drawing package, through £118.50 for the Microsoft serial mouse, with expert menu and PC paintbrush, to £177.00 for the

Disks fail ANSI test

Many brands of 3½" floppy disks fail the quality tests set by the American National Standards Institute (ANSI).

According to Memcon, a major US manufacturer of disk certification and duplication equipment, there is strong reason to doubt that disks are tested to ANSI standards, even though their manufacturers claim 100% certification.

The company carried out a survey of 25 brands of disk by

buying quantities of ten in ten different locations throughout for US.

Only four brands of tested disks — C Itoh. IBM, Sony and TDK — passed. "It is sad to report that while Apple's Macintosh and IBM PS/2s have made 3½-inch diskettes very popular, quality simply hasn't kept up with quantity," said Memcon president Jerry Korth. The survey found there was no link between price and quality. The disks from C Itoh, Sony and TDK were all close to the average price.

Heroes of the Lance

Heroes of the Lance is the first computer game that recreates the epic battle of good and evil on the world of Krynn - based on the first DRAGONLANCE module, Dragons of Despair. You control eight Companions, one at a time, in real-time action and full animation. Guide these brave adventurers, each with different specialized skills, deep into the ruins of the temple Xak Tsaroth to retrieve the precious Disks of Mishakal.

Logitech serial mouse with

Logicad CAD/CAM software.

Contact: Action Computer

As you descend into the Abyss, the Companions must defend hordes of monstrous Draconians in hand-to-hand combat, deal with powerful magic and survive the vicious attacks from Gully Dwarfs, giant spiders, the undead and countless other terrors. But your final obstacle makes these monster innocuous by comparison: The platinum disks you seek are guarded by Khisanth, an ancient black dragon. There is but one way to vanquish this mighty beast. Find the key to destroy Khisanth and the Companions will take their first steps to earn the noble title, Heroes of the Lance for the 64, Amiga and PC.

Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middlesex, HA0 1WL. Tel. 0800 333 333.

Virus reaches East

The first recorded computer virus in a Japanese bulletin board has been discovered in NEC's PC Van network.

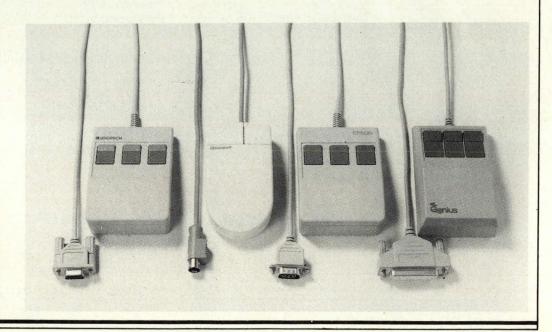
A hacker is suspected of sending what appeared to be a free software program that users could download.

Once the program was activated it transmitted the users 'bulletin board identification number and password to a mailbox that the hacker used to gain free connect time and order goods.

Grandslam Goes In For Espionage

Espionage, already a smash hit on the board game circuit is to be released shortly as computer game by Grandslam. Espionage, with an official 007 James Bond link up is, so Grandslam, tell us likely to be one of the hits of the coming Winter season. Espionage will be released on the 64, Amiga and SC.

(Left to right) Serial mice from Logitech and Microsoft, the Epson bus mouse, and the Genius serial mouse.







Q) I was reading some of your recent ads on the way here and I see that you making a strong effort to keep Amiga software prices at a realistic level.

A) It's easier to do this if it's 'homegrown' software. It started with JUMPDISK nearly two years ago. PD followed and then we started to look for titles that we could either act as sole distributors for or package 'in house'. Since the majority of our sales are by mail order there is no 'middle man'. Prices are therefore more

competitive. Q) How is JUMPDISK progressing?

A) In the early days it was not easy. Magazines on disk or cassette have a chequered history world over. Sales improved as users realized the quality was high and that each issue always came out on time. The turning point was when the programmers in California gave it a new look. Take the November issue for example. The game of 'Pool' is of commercial quality and the 'Mouse Pointer Animator' is another first. There are 14 programs in this issue and the Articles section now compares very favourably with the editorials in the What are the future plans for JUMPDISK?

A) We included a free disk with the October issue. Actually it was from the Mega Demo Pack Vol I. It proved very popular and we will certainly make this a frequent event. More of the magazines content is being 'Crunched' now and this means we can squeeze that little bit more onto a disk. The news items are vey topical as our lead times are so short. These will increase as will the number of tutorials and reviews on new products. We are now receiving some excellent programs from contributors. The 'Save the Boot Block' program the Boot Block' program in the September issue was a first and the 'Spreadsheet' published in August proved very popular. One of my personal favourties was included in the 'JUMPDISK Autumn Special'. "Addlcon' attaches an icon automatically to a file that normally has to be run from the CLI. Its very user friendly and a definite advantage to those that want to run programs or read files from workbench. I should add that we rarely include Public Domain programs on JUMPDISK now.

'Mid November and Lou tells your ace reporter that the next assignment's in Scotland. No regrets leaving Chicago at this time of year! It seems that a company called George Thompson Services is going places in the World of the Amiga and Lou thinks an interview with their leading light Tony Thompson could make interesting reading. Oh well Scotland must have something to offer his old Hack!' (Now in the cosy offices of G.T.S. overlooking the rugged Arran coastline)

Q) Talking of Public Domain programs I understand you've one of the largest selections of disks in the UK.

A) It could be larger but we see no point in duplicating, several times over, the content of the Fish disks. At present we concentrate on Amicus, FAUG, Amuse and TBAG and of course Fish. The TBAG are very professional and original. Some programs run from the CLI but this presents no problem to the serious user. In fact more and more PD programs are run now by just clicking an icon. The quality of PD for the Amiga is the best I have ever seen and at £3.00 a disk it is very good value.

Q) Have you any more libraries in mind? A) Have you any more libraries in mind?

A) We are always on the look out but during the next few months we will be concentrating our efforts on putting together a small library of our own. It will be subject categorized as well as including a number of disks with mixed content from User Groups in the USA and

Germany.

Q) It is possible to buy PD disks cheaper

than £3.00.

A) We use only the best media, Sony DS/ DD disks and with a new checking device, returns are practically non existent. We no 'Optimize' all new PD disks. This substantially speeds up loading times. We also despatch all orders by first class post. We maintain that quality would suffer if prices were reduced. Q) The Mega Pack idea is new to me.

A) It started in a small way with the 'PD Starter Pack'. This consists of the three Goldfish and four Best of Amicus disks plus of course the two JUMPDISK Library Disks. Not bad for £19.99? I don't take any

credit for this. The program disks were put together by the librarians Fred Fish and John Foust. They made a natural for

anyone new to PD. Q) What followed?

A) The Mega Demo Pack Vol I which consisted of seven disks filled with the best music and graphic demos around. Volume II has nearly been completed and will again include seven disks at the same price of £19.99. It will be on sale at the Commodore Show in November.

Q) Is Vol II up to the standard of its predecessor?

A) Some of the demos in the first pack will always be personal favourites. To add a little spice to the second we included programs that allows the user to make up their own 'Intro' screens. They can include their own IFF pics and sounds and add vertical and horizontal scrolling messages. We've included a stock of sounds and pics to get them started. Good results can be obtained very easily.

Q) Have you any other Packs planned? A) The Mega Games Pack should just be out in time for the show. It includes programs that we have purchased ourselves as well as some rare and very good PD games. There will be seven disks all packed full. So the customer should not be too upset if they have one or two of the games already. Titles include the very latest 3D version of Hack, Return to Jovi, Mercenary Simulator, Revenge of Doom, PacMan '87, Battleship with stereo sound, a very good 'Rockford' clone and much more. The price will be £19.99.

Q) Any chance of seeing the new book

you have just launched?

A) You mean 'Professional Results with De-Luxe Paint II'. Its a winner! Hard backed with 400 pages and over 200 illustrations. Anyone who wants to achieve good results with De-Luxe Paint will find this book invaluable. The price is £24.95 or with two disks containing examples, utilities and brushes it's £44.95. We will be officially launching it at the November Show. It adds a new dimension to a very popular Art package.

Q) Did'nt Int-Switch and TurboPrint also come from Germany?

A) Yes. Both are very useful programs. Int-Switch is a piece of software that will Int-Switch is a piece of software that will remain popular for as long as there is a need to 'switch off' additional memory. Believe it or not there are still programs being released that will not run properly on anything above 512K. At £9.99 its a piece of software everyone should have in their collection. Turboprint will be updated and improved frequently. It will always have the edge on Workbench as far as speed and range of printer drivers available. Consider it an ongoing challenge. It's a lot of program for only £25.00!

Q) What comes next?

A) We hope to expand our new department 'Sound & Vision'. This concentrates on software and hardware that is only connected with this particular aspect of the Amiga. We will advertise JUMPDISK more in European countries and the issue of a 'PD News Sheets' will become more frequent — the first will be given away at the Commodore Show. The 'Workshop' series on specialized subjects will be increased. Besides that we are working on several new software projects that include 'Tutorial' disks for programmers and owners new to AmigaDOS. There will always be something innovative and always be something innovative and

Hack) Well that about wraps it up. Now what did you say Scotland was famous

Ed) George Thompson Services can be contacted at Dippen, Brodick, Arran, Scotland KA27 8RN. Telephone (077082) 234. Why not send £4.99 for the 'Mega PD Pack' and see what you've been missing. There's a FREE £5.00 Voucher that may be used against your first order for 10 or more PD disks.





and the location of your nearest stockist, please contact: ELECTRONIC ARTS, 11-49 STATION ROAD, LANGLEY, BERKS SL3 8YN. TEL: SLOUGH (0753) 46465. DEALERS PLEASE CALL (0453) 40906.



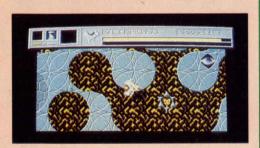
13 Levels of Arcade-Action . . . seeing is Believing!





















NOW on the Amiga. Coming soon on the Atari ST.





Electronic Arts produces Home Entertainment Software on most Computer formats. For a complete product catalogue, please send 50p together with a stamped and self-addressed A5-sized envelope to: Electronic Arts "Catalogue Offer", Electronic Arts, 11-49 Station Road, Langley, Berks SL3 8YN.

RPS responds to 3½" floppies criticism

Following a recent Hemcon US study casting doubts about the quality of $3\frac{1}{2}$ " floppy disks, Ivor Norkett, business manager at RPS — Europe's leading magnetic media manufacturer — hit back with 'conclusive proof' that all its $3\frac{1}{2}$ " media out perform ANSI requirements.

Norkett explained the 3½" disk is a very different product to its 5.25" equivalent, something which many manufacturers have failed to take in to account. Obviously, the 3½" disk is smaller that a 5.25" disk but it is also a higher engineered product

than its 5.25" equivalent. As a result, the 3½" disk coating has to be better than would be acceptable on the 5.25" format.

On a standard 1MB 3½" disk, the density of information packed on to the surface is 8,000 bits per inch compared with up to 5,000 bits per inch for the conventional 5.25" disk.

This obviously means any surface imperfection is going to have a much more devastating effect. Any imperfections and bad spots that would be acceptable on a 5.25" disk are not acceptable on the 3.5" version.

Testing is therefore vital — RPS tests says Norkett, each floppy disk over its entire surface by writing and reading each track successively. In addition, the areas between tracks are tested to ensure that even a misa-

ligned drive will be operating on a thoroughly tested portion of the disk.

Frequent durability tests are carried out on samples whereby one track is continuously written to and read from for a week. This works out to around five million passes of the read/write head over the whole disk - equivalent to ten years of normal usage. This procedure also checks for dropouts, oxide shedding and wear on the disk drive recording head. If the product survives this test the batch is regarded as acceptable.

Whilst the 3.5" disk is far better protected from dust and other detrimental foreign matter inside a tough, hard casing and automatic shutter, it still needs to be treated with utmost respect. In fact, the manufacturing tolerances of the 3½" are more critical

than for the 5.25". Whereas on the 5.25", the jacket is highly flexible, the rigid shell of the 3.5" means that the tolerances are much higher because the case will not bend. There is also a shutter which can jam if the product is poorly made.

RPS has also developed a 2MB version of the 3½" format. This greater storage capability demands a reduced thickness of magnetic recording layer — as surface storage densities are increased, the layer has to be decreased.

The RPS 2MB 3½" disk has a one micron surface thickness — a reduction of 60% — which has been achieved by laser control and nuclear resonance techniques (NRT) to monitor the recording layer thickness and ensure its surface is smooth and consistent.

Brown-Wagh expands into Europe

Brown-Wagh Publishing announced they are expanding their sales operation into Europe with the opening of Brown-Wagh Limited. Headquartered in London, Brown-Wagh Ltd will be managed by Mr Jim Housego, former National Sales Manager for Commodore Business Machines (UK). The initial focus of BWL will be to establish a consumer market and distribution method in the UK for professional Amiga products.

Dick Brown, president of Brown-Wagh Publishing, said "For two years, we've been selling products in the UK, the same way we do here, through retailers and distributors. But they keep prices so high, due to the dollar-to-pound conversion, that professional products are priced beyond what the end user can afford. Due to low demand, retailers and distributors stock even fewer products, giving the end users a severely limited selection. It's as vicious cycle that we're going to correct."

In addition to their own line of Amiga software, BWL will sell professional software and hardware not marketed by BWP in the US, and even some top-selling games. "We'll offer great consumer prices for the best video, music, productivity, DTP, animation, and graphics products," added Brown. "The games will be one way to initially attract customers."

The London operation is expected to be the hub for all BWL sales into Europe. After concentrating on the UK market, BWL say they will move aggressively into Germany, France and Spain.

Brown-Wagh Publishing is the largest publisher of professional software for the Amiga. It carries out sales and marketing for developers such as Circum

Design, Micro-Systems Software, Northeast Software, Professional Automation Resources, Soft-Wood and Zuma Group. Applications currently on the market include video, music, graphics, DTP and productivity.



Amiga stars in Liverpool Soap

No not TV melodrama — this soap is manufactured in huge quantities at Lever Brothers' brand new £12 million plant at Port Sunlight, Merseyside in the north of England.

The new site has the capacity to produce a staggering 500 million tablets of soap each year. To help keep everything under control, Lever Brothers has installed an impressive computerised production system.

The system monitors every aspect of soap production. 'Raw' data is first gathered by Programmable Logic Controllers (PLCs) which are attached to hundreds of flow controllers, thermometers etc. This data is then networked to the supervisory systems where it is processed for management reports.

The unusual aspect of the system is that the DEC supervisory system also uses the raw data as input to an array of more than 20 Commodore Amiga. The Amigas are used by plant controllers graphically to display the plant's production processes in real time.

Using Nucleus Software's Dexterity package, the controllers are able to call up representations of the plant's lay-out to pin-point any problems and maximise production efficiency. This new approach is a simple alternative to large panels of flashing lights and dials.

World Time Clock

A free quartz world-time clock, with traveller's alarm, is offered with every order for ten boxes or more of Sony diskettes from Action Computer Supplies. The clock, which is not much larger than a credit card, shows the time in 19 major cities, plus GMT and UK time. It is supplied complete with battery and plastic carrying case.

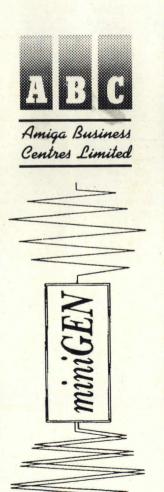
Action stocks the full range of 5.25in and 3.5in Sony diskettes for next day delivery at discounted prices. Examples from the range are 5.25in, DS, DD, 48tpi diskettes at £10.25 per single box of ten, reduced to £7.29 when included in orders totalling over £100.00, and 3.5in, 1.44/2MB Micro Floppydisks for models 50, 60 and 80 of the IBM PS/2 at £46.90 per box one-off, reduced to £39.90 for £100+orders.

Contact: Action Computer

Supplies, Abercorn Commercial Centre, Manor Park Farm Road, Wembley, Middx HA0 1WL. Tel: 0800 333 333.

Microdeal's International Soccer

Microdeal are releasing an Amiga football game. With wind, weather and nightplay options, you decide whether it's going to be a tough match or not. On screen refereeing, electronic scoreboard. animated supporters, 9 difficulty levels, digitized sound effects and hi-res graphics, all go together. International Soccer for the Amiga is ony the third game available that can be played with the four player adaptor; three players V the computer, or two teams of two. So invite the lads round and play soccer in the comfort of your own home. £19.95, available shortly.



FOR PROFESSIOANLS AND ENTHUSIASTS ALIKE, OUR 3 "SPECIALS" OFFER SUPERB QUALITY VIDEO WORK AT UNBEATABLE PRICES

AMIGA GENLOCK £99 + VAT

— AVAILABLE -

THEAMAZING



GENLOCK NOW MAKES

VIDEO TITLING AFFORDABLE FOR ALL AMIGA OWNERS

MINIGEN GENLOCK £99 + VAT £113.85 inc. VAT & p+p

MINIGEN GENLOCK £169 + VAT £194.35 inc. VAT & p+p

Plus TV * TEXT Plus TV * SHOW

MINIGEN GENLOCK £259 + VAT Plus PRO VIDEO PLUS

£297.85 inc. VAT & p+p

MINIGEN GENLOCK WORKS WITH ALL AMIGAS

Add £2.000 for EEC brokers

MAKE CHEQUES/POSTAL ORDERS PAYABLE TO:

AMIGA BUSINESS CENTRES LTD

6/7 HAZLITT MEWS, HAZLITT ROAD, LONDON W14 0JZ

01-602 2701

AMIGA ASSEMBLER

The public domain is littered with C programming examples that simply print a message on the screen. Susan Maxwell, however, has sent us an interesting assembler version.

ere is a short program illustrating the use of three macro's DOSNAME, CALLDOS and CALLEXEC which you will find in the header files. The program is quite easy to understand and essentially works by opening the DOS library, identifying the inherited output handle, loading the registers with the data

that AmigaDOS needs, (i.e. file handle in d1, text pointer in d2 and text length in d3) then performing an AmigaDOS 'write' function to print the message; having done its job it then closes the DOS library and quits.

There are lots of comments in the source code to tell you what is going

on, so you should not have too many problems in creating a running version.

N.B. Our Technical wizard at AUI tried it out using HiSoft's DevPac package and it ran perfectly first time...

	embly language example	Susan Maxwell (C) 1988	* Note	: Don't close	output handle	and print message * . CLI would crash *
incdir df0:i include exec/ include libra include libra	U D E - F I L E S nclude/* exec_lib.l ries/dos_lib.i ries/dos.i	Include files pathname prefix Will use both EXEC and DOS functions and macro's so must include these header files.	EXIT:	move.l move.l moveq CALLDOS jsr rts	d0,d1 ftext_p,d2 ftext_length,d3 Write CLOSE_DOS:	get file handle (macro in dos_lib.i file file handle needed in dl for Write() address of text line for Write() in d2 text line length for Write() in d3 macro used again to display text must close library before we leave logical end of program
	EQUATE - DEFINIT	IOIS			O B R O O T I N R S	
			OPEN_DOS:	moveq	OpenLibrary	use any library version macro in exec lib.i file
SPACOLE CTIOT.	her WITH.					
•	bra MAIN: VARIABLE-DECLAR			move.1	OPEM_DOS_1: d0,_DOSBase	NUST save library pointer
STATIC - DOSBase global_error_flag	A Y B I Y B F E - D E C F Y B	A T I O M S space for DOS library pointer space for an 'error' flag	OPEN_DOS_1:	move.l	d0,_DOSBase	MUST save library pointer set because we couldn't open DOS
* STATICDOSBase global_error_flag text_p text_length	dc.l 0 dc.b 0 dc.b 'This is THE text to be dc.b 'This screen. Hopefull dc.b 'this message first tim equ *-text_p	A T I O N S space for DOS library pointer space for an 'error' flag displayed on', LIMEFEED y you will see', LIMEFEED te!!!', LIMEFEED calculate string length	CLOSE_DOS:	move.l rts move.b rts move.l CALLEXEC rts	d0,_DOSBase f1,global_error_flag _DOSBase,al CloseLibrary	
STATIC - DOSBase global_error_flag text_p text_length DOS_name_p	dc.l 0 dc.b 0 dc.b 'This is THE tert to be dc.b 'the screen. Hopefully dc.b 'this message first tim	A T I O N S space for DOS library pointer space for an 'error' flag displayed on', LIMEFEED r you will see', LIMEFEED te!!!', LIMEFEED calculate string length macro creates library name	CLOSE_DOS:	move.l rts move.b rts move.l CALLEXEC rts	d0,_DOSBase f1,global_error_flag _DOSBase,al CloseLibrary	set because we couldn't open DOS put DOS library pointer in al them use macro for closing code



2ND AMIGA DISK DRIVE





By selling direct we can provide the best price and maintain the highest quality. Rest assured that if, for any reason, you do not wish to keep the item, then return it to us within 14 days of purchase and we will refund your money in full. Should any item purchased from us fail during the first 12 months then we will repair it free of charge.

2ND PRINTER INTERFACE



Use your Amiga's serial port to drive a second Centronics compatible printer. A 3 metre cable is included - no extras required.

MIRACLE SYSTEMS

NBC, Dean Road, Yate, Bristol BS17 5NH Telephone orders welcome on (0454) 317772

WHAT'S **UNDER THE**

As more '68020/30 TURBO' cards appear on the market and with rumours of Amigas with 68020's as standard just round the corner, it is becoming ever more important that code written for the Amiga can sense the presence of 'bigger' processors and make use of the greater power they offer. Bill Donald describes a short routine to discover 'What's Under The Lid?'

HIS program was written in C and shows the processor type and display hardware specification. In part, it is a demonstration of the sophistication of the system software of the Amiga. This is because the program demonstrates how a programmer can gather information about the machine into which their code is loaded.

The program is made up of two parts and each component is designed to be used separately. The first part makes a call into an offset of the exec library base and reads the information there. One of the relevant lines is: if (a-AttnFlags & AFF-68010 printf("68010");

The information contained AttnFlags determines the type of processor. Quite how the system software determines the processor type from the hardware is hidden deep within the system ROM, nevertheless the information is there for the programmer.

This part of the program is really only an IF-THEN loop of read data compare - report and you should have little problem in following it.

The second section of this program does much the same sort of thing. A comparison is made of a system variable and the result reported. In this case one of the relevant lines is: if (GfxBase-)DisplayFlags & PAL) printf It is a PAL machine/n");

In this case we are looking at DisplayFlags and the information being held there. On large difference between this section of the program and the previous section lies in the lines: GfxBase = (struct GfxBase *)openLibrary("graphics.library",0); if (GfxBase == NULL); CloseLibrary *)GfxBase);

In these lines we have explicitly opened the graphics library but we did

not open the exec library - why? The answer is that whenever you make the first call to open a library, the exec library is automatically opened for you. Note the very important point of checking to see that the open-library call succeeded. A lot of programmers, either through laziness or incompetence, forget about this. The results can be, at the least, fragmented and wasted memory or, at worst, a system crash.

This program will run on version 1.2 and 1.3 of the system software and is specifically written for compilation under the Lattice AmigaDOS C compiler. The code as it stands MUST be compiled with version 4.0 or later of Lattice C. The inclusion of the proto libraries necessitates this. However, you can compile the code with version 3.2 of Lattice if you delete the proto library lines. The principle result will be a larger executable file.

The usual general purpose compile command line I use for Lattice version 4.0 is: lc-L sourcefile.

Assuming that you assigned everything correctly, this will produce an .o (object) file, a map file and link file as well as the executable file. Some further additions to this code could be opening a small window and displaying the information there. If you want to really demonstrate your C programming prowess, try adding the narrator device to report the information aurally.

B.D.

★ Program Submission Procedure ★

DO NOT submit any program or routine that you do not eith property authority to do so.

ALWAYS include your name, address and the date on all ma

enclosures.

Do not lorget to make it clear exactly which computer/s your progra article is applicable to.

Include ROM or DOS versions wherever they are pertinent.

If you have to submit work which is hand-written then you must make sure it is printed clearly.

Number all pages.

Never use staples. Use paperclips if necessary.
If you are saving your program to tape then save it AT LEAST twice on each

side.

When you save a program on disk save it twice and call the second file "BACKUP".

Remember to label all tapes and disks with your name and the little of the program. Label tape or disk with your name and the name or title of the program.

rays ensure that disks are well packaged. They should ideally be sent in a nmercial disk maller or at least packed between two pieces of hardboard

Please allow at least 8 weeks for acknowledgement as all programs have to be thoroughly tested and made into a suitable format.

Enclose a self-addressed stamped envelope or package if you would like your program to be returned.

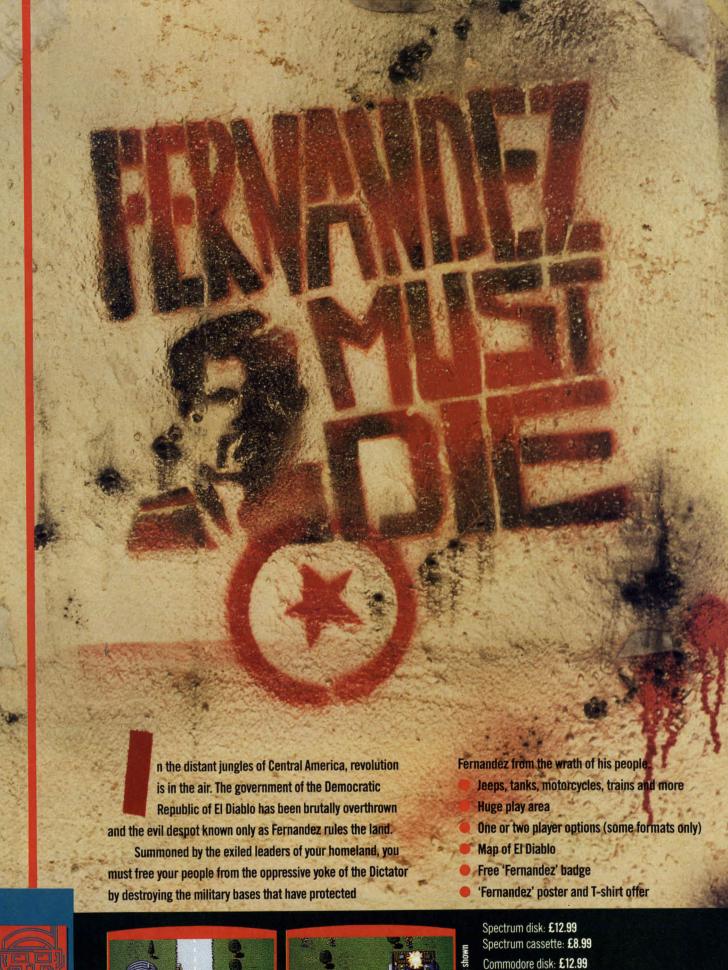
* Programming tips *

If you can, use CHR\$(x) type commands instead of those hard to read graphic symbols. If necessary renumber your program on completion a many readers use auto number utilities to ease typing in.

Try to keep instructions within the program itself at a sensible level. You can expand on them within the accompany text if necessary.

TEST your programs before submitting them or even better get a friend to test them for you.

If a program contains machine code data please use decimal and not hex as there are fewer digits to be confused. Try and keep the same number of data statements in each line. Please add some form of error checking if your program contains more than five lines of data.









Commodore disk: £12.99
Commodore cassette: £9.99
Amstrad disk: £12.99
Amstrad cassette: £9.99
ST: £24.99
Amiga: £24.99

Image Works, Headway House. 66-73 Shoe Lane. London EC4P 4AB. Telephone: 01-377 4645

With a dash of inspiration and a pint of perspiration, Peter Lee delves into the depths of an exciting three dimensional program.

AKING sense of the real world is sometimes a bit tough but coming to terms with controlling a simulated 3D environment on the computer has often been a nightmare, which is a pity, because the Amiga's processing power and graphics handling are ideally suited to making headway in the fascinating world of 3D modelling.

With the release of their Forms In Flight 2 program, Californian company Micro Magic show their mastery of this exciting but complex field of creativity, offering it at a level which should be comfortable for any serious user.

The program is a combination 3D graphics and animation suite, which makes it a useful asset in the Amiga's range of video presentation utilities. It is not, however, of the instant results kind; perspiration as well inspiration are needed.

"The invaluable manual goes into some detail about surface patches, spline curves, Phong shading and texture mapping: fortunately this jargon does not get in the way of the program's practical applications."

FIF2 comes on an unprotected disk, together with an accessory disk and requires at least 1 Meg of memory to run. There is a utility on the disk to make hard drive installation easier and although the program comes configured for NTSC display, by removing two files from the disk it can be forced to default to PAL instead.

Control is mainly from a superb menu which is displayed in a window that opens up wherever the mouse pointer is at the time you press the left button. Because there is a lack of any keyboard shortcuts, this simple idea saves a lot of time and the many menu choices themselves are presented in a

coherent hierarchy whuch, although initially bewildering, is soon learned.

The field of 3D construction has gathered its own vocabulary and luckily the invaluable manual goes into some detail about surface patches, spline curces, Phong shading and texture mapping; fortunately this jargon does not get in the way of the program's practical applications.

Within FIF2; all 3D surfaces are composed of what are called FSURFs (Flat surfaces) or QSURFs (quad surfaces). You can liken these to the building blocks of any 3D object you want to create and they are made simply by positioning control points on screen, bearing in mind that one of

can build up a complicated object by creating a series of small units and attaching them together. To define a simple aeroplane, for instance, you could extrude (or as it is called,

"Any object you can think of, from the mundane to the extraordinary, can be mimicked with these rudimentary components — from insects to dolphins, though human heads present something of a challenge!"

Sweep) a circle into a tube, create a wing, duplicate it and fix both to some point on the cylinder. Thereafter the

ORMSIN these points has, in addition to the object is treated as a single unit. Any object you can think of, from the mundane to the extra-ordinary, can be

standard X and Y co-ordinates (width and height), a depth position labell-

Wide-ranging editing facilities exist for defining the shape of an object, to drag out or bend a point or surface and in this way - given time - you

mimicked with these rudimentary components - from insects to dolphins, though human heads present something of a challenge!

You can switch between 3D and 2D views at any time and, using the camera (or viewpoint) setting, rotate around your object to see it from any



direction or angle; and although it is best to work with wire-frame models as you begin to build up a structure, you can also easily switch to solid 3D view which uses your pre-defined range of colours to give the effect of substance and depth. This is not the only way to render a solid surface though, as FIF2 has the astounding ability to map onto any of your surfaces an IFF (image; you can have up to 15 separate pictures mapped at any one time (memory permitting) and when used in conjunction with rotating objects in the animation program create some marvellous effects.

Once defined an object can be saved to disk for later use, though it is an unfortunate omission of the program that completed animations can only be replayed, not edited. As it can take some time for frames to be rendered and saved in a sequence (though a fraction of the time something like a ray-tracing utility would take) this



is the ability to have multiple view windows at once, showing your object from whichever angle or rendering you like. It is also thoughtful to have an undo option - believe me, you will be glad of it!

The program uses the familiar range of Amiga resolution modes (not HAM though) but I found the advantages in using interlace for high definition display purposes was outwighed by the strain of trying to read menu items on the jittering monitor screen. You can also specify the number of colours to help you with memory management and the palette can be modified their 3D glory, adding the background picture last of all.

The actual motion editing is done mainly by entering numeric data into a series of requestor boxes - roll factors, magnification, details of paths the object should take and so on. Any number of sequences can be programmed by specifying start and stop frames, though this is the most difficult aspect of the whole procedure to understand. Numbers in boxes do not convey the real sense of spatial perspective which you need to get the most out of calculating the movement of things. Fortunately it is not necessary to define as one unit and manipulated as such. Hierarchies can be built up with parent objects and their 'offspring' all linked for purposes of movement. For example two distinct objects - the moon orbiting the Earth - can be treated as one item and the two bodies moved around the sun - and there is a nice demonstration of this among some useful examples on disk.



behaved object.

The path an object will take during an animation is drawn on screen as easily as defining any other shape but when it comes to telling the animation editor where to start and stop movement, it is pretty clumsy. This is because the requestor which asks for the beginning and end positions to be clicked on screen actually covers 75% of the low resolution screen - usually covering up the very points you need to select. The only way around this I discovered was to first move the path and object below the requestor box itself can be moved like any Amiga window but I still found on some occasions there was no spot on screen not covering something I needed to

On the plus side, the actual editing of objects is one of the main reasons why FIF2 stands out, because they are so comprehensive - and what is more, so comprehensible.

The user actually comes to understand the 3D relationships of objects and after a few hours of tutorials and experimentation the mechanics of the program slot into shape - something cannot say for other similar programs. I have used. A nice facility

imported IFF images should share the same resolution and a common palette is a good idea, though not compulsory.

Finally to the animation facilities offered by the program: After defining the movement of a particular 'movie' FIF2 will draw the frames one at a time, adding any IFF background you may have specified, then save them to disk. While it is possible from within the Editor to save any screen as a single IFF screen, once the animation cells are being calculated they are saved in a form only accessible by the Player module. This is called from Workbench and will begin playing back the frames at a speed you can regulate from the keyboard. After all the hard work of creating a sequence, this is the pay-off and something which can be very rewarding.

I found it safest to pencil-test my animations before going through the lengthly process of rendering objects in 3D and saving the sequence; it takes very little time to save a series of frames using the wire-frame option. Then if that works out you can go ahead and save them properly in all



Exclusion

Anyone with any experience of 3D graphics or animation will know it is not the easiest way to get images from a computer. It takes perseverance and a lot of effort but the rewards in terms of quality and impact are unsurpassed - unless you happedn to be a raytracing enthusiast with time on your hands. Forms in Flight 2 is truly a major advance in 3D control on the Amiga and provided you have both the inclination and time, will be worth the effort you invest in it. It does not give instant results and you have to plan in advance what effects you want to achieve; what it does do is give you the chance to express your creative flair without needing a Degree in Science to understand the ins and outs of 3D computer modelling. Screen updates can be sluggish at times but this is not too big a disadvantage when weighed against the excellent editing facilities. The outstanding manual complestes what, for me, is a major advance in 3D imaging.

Contact: Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh EH1 3RN. (031) 557 4242.



HOT HITS – HOTTEST PRICES

Word Processing

£ Excellence! 129.95 ProWrite 2.0 64.95 Scribble! 2.0 39.95

Productivity

£ File 11sg 49.95 Microfiche Filer 59.95 Online! Telecomm. 34.95 Analyze! Spreadsheet 39.95

Utilities

	£
Disk 2 Disk	29.95
Dos 2 Dos	24.95
Quaterback	35.95
Project D	27.95
Zing	49.95

"Our Pledge to You"

If you want a product not listed here, just call us and we'll get it for you at the lowest price.

Video & Animation

	£
Aegis Animator	79.95
The Director	38.95
Fantavision	45.95
Forms in Flight 2	49.95
Lights, Camera, Actio	n 54.95
Modeler 3-D	59.95
ProVideo Plus	179.95
Sculpt 3-D Animate	99.95
TV* Show	49.95
TV* Text	49.95
Videoscape 3-D	99.95
Video Titler	79.95
Zuma Fonts 1-4 6ea.)	19.95

Desktop Publishing

	£
Publishing Partner	99.95
Publisher Plus	47.95

Specials Of The Month

Video Bundle	R.R.P.	Your Price
TV*Text + TV* Show	162.00	Only84.95
DTP Bundle		
Scribble! + Publisher Plus	139.00	Only74.95

Graphics

£ 21.95 Butcher 2.0 79.95 Calligrapher 1.05 Digi-View 3.0 144.95 Draw Plus 134.95 Express Paint 3.0 44.95 Impact 54.95 Photon Paint 49.95 Pixmate 37.95 Sculpt-3D 55.95 Turbo Silver 104.95 3-Demon 59.95

Music

	£
AudioMaster	31.95
Dynamic Drums	49.95
Dynamic Studio	119.95
Midi Magic	79.95
Midi Rec. Studio	49.95
Sonix	39.95

Games

	£
Arkanoid	15.95
Battle Chess	24.95
Bubble Ghost	19.95
Capone	19.95
Captain Blood	24.95
Carrier Command	24.95
Champ Football	24.95
Fire & Forget	19.95
Firepower	15.95
Flight Simulator	24.95
Fourth and Inches	24.95
Gee Bee Air Rally	19.95
Harrier Combat	24.95
Hole-in-1 Golf	19.95
Hybris	19.95
Indoor Sports	24.95
Letherneck	19.95
Major Motion	19.95
Obliterator	19.95
Paladin	19.95
POW	19.95
Solitaire Royale	24.95
Stellar Conflict	19.95
Superstar Ice Hcky	24.95
Tanglewood	19.95
Uninvited	24.95
Vampires Empire	17.95
Virus	19.95
Warlock	19.95
WordPlex	19.95
World Class Leader	25.95
Zoom	15.95

Get Up and Call In Now

Please Make cheques/postal orders payable to: BROWN-WAGH DIRECT 2 Hazlitt Mews, Hazlitt Road, London W14 0JZ

01-371 1857 or 01-602 2502

All prices include VAT and P.&.P. in UK add £2.00 for EEC orders

Adventures with a Bridgeboard

The Amiga 2000, as most of you will now, is also capable of functioning in an IBM compatability mode. Dennis Gortmans of ICPUG explains his experiences with the Amiga/IBM Bridgeboard.

Y original reason for getting a Bridgeboard for my Amiga 2000 was to enable IBM PC compatible add-on cards to be used. Cards for the Amiga were either non-existant or were twice the price of those for a PC. The particular card I wanted was a 32MB Hardcard to enable large files and some large packages to be mounted.

A number of questions were sent to me regarding the mounting of a Hardcard on the PC bus and how to enable the Amiga bus

to access it via the Bridgeboard. At that time I had not yet obtained my Western Digital Hardcard so I did my best to answer using information contained in the A2088 Manual, which not every

one had. It surprises me how a Bridgeboard could be sold without the technical information on how to use it.

As I work with various types of PCs. I also take advantage of the PC emulation the Bridgeboard provides, I am able to take home work, if I am in the mood. I can also benefit from the large number of programs that are available for the PC, of public

domain, sharewave and commercial. The contrast in speed between a PC and some of the systems I use, has caused some frustration, so my mind turned to the possibility of speeding up the PC emulation. Some thoughts regarding turbo boards came to mind but as it was my money I was planning to spend, I was quickly brought back to earch.

I bought a 8087 mathematican co-processor as the best for my purpose. My work is mainly mathematical, making use of spreadsheets or compilations of engineering procedures sourced in Fortran or Pascal, so this was the right way to go. Apart from bending a couple of pins when attempting to insert the 8087 the first time, the upgrade worked well. I admit I have also reaped the benefit of improved Fortran and Pascal compilers but some applications are carried out five times faster.

While occupied the thought of turbo boards, I received a letter from Finland asking for information on turbo boards. An attempt had been made to use an Orchid "Tiny Turbo" accelerator lcpug

card but this card turned out to be incompatible. I had a conversation with David Pocock of CBM who confirmed that turbo boards that plug into the 8088 cpu socket, are unlikely to work. His suggestion was that the easiest way to improve speed would be a tradein for an AT Bridgeboard which would be soon available. While I was putting this information together in a letter, to be sent to Finland, I came across a file called "Bridge-1" on the Irish BB, DUBBS. This file was made up of messages taken from 'BYTE Information Exchange (BIX)', all dealing with some aspect of the Bridgeboard. On 'Turbos' it gave an explanation of what was required for them to The compatible. important considerations are as follows:

'The Bridgeboard uses the Faraday chipset, which means that plug-in cards that don't work with Faraday based PC clones won't work with the Bridgeboard. There is some difference in the way Faraday chips handle DMA that's difference from that used by IBM, and this interferes with the way some speed-up cards grab control of the bus. There has been at least one 386 card tried and although its name is not given, it did manage a number of benchmarks, one taking 0.77 seconds in comparison

= cont. on next page =

USER PORT

continued from page 21 to 2.5 seconds on a 4.77 Mhz PC (sans co processor). However this card has not been generally checked out. There was also a rumour that an Orchid 286 card would work as this did not require removal of the 8088.

The Bridgeboard does not have a number of limitations when emulating a PC. The board is unable to produce sound and so, together with the slow CGA, it is not suitable for zapping-type games. It can be given a voice by connecting a small speaker to a socket on the Bridgeboard, when the speaker must be mounted elsewhere as there is no room between the boards. The board is also unable to access the serial port on the Amiga 2000. This lack of a serial port is of some importance to me as there are times when I wish to attach a modern and run communication progamms. I have now obtained a multi function I/O card that plugs into a PC bus and this provides a serial port, a parallel port, a clock and a games port.

Prior to obtaining the I/O card, all communication took place with the modem attached to the Amiga

TOP QUALITY PROGRAMS AT MAGICAL PRICES

All software written in the UK. Prices include VAT & P&P (add £2.00 for export)

serial port. The downloaded files were appropriate to a range of computers and use was made of the Bridgeboard to transfer to disks of the correct format. My principle interest is in the Amiga, C64 and PC and I am able to satisfy my needs by using the AREAD and AWRITE on the PC utility disk to transfer PC files across the Bridgeboard and onto the 5.25 inch drive, also by using suitable software it is possible to transfer files for the other machines onto disks in their formats. I have used BEEBOOS on a PC to transfer back and forth to BBC format disks. Similarly, I know of others who have used DOSCOPY on a BBC to transfer back and forth to IBM format 5.25 discs.

Some time ago I obtained from ReadySoft in the USA, a copy of their '64 Emulator', to run on the Amiga. It enabled C64 devices to be diasychained directly to the Amiga by a cable into the parallel port and accessed when the emulator is running. Version 2 provided a better system by means of progress that enabled the Amiga to address the C64 devices without going into the C64

emulation mode. This was the con-siderable improvement as multi-tasking is lost by going into the C64 emulation mode.

The Bridgeboard has become an essential component in my Amiga enabling me to communicate readily between the two bus systems. I have also the advantage of hardware to encorporate a hardcard and an I/O board. I might add more memory one day and bring the total of 1Mb on board for use by the PC. With the transfer software available, it has not been necessary physically to link different machines together using the RS232 link. It has been much easier producing disks in the correct format for the appropriate machine. At present I have moved files backward and forward between Amiga, PC, C64 and BBC. I have future plans for extending the list to cover CPM formats, including those used by the C64 and C128. D.G.

This article is taken from the Independent Commodore Product Users Group Newsletter. Contact Jack Cohen on 01-597 1229 for information on ICPUG.



MAILSHOT

Pack

Name

Address.

MAILSHOT PLUS

Please send FREE Brochure

£24.95

£49.95

Signature

Post to: DIGITA INTERNATIONAL LTD.

KELSEY HOUSE, BARNS ROAD, BUDLEIGH SALTERTON, DEVON EX9 6HJ

AMIGA COMMUNICATIONS SOFTWARE

Buying a modem is only half the battle towards getting 'On-Line'. Stuart Williams gives you a head start with some advice on Comms software.

he essential connecting link between the keyboard of your Amiga cannot put you in command of remote computers via your modem and telephone line, or allow you to transfer files between it and other micros. Although it is possible to write a simple terminal in Amiga BASIC, it would be difficult to obtain the speed an error correction required by the modern communiuser; therefore, most programs or 'Terminal Emulators' are written in a compiled launguage such as C, or in Assembler. This means that, unless you are an expert programmer, you will need to look elsewhere for the software to do the job. This article is intended to show you what facilities should be available in good communications software and what kind of terminal program you require for your own particular purpose.

Assuming you have already purchased a modem suitable for use with your Amiga and the service you intend to use, you now need to decide the criteria for software required. There are two main decisions needed initially; what type of terminal emulation is required for services you wish to access and what modem control facilities are needed (if any).

In the case of terminal emulation, there are two main kinds of emulation, TTY (straight ASCI tect) and Viewdata (ie Prestel Graphics). There are numerous small variations on these standards and specific terminal types required for one service only (ie Compunet, which sells its own terminal software) but on the whole your needs will be covered by one or both of these.

With the next terminal, you will find this used (with minor variations such as number of characters per line,

screen clearing and positioning codes and number of screen lines shown) in the majority of Electronic Mail services, as well as 'bulletin boards'. This type of terminal is easy to implement and a simple ASCII terminal can be produced in Amiga BASIC. All that is required is that the program detect incoming data from the Amiga's RS232 port and print it to the screen and likewise detect keyboard activity and send the characters thus produced out via the RS232 to the modem. This is the basis of all comms software but when we actually come to use it, there are a number of 'bells and whistles', which are often essential to make maximum use of the service you are accessing.

VIEWDATA TERMINAL SOFTWARE

Ruby-Pack 1 Y2 Computing Ltd £99.00 (Ruby-View/Ruby-Term)
Ruby-View Plus Y2 Computing Ltd£ T.B.A.

Let us first look at a typical piece of terminal software, intended for accessing the various Email services and bulletin boards. Assuming the connection between Amiga Modem is made, what else do we require for our convenience? We need to be able to set the speed in bits per second of the RS232 port ('baud rate') to match the modem and the service to be used. Also, we must have the facility to select the composition, or 'protocol' of our data stream. This includes the number of bits of data, whether it has start or stop bits and whether it is parity checked or not. For example, a typical bulletin board would use 8 data bits, 1 stop bit and no start bit or parity checking,

whereas some electronic mail services require 7 data bits, two stop bits and 1 parity checking bit (the latter being set to odd or even).

Another useful feature is being able to capture incoming text to a disk file and send a block of text prepared offline, without having to type it all in online. This can save time (and when you are using the 'phone, time is money!), as you can download text quicker than you read, especially if you have a fast modem and also send text faster than you can type.

In addition, an essential, especially for bulletin board users, is an errorchecked file transfer system. With text, it is not usually disastrous if a small amount of data is lost due to line noise; however if you wish to 'download' (receive) or 'upload' (send a program file, then the slightest corruption will crash the program when you come to run it. Commonly systems such as Xmodem or Kermit (there are others ie Zmodem, Ymodem, Telink, etc) are used to transmit or receive the data plus additional checking bits; these bits may be compared with a checksum, or using a 'Cyclic Redundancy Check', to ensure that what was sent is received in its original form. Xmodem, an 8 bit protocol (hence the use of 8 data bits on most bulletin boards), sends and receives in 128 byte blocks, plus check bits and if an error is detected, requests the other computer system to send the block again.

This is a slowish process, hence the development of faster variations of Xmodem; however, since Xmodem has been around since the days of CP/M and is Public Domain, it has become the standard. Likewise, since Kermit is also PD, this more complex system has also become popular, especially with educational users such

cont. on next page

AMIGA COMMUNICATIONS SOFTWARE

continued from page 23

as universities. Kermit is much more than a simple error correction protocol. Its extra facilities are beyond the scope of this article. Suffice to say that if you are a University user, or have access to educational systems, Kermit is pracitcally essential. On the other hand, if you are more interested in Bulletin Boards, the Xmodem is the one for you.

One final major feature of the ASCII terminal which you may wish to consider is that of Terminal Emulation. With this facility, more sophisticated programs enable you to match the screen codes of your Amiga to those of other terminals, which can make life easier if you need to link the computer to a mainframe. Common terminals are ASCII/TTY, DEC VT52, VT100 and VT102 and ANSI. There are many more minor variations on terminal emulations but these are the main ones you are likely to encounter. Whether your terminal software can emulate all the features of a particular terminal, such as 132 column text, or obscure screen codes, depends largely on the effort put into it by the programmer; with a micro of the graphic sophistication of the Amiga, there is usually some way of producing the desired result!

"Programs such as Y2's Ruby-View also enable graphics 'doodling' to be done using the mouse and the pages produced to be uploaded to the remote computer."

Speaking of screen codes, then, brings us neatly on to the other main type of terminal program, 'Viewdata', as exemplified by the Prestel Terminal program. While the basic features of such terminals follow the principles of the ASCII text terminal, the inherent differences between the processing of text and the block graphics system used by Viewdata, make them very different in operation. In addition, while ASCII services generally use a scrolling text system, services such as Prestel/Micronet use a numbered paged format, whereby the information is displayed on screen in the form of a 'page' of colour block graphics and text, 24 lines by 40 columns. While the

Amiga's graphics have no problem in producing such a display, such software is rather more complex to write and hence tends to be more expensive to purchase. Since Viewdata protocls tend to be standardised, you will not normally need to change data format on such terminals.

Common features include the ability to save 'pages' to disk, to edit message pages offline and to assign page numbers to a catalogue assessed by keyboard or mouse, enabling the user to move from one area of the database to another; in effect allowing you to set up your own personalised 'directory' an bypass the endless menus found on Prestel! In addition, the keyboard may be set up to put commonly used keys (such as asterisk and hash) in more convenient places, ie on the keypad. Programs such as Y2's Ruby-View also enable graphics 'doodling' to be done using the mouse and the pages produced to be uploaded to the remote computer. This is handy for areas such as Micronet's 'Gallery', where you are able to display your own pages in the form of a mini magazine, for a small fee.

Another handy facility (at least, it will be handy when they get around to putting useful Amiga software on Micronet!) is the Telesoftware downloader; like Xmodem, this is an error checked file transfer system, allowing you to receive software from Prestel via your modem. It is rather slower, since the software is sent in pages and cannot upload software to a Viewdata system but since there is nowhere on Prestel to send your software to, this is not a drawback! It is also common to be able to select menu items from the page being viewed by pointing and clicking with the mouse, which gives the effect of typing in the command shown on the page.

One final point with Viewdata software is that you will have to purchase a UK-written package, since there is no demand for Viewdata in the USA!

Once you have decided on terminal emulation and facilities required (many UK commercial packages include both ASCII and Viewdata terminals), you need to discover if the software suits your modem. Essentially, it must be capable of matching the transmission speeds of the modem and service in use. This can be problematical, since USA written software will not have 1200/75 baud (used for Prestel and many bulletin boards) as it is not used there; since the Amiga RS232 (in common with most American computers) does not have 1200/75 baud as standard, a software 'fiddle' is required to simulate this speed. This is normally found only in UK written programs.

If your modem only has 1200/75 baud, then, you will have to obtain a program able to use it on the Amiga. Intelligent modems (such as Hayes compatibles) normally have speed buffering, which enables the Amiga to transmit at 1200/1200 baud to the modem and the modem (if it has 1200/ 75 baud output) will then translate this to 1200/75 baud, if the service requires it. This allows you to use American software if you wish. If the modem is 'intelligent', ie command driven rather than controlled manually by knobs and switches, then it is useful to be able to autodial the modem from within the software; this normally takes the form of a user-definable phone directory, selected by mouse. This is often used with an option to automatically send passwords to the service you are logging onto, enabling calling Prestel or your favourite Email service or bulletin board, with one or two clicks of the mouse! Normally, such facilities are only included for 'Hayes compatible' modems.

COMMUNICATIONS **SOFTWARE BUYERS GUIDE**

TEXT TERMINAL SOFTWARE

A Talk Plus	Megasoft	£89.95
Dialtext Comms	Dialtext	£29.00
Diga!	Aegis	£57.00
Digital Link	Digital Creations	£65.00
Maxicomm	Maxisoft	£49.95
Online!	Micro-Systems	£39.95
Ruby-Term Plus	Y2 Computing Ltd	£79.00
Comm 1.34	Public Domain	£3.00 or free
Access!	Public Domain	£3.00 or free

These, then, are the features you need to consider before you decide on your comms software; the final factor, as usual, is price. While there are some excellent terminal programs in the Public Domain, you will find commercial offerings more sophisticated and in the case of Viewdata software, you will currently only be able to acquire a commercial program for use with such services (though there are rumours of a PD Prestel Terminal in the offing). Like most 'serious' Amiga software, commercial comms packages are not cheap. As usual, you pays your money and you makes your choice. If possible, buy on recommendation or after reading magazine reviews; who knows, you may even find a dealer who can demonstrate the program for you!

S.W.

A Great Deal More For a Good eal Less!

ONLY

GUITPUITIATE

Hi-Tech black ash finish
somputer desk manufactured
om highest quality materials
at craftmanship with useful
sty-glide drawer. Flat packed
or simple home assembly

WORTH £46
When you purchase the

Amiga A500 Superpack ONLY from Compumart

from Compumart!

FAST DELIVER

(Monitor not included)



Buy this terrific Amiga pack now and you get an A500 with 1 meg. drive, 4096 Colours, Stereo Sound, Mouse, Manuals, Operation System Disks, Speech Synthesis, and Multi Tasking and ONLY FROM COMPUMART . . .

FYCE PHOTON PAINT WORTH £69.95

FYEET.V. MODULATOR WORTH £24.95

Free MOUSE MAT

WORTH £5.95

CREDIT **TERMS** AVAILABLE

Phone for other great Amiga deals!

PRINT



BLANK DISKS

Why buy unlabelled disks when you can have Commodore branded quality at prices like these !!!

5.25" DS/DD 48TPI 5.25" SS/DD 48TPI £9.95 £7.95 3.5" DS 135TPI 5.25" DS/HDMAX1.6MB

For Your AMIGA



LISTING PAPER

2000 sheets 11" x 91/2", 60gsm.

JOYSTICKS The new 'Microblaster

joystick from REPLAY, order today and £12.95



MOUSE MATS High quality Mouse

£5.95 Mats

.

.

288

DISK STORAGE MD 70L Lockable 31/2" disk storage box, holds £12.95 up to 70 disks.

WITH 2 FREE 31/2" DISKS

The Original Diskette Higher Quality, Lower Price FREE

For a LIMITED PERIOD ONLY suy 4 boxes of any one type of disk and get a fifth box ABSOLUTELY FREE!!! e.g. Buy 4 boxes of 3.5" DS Disks and receive another box of 3.5" DS Disks FREE OF CHARGE!!!

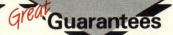
Commodore

ORDER HOTLINE (0509) 61044



FREE, next working day delivery on all hardware, allow 2-5 days for other items

Large stocks for immediate despatch



If any item proves to have a manufacturing fault within 30 days we will replace free of charge or refund in full

After 30 days and within the warranty period, we will repair at our expense

All prices inclusive of VAT



Any problems quickly resolved to your complete satisfaction

Special offers to existing customers We aim to please . . . and usually do!

omoumar

A Great Deal More, For a Good Deal Less

COMPUMART LTD F R E E P O S T DEPT.A.U.1, L O U G H B O R O U G H L E I C S L E 1 1 0 B R T E L: 0509 610444 F A X: 0509 610235

FAST, efficient service

Prices/delivery subject to availability and only applicable to UK mainland, N. Ireland and BFPO's. E&OE Compumert are licensed credit brokers. Simply ask for written details.

At last, a labour-saving device for weary 3D designers — Peter Lee is now a born-again VideoScaper!

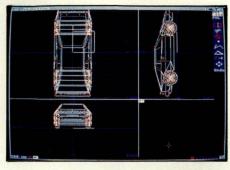
T is well over a year since Video-Scape 3D was released to general acclaim - and some groaning. The program itself gives stunning results but achieving them can be an uphill struggle. I have to admit that the complex editing facilities together with my short irritability threshold caused it to be relegated to the back of the shelf after several ego thrashing sessions. The launch of Modeler 3D, a new support program from Aegis, has meant I - and probably a lot of other people — can dust of their VideoScape boxes and really get the most out of what really is a 3D animation program with amazing potential.

Modeler 3D (M3D) is a supersophisticated graphics editor which allows you to create three dimensional objects easily and then use them in VideoScape 3D. It is also compatible with data from VideoScape, Sculpt 3D (with some reservations) and two other Aegis titles, Draw 2000 and Draw Plus.

While the modeler works on a bare 512K machine with one drive, at least 1 meg of RAM and a second drive will help you get the best out of the program and prevent you from having to close down one window to open up another. It will also function on any of the Amiga series of computers.

M3D works in PAL display mode and although opening to an interlace screen it can be made to default to the more stable non-interlace mode. The colours used by the program, together with several more user-definable settings, may also be saved to disk to become the new defaults.

The initial screen layout shows top, side and front displays on a series of grid lines, though you can enlarge any one of the three views to full-screen size if you want. There is also room for the projection window on screen too, allowing you to edit objects in the usual wireframe mode, then see them



program; it consists of clicking the mouse to define the outline of the object, then extruding it to give it depth. There is, however, a giant leap from making something simple such as a cube to actually creating some-

MOD

projected as a solid. Objects can be created from scratch onto a 2 dimensional template or by calling up and modifying a number of primitives — shapes such as spheres and boxes which are already pre-defined and immediately available.

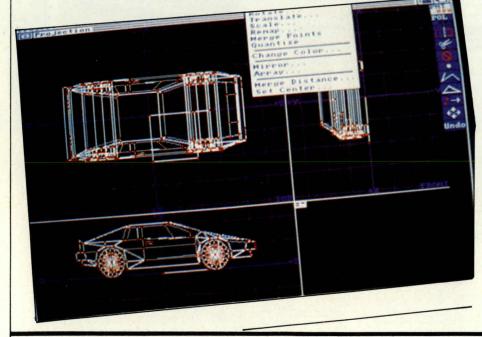
"Actually making a 3D shape is perhaps the easiest thing about the program."

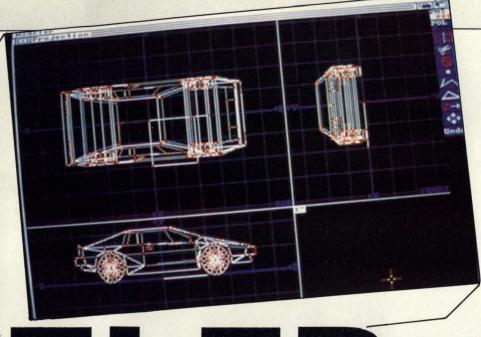
Actually making a 3D shape is perhaps the easiest thing about the thing useful! To make life easier there are a number of powerful controls which manipulate the object — for instance a mirror command permits you to draw half of a symmetrical object then instantly create the matching half. Equally the Array function can create multiple copies of any active images.

The entire object, or portions of it can be rotated, moved and scaled with only a minimum of keyboard entry, while the Remap function will distort objects to twist and shear them into the kind of weird construction only a computer could generate. Assisting with the precision work is a vital zoom utility which can be controlled from the keyboard, or more impressively by gliding a box around one of your plan views so that the portion to be magnified is enclosed.

The program supports eight separate layers which can be thought of as slices through your objects; cutting and pasting between them is extremely simple and a clever way of isolating a particularly tricky portion to work on before merging it back with the main scene. It is a hard concept to grasp but by coming to terms with it you can create several layers of objects to be combined for the final scene. This means less clutter on the screen and the chance for quick screen updates as alterations to a small number of objects are made.

The programmers have thoughtfully included a kind of function key macro facility, allowing you to define a window's attributes, then assign those





ELER

30

parameters to a key so next time you switch to a particular window, it is set up in the way you want it.

Using the editing functions is mainly intuitive and a full range of pull-down

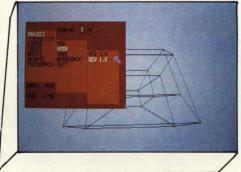
menu options is boosted by an onscreen tools menu as well as keyboard shortcuts. This vast diversity is something of a double-edged sword there is so much control over your 3D universe that the manual has to be at arm's reach constantly for quick reference, at least in the early stages. Another thing to make clear is that this is solely an editor — it exists to serve the powerhouse animation program, not to create graphics which are intrinsically useful. For instance the colouring of your object's polygons is extremely basic, relying on the sophistication of VideoScape 3D to render them in their true glorious highlights and shadows.

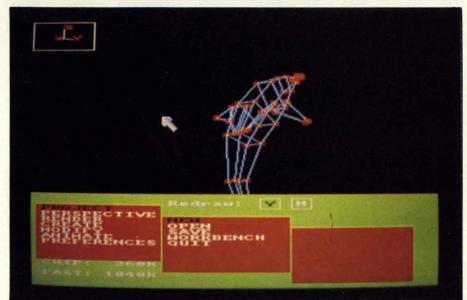
The two programs are so closely tied that you can design a path, or motion, within M3D which can be read by VideoScape; this is a marvellous addition to the program's versatility and allows you to quickly draw on screen the flight path of your camera around your new object. Similarly any VideoScape camera or object motions can be loaded into M3D and edited.

"The two programs are so closely tied that you can design a path, or motion within M3D which can be read by VideoScape."

The best configuration is to run both programs simultaneously, provided you have the free memory. This way you can flip from one to the other and see immediately how your current project will look when the real colours and shading will be rendered.

This and other tips are given in the well designed manual, which does have its blind spots and ommissions but which nevertheless allows you to tease out the program'a attributes.





CONCLUSION

Since it was released in mid 1987 VideoScape 3D has earned its keep in many professional production applications. This is more a tribute to the endeavours of the computer operators than to the friendliness of the design controls. The arrival of this editor, however, has unlocked the real potential of the program and breathed life into an old but still outstanding 3D animation utility. Anyonw who uses VideoScape 3D really cannot afford to be without it in terms of both timesaving and flexibility. And it is great for a battered ego!

P.L.

Price: £69.95

Contact: HB Marketing Ltd, Brooklyn House, 22 The Green, West Drayton, Middx 0895 444433.







3. Simply the Best.

The all new Digi-View Gold is the best video digitizer for the Amiga. Period. Nothing else even comes close. Why? The secret is that Digi-View Gold captures 2.1 million colors in memory, giving you an incredible 100,000 apparent colors on screen simultaneously.

And it's easy to use. Just focus your video camera on any object or picture, and in seconds Digi-View Gold turns it into Amiga graphics that glow with vibrant color and clarity. Whether you are creating graphics for desktop publishing, presentations, video, or just for fun. Digi-View Gold gives you dazzling images with amazing simplicity.

Digi-View Gold is designed specifically for the Amiga 500 and 2000, and plugs directly into the parallel port. Digi-View Gold's powerful image capture and manipulation software (version 3.0) now has complete control of color and sharpness, full overscan, extra halfbrite, and a special line art mode for desktop publishing.

*Requires standard gender changer for use with Amiga 1000. Video camera required; not included. NewTek sells a video camera, copy stand, and the Digi-Droid automated filter wheel for Digi-View Gold. If your local retailer doesn't carry these products, call us at 913-354-1146. Digi-View Gold is a trademark of NewTek, Inc. Amiga is a trademark of Commodore-Amiga, Inc. If you would like to become a member of the Cool Friends of NewTek Club or just be put on our mailing list, write to us at NewTek, 115 West Crane, Topeka, KS 66603 U.S.A. Be seeing you!!

Only Digi-View Gold:

- Can digitize in all Amiga resolution modes from 320x256 PAL up to 768x580 PAL (full PAL hi-res overscan)
- Uses 2 to 4096 colors (including extra halfbrite)
- Uses exclusive Enhanced HAM for super fine detail
- Is 100% IFF compatible and works with any graphics software
- Can digitize 21 bits per pixel (2.1 million colors) for the highest quality images possible
- Has advanced dithering routines that give an apparent 100,000 colors on screen simultaneously
- Has powerful Image processing controls for complete IFF picture manipulation

If you want the highest quality graphics for your Amiga, as easy as 1, 2, 3; then you need the new version of the best selling video digitizer of all time: Digi-View Gold.

ONLY f 129.95

Digi-View Gold is available now at your local Amiga dealer. Or call 010-1-913-354-1146





MIDI (An Introduction - Part II)

More MIDI from our resident music maker Paul Andreas Overraa

ast month we mentioned that a large class of MIDI messages contain a 'channel number' encoded in the status byte. Such messages will be intended for any units within a system which have been set up to receive messages on the specified channel. There are two distinct types of channel message . . . voice messages and mode messages.

VOICE MESSAGES

These are used to control an instrument's voice, i.e. the kind of sound it makes. (Synthesizers contain sound generators which enable a wide variety of different sounds to be produced. Each final sound combination is called a 'voice' and 'voice assignment' is the name given to the algorithmic process of making sure the

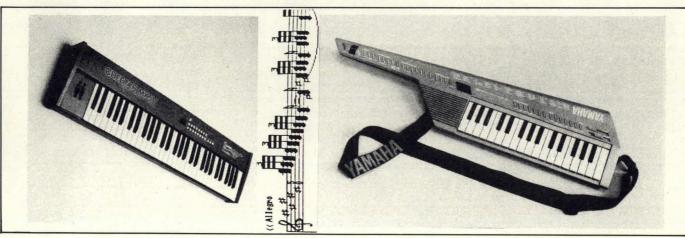
60. There is nothing magic about the numbers - the assignment is arbitrary but since middle C is near the middle of the piano/synth keyboard it made sense to give it a value near to the middle of the range that the MIDI standard recognizes. The C note that is one octave (12 semitones) above middle C would have a key value of 72 and the note an octave below would have a value of 48. The velocity byte, which in this case is a 'key off' velocity, is a numerical representation of how quickly the key was realeased. In practice quite a few keyboards are not touch sensitive and these transmit a default value of 64 for this parameter.

status byte note pitch

1000nnnn 0kkkkkkk note off velocity Ovvvvvvv

If a 'note on' message with a velocity of zero is transmitted then that note is effectively turned off. This turns out to be particularly useful because channel messages (i.e. voice and mode messages) allow the use of implied status bytes. It is called 'Running status' and works like this . . . if note on/note off messages are being communicated then units that implement running status will send 'note off' data as 'zero velocity note on' messages. A stream of note on/note off messages can then be sent as a single 'note on' status byte followed by just the relevant data bytes of all the messages involved.

Polyphonic key pressure: some keyboards respond not only to initial and final key dynamics but also to the pressure of the key whilst it is being held down. Such



right notes are played with the right voice.)

Voice data concerns itself primarily with making sounds . . . selecting voices, turning notes on and off, bending the pitch of notes and performing control functions which affect the sounds the synthesizer will make. There are seven voice messages available:

Note off: when a voice is turned off, e.g. when you release a key on a synthesizer keyboard, three pieces of data are transmitted . . . a 'note off' status byte, a byte representing the note and a 'velocity' byte. The status byte contains the MIDI channel number in the lowest four bits. A note's pitch is represented by a number from 0-127 with 'middle C' assigned the number

Note on: three pieces of information are transmitted when you press a key on a MIDI keyboard - the note on status byte, the key number which represents the note's pitch and a 'note on' velocity byte. This latter item represents the speed at which the note was struck. As with 'note off' data, keyboards without touch sensitivity will transmit a velocity value of 64 for all notes played. Some synths, without touch sensitivity, do allow you to alter the overall velocity level by using a foot volume pedal.

Note on: status byte note pitch note of velocity

Binary 1001nnnn 0kkkkkkk 0vvvvvvv

keyboards transmit these 'pressure changes' as changes in velocity data using polyphonic key pressure messages (sometimes called 'polyphonic after-touch'). It is not easy to do, so these types of keyboards are invariably expensive.

Polyphonic Key Pressure: status byte 1010nnnn note pitch 0kkkkkkk pressure value 0vvvvvvv

Control change: is a problem area that we shall look at later. For the moment all we need mention is that MIDI makes provision for sending and receiving data from 31 continuous controllers, 32 on/off

MIDI (An Introduction — Part II)

continued from page 29

switches and 29 undefined controllers. The state of these controllers can be modified by sending control change messages which take the following form:

Control change: Binary status byte control number control value Covers Control value Control change: Binary 1011nnnn Control change: Control

Program change: enables you to select a particular 'program'. The term is a bit vague ... on a synthesizer this might mean a particular voice or a particular set of voices. On a MIDI digital delay unit it might mean selecting one of the available delay effects. What the MIDI program change commands let you do is make such selections by remote control.

Program change: Binary status byte 1100nnnn program number 0ppppppp

In practice is has been found useful for manufacturers to incorporate a table look-up approach to program change commands. This enables the user to set up their own correspondence between a particular program change command and what voice or effect is selected. In practice it is a good idea to keep one program change command as a 'null' command because it is then possible to effectively disable a unit under program control.

Let us take a simple example . . . the Alesis Midiverb digital reverb unit is a MIDI unit with 99 different preset reverb/delay type effects. Setting '00' is a 'no effects' program setting, so by assigning this setting to program change 1 it becomes possible to make a sequencer turn the unit off at the end of a song simply by transmitting a 'program change 1' command.

Channel pressure: this is similar to polyphonic aftertouch but rather than dealing with individual notes it is concerned with a sort of 'average' or overall keyboard pressure.

Channel pressure: Binary status byte 1101nnnn pressure value 0vvvvvv

Pitch bend change: this is one of the famous commands which can result in 'MIDI stream clogging', i.e. having more MIDI data than your units can comfortably handle. The thing to bear in mind is that pitch bend data is transmitted throughout the time that the control is moving so if you

use the pitch bend control like a space invaders joystick you will come across three problems – firstly you will find the extra data eats into your sequencer memory, secondly editing sequences becomes more difficult because the note on/off events will be mixed with a lot of pitch bend data and thirdly you might find that you end up with too much MIDI data going down the line.

Pitch bend change: Binary status byte 1110nnnn data low byte 0bbbbbb data high byte 0bbbbbbb

Whilst talking of voice data we ought to mention that many units are capable of receiving and using voice data on more than one channel simultaneously. The Yamaha TX81Z synthesizer module is a typical example . . . it can, for instance, be set up so that bass notes are played using an 'Analogue Bass' sound on channel 1, string parts received on channel 2 are played with a suitable 'string voice' and perhaps yet a third 'melody part' received on MIDI channel 3 played using a 'solo violin' voice.

In general synthesizers with these facilities can produce excellent results but occasionally you might get a few snags. Perhaps the most common problems arise when you try to make a single unit do too much. It depends very much on what you are actually doing but in general you will find that the more work the unit has to do the poorer the final sound quality. There are two reasons for this: firstly, the sound chips of the actual synthesizer can only comfortably do so much. Secondly, since your audio output is liable to go into a single amplifier you may find that your speaker system finds it hard to cope with producing good quality low frequency sounds (e.g. bass parts) at the same time as having to produce notes in the higher ranges.

MODE MESSAGES

When MIDI data is being used, the relationship between the 16 available channels and the way the synthesizer uses it must be defined. Several messages are available for this purpose. They are sent over the instrument's basic transmit/receive channel and define the response to the voice messages. You will notice from the value of the status byte that these messages are actually special cases of control change messages.

To start with it is possible to connect/ disconnect a synthesizer's keyboard from the sound generator circuits by using two MIDI local control commands...

Local control off status byte 1011nnnn 2nd byte 01111010 3rd byte 00000000

Local control on status byte 1011nnnn 2nd byte 01111010 3rd byte 01111111

Also available is a channel specific 'panic button' message that will turn off all notes that are currently sounding . . .

All notes off: Binary status byte 1011nnnn 2nd byte 01111011

Lastly there is a set of four mode messages:

Omni mode off: Binary status byte 1011nnnn 2nd byte 01111100 3rd byte 00000000

Omni mode on: Binary status byte 1011nnnn 2nd byte 01111101 3rd byte 00000000

Mono mode on: Binary status byte 1011nnnn 2nd byte 01111110 3rd byte 0vvvvvv

Poly mode on: status byte 1011nnnn 2nd byte 01111111 3rd byte 00000000

'Omni on' is a message which tells the instrument that receives it to use voice data coming in on ALL 16 channels. 'Omni off' is the corresponding message which returns the unit to its channel selective state. If a unit is to transmit voice data messages whilst in 'omni' mode then it will do so on its basic channel.

Mono and Poly modes are mutually exclusive, i.e. a unit can only be in one of these states at any one time. Mono mode restricts the assignment of voices to just ONE voice per voice channel, whereas poly mode allows the instrument to play polyphonically using just a single channel. You can still play 'polyphonically' in mono mode but you do it by using a set of channels rather than just one.

The four possible combinations of these mode messages give rise to the following 'MIDI modes':

MIDI

(An Introduction — Part II)

Mode 1: OMNI ON/POLY ON Mode 2: OMNI ON/POLY OFF

(i.e. mono on)

Mode 3: OMNI OFF/POLY ON Mode 4: OMNI OFF/POLY OFF

(i.e. mono on)

The first two combinations are based on the 'omnion' condition and, because of the lack of 'channel selectivity', they are not (in my view at least!) that useful. Nowadays synthesizers are polyphonic and can be set to transmit and receive on a specific MIDI channel so the Mode 3 is very widely used. Mode 4 is being used for all sorts of weird and wonderful things because it allows voice data to be sent and received using a different MIDI channel for each voice.

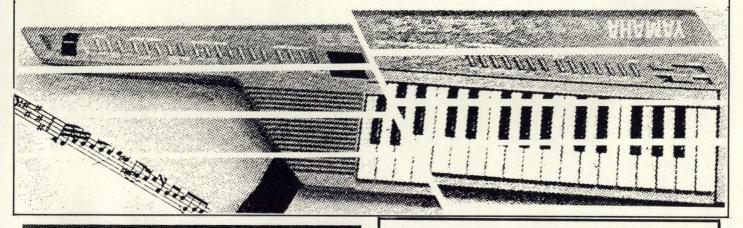
Many of the messages we have looked at over the last couple of months will not make much sense until you see some practical applications, i.e. how they are used. It is important, however, to keep in mind that, whenever you press a key on a keyboard, select a program setting, move controllers, or start and stop MIDI units, etc., then your actions MAY be translated into a suitable MIDI message and transmitted (via the MIDI out terminal) to all other linked units. Whether this information is

used or not will depend on both the individual reception states and the capabilities of the receiving equipment.

I say 'may be translated' because the MIDI standard does not specify exactly what transmission/reception facilities a particular piece of equipment should have. Individual pieces of MIDI equipment vary considerably in what they can or cannot do. This information is usually presented as a 'MIDI implementation sheet' which enables you to tell at a glance exactly what facilities a particular piece of equipment can offer.

Next month we will look at an example of an implementation sheet and explain how to make the most of the information presented.

P.A.O.





Advertisements are expected to conform to rules and standards laid down by the Advertising Standards Authority. Most do. The few that don't we'd like you to write in about.

And if you'd like a copy of these rules for press, poster and cinema advertisements, please send for our booklet. It's free.

The Advertising Standards Authority. We're here to put it right.

ASA Ltd., Dept. Y, Brook House, Torrington Place, London WCIE 7HN

This space is donated in the interests of high standards of advertising.

OUR AMIGA'S DON'T PLAY GAMES! JOIN THE PROFESSIONAL AMIGA DEALER

Amiga Business Centres are looking for a professional support person. We want some who can help us maintain our first class reputation as the premiere Amiga 2000 dealership.

We do not sell games. We do not sell novelties. We sell professional computing solutions for Audio Visual, Desktop Presentation and Desktop Publishing applications.

YOU ARE:

- A—A person who knows the Amiga 2000 and its applications inside out.
- B Business minded, capable of demonstrating the Amiga, as well as training and running a support staff.
- C—In your 20's, and able to deal professionally with business and corporate clients a all levels.

WE OFFER:

- A A very competitive salary, plus bonus scheme.
- B Company Car.
- C Unlimited opportunity for career growth.

The best career decision you ever make could be as simple as A.B.C.

To apply for this opportunity contact David Brogan, or mail C.V. to:

Amiga Business Centres Ltd. Hazlitt Mews London, W14 OJZ (01) 602 2701



INCONTROL JOYSTICK-YOKE

A new and unique joystick looks set to become a soaraway success with armchair pilots hooked on Flight Simulator II. Peter Lee took it for a spin around the Statue of Liberty.

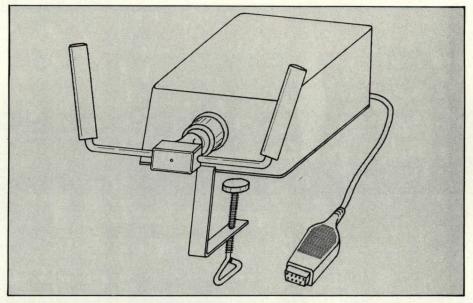
S UBLOGIC'S Flight Simulator II brought a new realism to simulation and has risen to eve greater heights with the addition of scenery disks which broaden the Amiga enthusiast's horizon and ensure that flying never becomes tedious. However, for all its stunning ingenuity, FS II's control method was far from realistic, relying on the accepted human-computer interfaces—the mouse, joystick or keyboard. All very well but hardly the stuff dreams are made of for aspiring Biggles'.

Now onto the scene lands a cheap but effective control device that enabled stay-at-home airmen (and let's be honest, kids at heart) like me to believe they really are at the controls of a plane as it soars and banks.

The device itself comprises of a small black housing (15cm long, 8cm wide and 5cm high) which clamps onto the front of your desk or wherever you have the computer; from the front protrudes the actual control handle which you hold with both hands. The unit plugs directly into the Amiga's port 2.

The stick gives proportional control and this option has to be selected from within Flight Sim II by pressing the J key to give yoke control. Banking left or right is accomplished simply by turning the control handle and pushing in or pulling out the stick controls the elevators, allowing you to climb or descend in a very realistic way. Power settings still have to be controlled from the keyboard but I found it far easier to fly the new stick one-handed while doing this than I ever did with either mouse or normal joystick.

In practical terms the control may look a bit embarrassing clamped to your desk but who cares? It can be



quickly removed when not in use and offers the kind of extra thrill which can revitalise routine flying sessions. It is responsive and easy to get used to; however it is important to note that it will only function with version 1.1 or later of the program, though users with early copies will find the necessary upgrade procedure is available on SubLogic scenery disks when they buy them.

The Designer

The idea is the brainchild of 41-year-old Alan Coates from Cambridge who designed and manufacturers the device himself — something of a one-man band! This is his first business venture, which had its origins earlier this year; "I built my working unit in 5 days in January and realised that it had potential when other Amiga owning friends were impressed," he said. As far computing goes, he started with a Sinclair Spectrum, then onto a C64 "because of FS II" and at

the start of last year bought the A1000. He also flies radio-controlled helicopters.

Conclusion

Flight Sim II is habit forming; if the bug has bitten you, you will not need me to tell you how absorbing genuinely compelling program ie. I am not ashamed to say I have taken my wife on many scenic tours — it affects people that way. One fellow flyer I know even wore RAF epaulets on his pilot's shirt when he 'flew'! With the addition of this little device, the best has been bettered. It is now more fun to take to the skies, with an added sense of realism. Amazingly cheap, it is nevertheless an invaluable addition for any Amiga cockpit and one I can genuinely recommend. If you have the right stuff - get one!

PI

PRICE: £29.95

Contact: INCONTROL, PO Box 183, Cambridge CB4 2UY, Tel: 0223 313749.

MICRO BLASTER

REPLAY® PROUDLY PRESENTS...

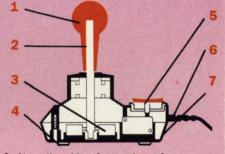
The New Microblaster Joystick, professional arcade quality, fully microswitched for the ultimate in game control.

ORDER TODAY AND TAKE CONTROL!



FEATURES INCLUDE

- Ergonomically designed handle and base for smooth, accurate and comfortable playing action.
- 2. Steel shaft for extra strength & durability.
- 3. 8-way arcade quality microswitches giving greater sensitivity and precision controlled movement.



- Non-slip rubber feet on base for secure table mounted operation.
- Large, dual-fire microswitched fire buttons for left or right hand operation.
- **6.** Extra long 1.4 metre cable allows more choice of player position.
- 7. Switchable normal/rapid fire options for extra player control and higher scores.

Suitable for use with a wide range of computers and video game machines.

Compumart Ltd., Jubilee Drive, Loughborough, Leics. LE11 OXS. Tel: (0509) 610444



Compumart are the Officially Appointed Sole UK Dealer for Replay Joysticks

GUARANTEE

This quality Replay®
joystick is fully
guaranteed against
material defect or
faulty workmanship
for a period of
12 months from the
date of purchase.

Address

ORDER TODAY AND TAKE CONTROL!

PLEASE RUSH ME ___JOYSTICK(S) @£12.95 each.

Total enclosed £_____

Type of computer owned_____

Despatched same day. Allow maximum 7 days delivery.

Please deliver to:

Name_______Date______

____Postcode_______Price inc. VAT, free postage & packaging U.K. only subject to availability. E. & O.E.

(0509) 610444
24 HR HOTLINE
to order using
ACCESS/VISA
or complete the
coupon and send with
a cheque/ P.O. to:

COMPUMART LTD DEPT. A.U.1. FREEPOST LOUGHBOROUGH LE11 OBR

ENTERTAINMENT

UZZLES are a rare breed of game, possibly because of the difficulties involved in creating one that is both enjoyably beguiling and visually attractive. The best solution seems to be to combine arcade style presentation and controls with gameplay that follows a few simple rules. Unlike some, Bombuzal manages to take the best of both worlds resulting in one of the best puzzlers for ages.

The centre piece of the game is a chubby character whose job it is to detonate all the bombs on each screen. You are given the choice of two display techniques before you play, either a 2D bird's eye view or an isometric 3D view. It plays identically whichever view you opt for, but the 2D can often make the problems seem clearer, whilst the 3D is more interesting to look at.



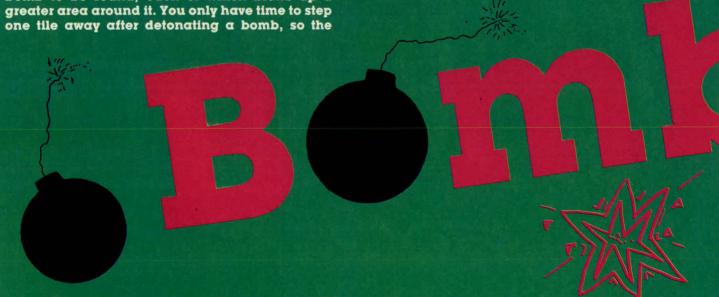
Each screen is a set of various types of tiles. Some tiles are crumbly, others are made of slippery ice and some are indestructable. On these tiles are bombs of different sizes. These are detonated by stepping onto them and pressing the fire button. Walk onto an adjacent tile and the bomb blows up. There are three strengths of bomb to be found, each of which blows up a greater area around it. You only have time to step one tile away after detonating a bomb, so the



only ones you can blow up directly without getting blown up yourself are the smallest of the lot.

Bigger bombs are disposed of via smaller bombs. So, detonating a carefully placed small bomb can set off a chain reaction that finishes off the entire level. Apart from killing yourself in a massive explosion, there is the problem of stranding yourself with unexploded bombs still on the level. A couple of Boulderdash-like aliens have also been included to keep you on your toes. After the bombs themselves, the biggest problem is the time limit which ticks down throughout the game.

The levels are all made up of a few base ingredients: tiles, teleports, bombs etc., but by the emphasised use of certain objects in some screens there is more variety than you would expect to find. Some are just a matter of knowing your route exactly, others require a lot of fore-thought to position yourself and the bombs to avoid being stranded or blown up. One method of solving the more complex screens is to jot down a diagram on a piece of paper and go through possible solutions.





Your nameless character jollies up the game a great deal with his dopey expressions and lumbering movements. All the rest of the graphics are simple but very big and colourful. Sound effects are limited to explosions and a snatch of digitised speech, though the title music is not at all bad.

Image Works

A password system gets round the boredom of playing through the opening screens each time which should boost its long-term appeal. Bombuzal is not a game for everyone. Some will have seen all they want after ten minutes, others will be playing it for hours, weeks, or even months on end to get that one level further. I do Graphics: 7 Sound: 6 Playability: 8 Value: 8

Price: £19.95

have slight doubts over its lifespan, but then that will depend on your own attraction to puzzle games. For anyone who likes a lot of fun and want to give their brain a bit of a workout, at the same time. Bomburzal is the perfect solution.

EDDIE EDWARDS' SUPER SKI

Loriciels

it looks as if Loriciels' timing was pretty good, releasing the Amiga version of Super Ski as the winter falls days grow shorter (can something grow shorter?) but look at the game's endorsement and you may think othewise. (He fell even when the days were long!) Unfortunately for Loriciels, the attention surrounding the world's most successful loser Eddie Edwards has died down, so maybe their timing was not so good after all.

Super Ski is a multi-player, multi-event simulation of professional winter sports. There are only four of these sports the slalom, giant slalom, downhill and ski jump which can all be practiced or competed in by up to six

people.

Slalom is viewed from just behind the player, Pole Position style. Pushing the joystick forward makes the skier (supposedly Eddie Edwards) crouch and speed up. With different combinations of left/right joystick movements and the fire button you can turn to either side at any of three speeds. The course twists and undulates drastically in places. Eddie flies over bumps very realistically, compensating for the slightly jerky movement of the rest of the scenery. The effect is enhanced further by the brows of hills rising and falling independantly of the mountainous backgrounds.

Two of the remaining three events are almost identical to the slalom which in effect cuts down the overall





variety to two events. On all the downhill ski events the course can be chosen from a selection of three slopes of varying difficulty.

The ski jump takes the same view-point as the others. Press the fire button to launch yourself off the end of the ramp and then use up and down to keep yourself in the perfect flight and landing position. Once you are down there is still the problem of stopping before you pile into the barriers at the bottom of the hill.

Sound plays little part in the game, just white noise swishes and crunches and no music.

Although Super Ski has four events it may as well have

Compared to its rivals, Winter Olympiad and Winter Games, super Ski is very limited. However, both events have been extremely well done but are just not enough on their own. Two things that make the Epyx games so popular are the variety of events and the odd out-of-theordinary one thrown in to keep the interest up, two additions that would have given Super Ski a welcome boost. Don't not expect anything like the classic Winter Games. I can see anyone limbering up for a session on the slopes this winter enjoying the speed and realistic 3D views of Super Ski it certainly has as realistic a feeling of Skiing as you will find on the Amiga. (In fact you'll probably never be able to ski so well again!).

T.H.

Graphics: 7 Sound: 2 Playability: 6 Value: 6 Price: £19.95 WHAT MAKES A MEGA-HIT? Intensity. You've seen arcade games evolve, and you demand state-of-the-art gaming. HYBRIS is so bold, so new, so incredibly filled with arcade action, it qualifies as the vertical shoot-em up game that will power you into the 21st century. HYBRIS marks the beginning of a completely new era of mega-hits. You do more than just play HYBRIS. You immerse yourself in action!

- Face attacks from 24 different alien ships as you blast your way through three long playing levels, unparalleled in graphics and animation
- Strike special targets to give your cruiser added dimensions—unbellevable fire power, extra missles, an invincible mode and more . . .
- BB027675 a 0 3 0 0 BB06653

Experience fighter action from the command center of 11 different ships—mechanized for megablasting!

HYBRIS...
We're assuming you're brave.
Now you must prove it.



(301) 268-9877 FAX: (301) 268-2367

163 Conduit Street Annapolis, MD 21401

Daley Thompson's

o Daley fell short of the mark at the Olympics, but that's no reason why you can't remake recent history and win that gold for Britain. Employing the old waggle technique, Daley Thompson's Olympic Challenge is almost as hard work as the real thing!

The perceptive amongst you will have realised Ocean's latest Daley-endorsed game is centred around the Olympic decathlon. (Of course you did, didn't you?). Although the 8-bit versions featured Daley quite prominently, with the Amiga version Ocean have taken the idea much further.

bottle and you can rest for the remaining time or try and go for another. When the two minutes are up you get another chance with a slightly different excercise.

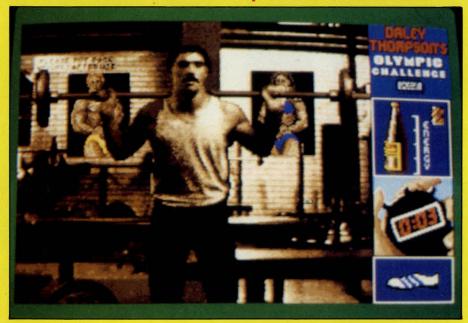
Those bottles of Lucozade can work miracles on the track. Who needs steroids when a bottle of this stuff before hand can boost a long jump personal best of 5.80 metres to 8.20? Perhaps a touch optimistic I think.

A good work-out in the gym is followed by the headlines in the "Daley" paper predicting a top performance from our fave athlete. Day one commences and you limber up for the 100 metres. The main



stick man on the inside lane.

Between the events a neat computer scoreboard clocks up your time and points so far. Now you can compare your scores to Daley's on the wall chart that comes with the game, giving you some idea of how you are doing. Failing to come up with the goods will put you in danger



After entering your name, the computer asks if you want to go ahead with the training section or go straight onto the track. Either way you are made to select a suitable shoe for the event from a choice of eight Adidas spikes and trainers. If you opted for a bit of body building, a couple of two minute weight training sessions to follow. A digitised Daley squats up and down as you waggle the stick from side to side. With each squat a little drop of Lucozade appears in a bottle. Fill the

screen area shows a view of the track surrounded by the crowded stadium. To the left is a digitised Daley on the starting blocks.

"Wait for the gun and waggle your way to the tape. The animation is superb as Daley powers his way along the track"

represented on the right by a little





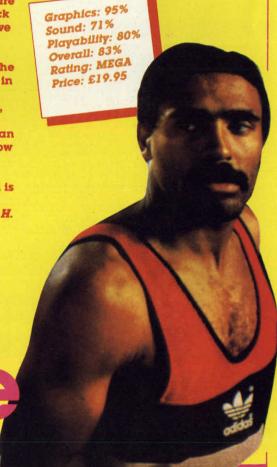
of being disqualified. I cannot say I have ever heard of an athlete being disqualified for being a bit below par, but it adds to the incentive to

Long jump, 400 metres and 1500 metres are all along the lines of the srint. The rest of the events all take different approaches, each one featuring big, smooth digitised animations. This gives the game a unique link to its endorsement. For a change you are actually controlling Daley, not a characteriess blob. Whether you get the gold or not all comes down to how fast you can waggle your joystick, and for that the skills demanded from the player are no different from the original Track and Field clones. What it does have though is the kind of spectacular graphics and spots of detail that have only been made possible by the emergence of 16-bit home micros in the last few years.

In short, splendiferous graphics, pleasant sound and sweaty gameplay. Congratulations to Ocean for a great game, but next time how about developing a few less strenuous control methods? I'm exhausted and my waggling hand is

T.H.

Olympic Challenge





EVENGE II is the sequel of Jeff Minter's Attack of the Mutant Camels. Sadly, due to a number of reasons it is not the zany-all-action-shoot 'em up Mastertronic had hoped for. A ninety foot high mutated camel fighting the Zzyaxian Empire might have made a great game, but when it is put in such a crumbly form as this it degenerates into one of the most tiresome uses of a joystick known to man (or women).

This camel has been modified to allow flight and been given the ability to spit bullets in seven directions. The screen constantly scrolls from right to left with backgrounds of abstract blobs, pyramids and a load of other unrecognisable features. Aliens come in similarly abstract forms. Pacmen, hearts and credit cards are a few of the projectiles that come your way before being shot or blown up by baby camels dropped from your belly.

"Pacmen, hearts and credit cards are a few of the projectiles that come your way before being shot or blown up by baby camels dropped from your belly."

Survive a level and you can select the next by moving a cursor onto an adjacent square in the grid. Extra



weapons can be bought between levels but are nothing exciting and make little difference during the battle.



Variations in the levels are mainly graphical. Instead of shooting micro-chips on one level you could move onto attacks from faces that hatch out of eggs. The extremely plain blasting stays almost excatly the same which ever level you play. Didn't these kinds of silly sprites die out after the Jet Set Willy craze? As if the weak design of the graphics was not bad enough, there are even some Spectrum-style colour glitches here and there!

In-game sound effects are limited to three pathetic varieties of bleep and the title music sounds like a half-baked Christmas carol!

The Amiga version was not actually programmed by Jeff Minter, but converted by Icon Design from his original C64 game. The standard of the programming is well below par, greatly exagerating the dated design. Its acute deficiency of variation in the gameplay means its life span will be very short. The so-called budget price of £9.95 may look cheap but for the limited entertainment I got from Revenge II, a tenner is still over the top.

Graphics: 4 Sound: 1 Playability: 3 Value: 5 Price: £9.95



Charon 5 is an unparalleled design concept that combines strategy with Arcade action to produce a game of epic proportions. The action takes place on over 5,400 full color screens spread throughout 11 action packed levels. The game is further enhanced by the use of exceptional true stereo sound and music.

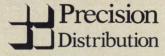
You must exhibit skill, have concentration, possess good reflexes and not be faint of heart in order to be successful on your mission against Charon 5.



Mindware International

Precision Distribution

6 Park Terrace Worcester Park Surrey KT4 7JZ Tel: 01–330 7166 Fax: 01–330 2089 For more information or the dealer nearest you call: 01–330 7166 Order line: 01–330 7166





ENTERTAINMENT

Discovery Software

hey say you are the bravest alien blaster of them all.
When a colony on a far away planet was overrun by intruders from outer space there was only one man for the job. Your orders are simple: seek out the colony and rid it of this alien invasion.

A familiar scenario fronts a familiar game in Hybris. Fly up the screen, shoot some aliens, collect a few weapons and get blown up by the mother ship at the end of the level. You would be hard pushed to find an original aspect of Hybris, but it is not always originality that means everything for as vertical scrolling shoot 'em ups go Hybris ranks with the best and is total fun to play.

On the title screen you are given the choice of playing either J P Maverick or K Lovett during the game, the significance of which is not very clear. Pressing the spacebar takes you into an options



Hyb

screen where you can change the number of lives you start with, the aliens' bullet speed and rate of fire, and the rate at which they split up.

Start up the game and a desert landscape like that seen in Commando scrolls down the screen. Once ejected from your main ship you are on your own against the enemy. Small craft swerve across the screen as they tend to do in these games. Ground-based anti-aircraft guns open up and let off slow moving fireballs. To begin with these are easy picking but soon they appear behind shields forcing



you to fly dangerously close to have any chance of hitting them.

Numbered cubes glide into view and must be shot to transform them into weapon upgrades. Collect them for wider, more powerful lasers. Pressing RETURN removes your wing lasers and forms them into alternative arrangements. Smart bombs are also available for emergencies.

The levels are long and can get repetitive but the background graphics are always well drawn. Canyons, ridges and craters of the first level desert are off-set by high-tech buildings. Completing a level rewards you with a congratulatory piece of graphics while the next loads in.

Soundwise, Hybris is impressive, including some good effects and sampled music. Its graphics are a bit up and down; backgrounds are attractive but the

sprites are small and often uninteresting (though they do have some really excellent flight patterns). I would say its graphics, sound and gameplay are on a par with; Vyper, Sidewinder and the marvellous Xenon. Hybris is a top notch zapper. It may be not the newest idea around but it was designed for sheer exhileration and it really makes it. At the recent Ami Expo, Hybris drew the crowds and the oohs and ahs from stunned shooters, who had to be dragged away from the joystick. I think it is likely you will suffer the same infection from this highly addictive game.

Graphics: 7 Sound: 8 Playability: 7 Overall: 7

Price: £24.95

Eazyprint

HARDWARE

Amiga A500 inc. Deluxe Paint 360.00 inc. VAT A500 + Modulator 382.93 1084 Monitor 241.50 1084S Stereo Monitor 276.00 A500 + 1084 609.50 A500 + 1084S 638.25 A501 512k RAM 132.25 A520 TV Modulator 24.45 RF302C 3.5" Disk Drive 89.99 MPS1200P Printer 149.45 LC10 Colour Printer 284.72 Amiga B2000 1150.00 B2000 + 1084 Monitor 1388.50 B2000 + 1084 Stereo 1400.00 A2052 B2000 2Mb RAM 354.00 B2000 XT Bridgeboard 300.00 B2000 Internal Drive 146.83

All prices include VAT. This is just a small selection of our Amiga hardware and software. Please call for our current catalogue - (0784) 66744

Telephone: Staines (0784) 66744

Access 24-Hour Order Hotline: (0932) 781257

See us at the forthcoming Commodore User Show, November 18th-21st.

Stand #126

Visit our stand for all your Amiga & PC requirements.

SOFTWARE

AEGIS

Lights, Camera, Action! 52.00 Sonix 52.00 Audiomaster 35.50 Diga! 50.60 Draw 161.00 VideoScape 138.00

ELECTRONIC ARTS

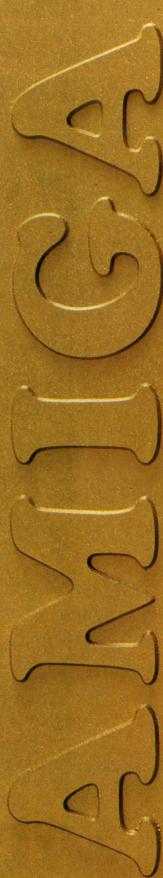
Deluxe Paint II 52.04 Deluxe Print II
49.86 Deluxe Photolab 49.86 Deluxe
Productions 104.12 Deluxe Video 52.04
FA18 Interceptor 21.95 Fusion 21.95

OTHERS

Professional Page 285.66 Lattice C 4.0 140.88 Futuresound 158.98 Marauder II 33.93 WordPerfect 201.25 Flight Simulator II 40.25 Comic Setter 63.00 Photon Paint 63.00 Pagesetter 72.00.

EAZYPRINT, Northumberland House, Gresham Road, Staines, Middlesex. TW18 2AP. Fax: (0784) 50845. Telex: 924707 ACTION

GOLDEN GAMES OLDEN NAMES -









Playability . 10

C. & V.G.

Graphics ... 10 Sound 10





Playability 8

Sound

Commodore User

COMMANDO

BIONIC



Sound 80% Graphics .. 89% Playability . 95% THUNDER" ROLLING

A WEALTH OF ENTERTAINMENT IN ONE SPARKLING COLLECTION

U.S. Gold Ltd., Units 2/3 Holford Way, Holford,

£24.99

Birmingham B6 7AX. Tel: 021 356 3388.



Electronic Arts

ow this makes a nice change. Electronic Arts have done away with the usual rambling scenario by telling the player straight away that Fusion is a game, with you at the controls, not a futuristic simulation of one. Hard luck then for the few people on Earth that actually read the novels that comes with a game, but good news for the rest of us! Good marks for E.A.!

Your objective is to collect all the bits of a bomb from the many alien levels. You start in a small land based craft, trundling around the raised section of the first level. In this form you are very vulnerable due to your slow pace and limited firepower. Make your way to the aircraft and you can get on with the game properly.

"All the time you are working out these locks and keys, aliens of various kinds are homing in for the kill."

In your more conventional spaceship the screen scrolls around faster, but very jerkily. This is a shame as the graphics have obviously had a great deal of time spent on them and have rewarded the effort. Around the levels you will find exits to deeper sections. The trouble with these is that leading back from them are a series of locks, and as the sequence is not immediately obvious, a good deal of planning is called for. No doubt you intelligent E.A. fans always do that anyway.

These locks are small coloured blocks on the background, each of which has a corresponding key somewhere on the level. All the time you are working out these locks and keys, aliens of various kinds are homing in for the kill. This gives rise to some shoot 'em up action to keep the game together.

Fusion is unusual in its mix of highly enjoyable mindless blasting and challenging logical puzzle solving. The two work well together but the nature of the problems set by the locks are probably not really exciting enough to marry perfectly with the rest of the game. A racey soundtrack does well to lift the

game's overall pace together with the sampled effects.

Fusion's sprites and backgrounds are extremely colourful and detailed which makes the poor scrolling even more of a shame. I am all for the inclusion of spots of brainwork in action games, but I would like to see those in Fusion tieing in more naturally than they do. Even so, Fusion is a very pleasant game that indeed I am sure will be enjoyed a great deal by loads of people. Just who would get the most from it is hard to say, so if at all possible give it a test run down at your friendly neighbourhood software shop. You may well end up taking it home in preference to the mindless, mindless blast 'ems that fill the shelves.





Heard It On The Grapevine

Tony Horgan while keeping his nose to the grindstone, puts his ear to the ground and his finger to the pulse of the Amiga games world . . . He's been on the grapevine again . . .

asi your mind back to about this time last year. Games released by UK software houses could be expected on three main formats: Spectrum, C64 and Amstrad. A few of these would eventually appear on the ST. The Amiga's games were nearly all coming from European and American companies, and the few from the UK mostly came from relatively small dedicated but talented 16-bit houses like Psignosis or Melbourne House.

In just a year that situation has changed drastically. All the European and American games have kept coming in increasing numbers, but the biggest change concerns the big British companies. Now, games from the likes of Ocean, US Gold, Gremlin, Grandslam, Hewson and Firebird are not just being released across the 8-bitters, but in the vast majority of cases are appearing on the Amiga. We are even beginning to emerge from the frustrating situation of having games ported directly from the ST versions and have real Amiga products. Take Grandslam's almost byte for byte accurate conversion of Pacmania for example which really exploit the machines brilliant talents.

The traditional Christmas up-surge in the games software world, combined with the realisation of the 68,000 computer's entertainment potential has meant a boom in Amiga games. Finishing touches are

being added to a host of imminent releases. Tune in for the facts about tomorrow's hits . . .

On show at the recent AmiExpo in Los Angeles were four new games from American software house Starvision. Their first, Mega Pinball, is just that; not content with fitting the whole table into one screen, Starvision decided on having Mega Pinball's four tables all 640 x 384 pixels in size! All the usual flippers, mushrooms and tunnels are decorated by superb artwork to give it an authentic look and feel, rounded off with a choice of sound effects or one of four stereo soundtracks.

Twin Ranger combines horizontal, vertical and 8-way scrolling in a three-part shoot 'em up. It uses a special 3D effect, looking a bit like the vertically scrolling sections of Thunderblade that Starvision tell us has never before been seen in an Amiga game.

"3D vector graphics and standard 2D sprites are used to chronicle your adventure through the stars"

On a less violent plane there's Snowberry, a polar platform game with a cuddly bear as the central character. If leaping around icebergs dodging silly baddies is your thing, this game originally designed for a Nordic TV show should be right up your iceberg.

Their last game is Starfighter One "The ultimate space adventure". As the sharpest starfighter in the universe, you have been called upon to release a princess trapped in a coma. Seven crystals need to be found from around the galaxy to awaken her.



Continued on page 48

ESPIONAGE



THE COMPUTER GAME

YOUR MISSION

You are now entering the world of International Espionage, where you control a highly motivated team of 12 agents.

Your agents must set out from their secret base and proceed across the board which represents the world's capitals, airports, deserts, etc.

The world's fate is now in your hands in a game of deadly conflict to reach the 4 micro-films, each containing details for the ultimate weapon.

Should you have the cunning and sheer nerve to carry on this most formidable of tasks and return to base with the micro-films, you would be pronounced Master Spy.

Good Hunting.

AVAILABLE FOR:

AMSTRAD PC (3½" DISK) £24.95 ATARI ST, AMIGA, AMSTRAD PC (5½" DISK) £19.95 C64, AMSTRAD CPC, SPECTRUM + 3 DISKS £14.95

+ 3 DISKS £14.95 C64 CASSETTE £9.95 SPECTRUM, AMSTRAD CPC, MSX CASSETTES £8.95



Order your copy of ESPIONAGE now by sending a cheque or postal order to Grandslam Entertainments Ltd. Units 1/2 Conlon Developments Watery Lane, Darwen, Lancs. BB32ET or phone 01-247 6434 our Credit Card Hotline (Access or Visa).

FIELD REPORTS

continued from page 46

Heard It On The Grapevine

Ocean have a varied line up for the festive season. Coin-op conversions of the highly involving Operation Wolf, Konami's revolving race game WEC Le Mans, the two-player beat 'em up Dragon Ninja and the game of the film Robocop can be expected in the near future. Rambo III promises more murder and mayhem based on the film. A threesome of coin-op licenses from yesteryear are to be given the 16-bit treatment, namely Jackle, Combat School and Green Beret.

Remember Batman the computer game? The dynamic duo were the subject of an isometric arcade adventure a while ago in 8-bit forms and are set to swing back onto our screens in their second digital adventure. The new Batman takes a totally different approach from the first game with comic book style presentation. Development house Special FX are the brains behind it. The Caped Crusader's adventures are controlled with a system of icons and menus, accompanied by large cartoon sprites and colourful backgrounds.

The Penguin had devised a fiendish plan to overrun Gotham City: using his twisted ingenuity, he hopes to build an army of homicidal robotic penguins from a factory in his mansion. Sliding down to the Batcave you kit up in your sexy grey tights, held up of course with your utility belt, and you are ready for anything the Penguin can throw at you.



As I write, US Gold's Amiga conversion of Outrun is having last minute tweaks made to it by programmers Probe. All the routes of the original are there, each with its own distinctive sights and scenery.

The version I saw did look a liftle too similar to the ST for my liking but the soundtracks are great imitations of the originals. Watch this space for the full review in the next issue.

Also under construction at Probe HQ is Savage, a three part action adventure soon to be released by Telecomsoft. You play a tough superhero doing battle against an evil force's monster guardians in a mission to save yet another princess held prisoner in an old castle. Part One sees you running through a horizontally scrolling set of damp corridors. A number of mean weapons are available to hack and slice your way through the game, mostly along the lines of spiky maces and razor sharp axe heads.

"Ripping along the highways of sunny California in your new Ferrari, wreckless Beetles, Mustangs and lorries cut you up, but your turbo-charged status symbol burns them off the road with no trouble"

Probe are very proud of the four soundtracks that back the game, and rightly so. Loads of samples have been mixed together resulting in one of the loudest and trendiest soundtracks ever heard.



Arriving just too late for review in this issue was the Amiga Impossible Mission II from Epyx. The sequel to one of the C64's all-time greats has Agent 4125 (that's you) back on the case as Elvin Atombender once again threatens the survival of the world. More adventures are in store around the lifts and platforms of Elvin's lair, guarded as always by an assortment of robots.

All the speech has been re-sampled and the graphics enhanced. The six towers of Elvin's lair each have a different theme governing the types of objects and furniture that must be searched for vital clues. Your pocket computer

now houses a tape recorder and a device to crack the access codes needed for each tower. Expect to see it hit the store shelves any time now.



Ex-Dragon specialists Microdeal are set to release International Soccer. Among the 'amazina' features it includes is "hires graphics"! The last time I saw that quoted as a game feature must have been the Spectrum version of Jet Set Willy! Apart from that, it does have some interesting points worth mentioning, such as the digitised sound effects, nine skill levels and various weather conditions. What's more, it takes advantage of the fourplayer interface from Leatherneck which allows three players against the computer or two teams of two, as well as the usual one and two player modes.

Elite have got a few things up their sleeve for the arcades amongst us. Conversions of Space Harrier and Ghosts 'n' Goblins will be barging among us soon and are looking great. Amiga versions of Overlander and Paperboy are also expected before long, and Space Harrier II (based on the levels that couldn't be fitted into the first) should be out in early '89.

"Canadianprogrammed Charon 5, a futuristic search and shoot affair"

Another that just missed the review deadline was Canadian-programmed Charon 5, a futuristic search and shoot affair bearing some similarities to Hewson's old favourite Paradroid. The multi-directionally scrolling preplanned action takes place on a broken-down complex. Its lifeline has been severed in a number of places and it's up to you to seek out the components and repair the damage.

Most of this little lot are promised for a Christmas release date, but if the last few festive seasons are anything to go on, I wouldn't hold my breath for any of them if I were you!

T.H.

ENTERTAINMENT

Protecting your software from pirates is fair enough, but the protection used in Stellaryx is the most infuriating system I have ever come across! It uses a technique similar to that first seen in Jet Set Willy, where a set of colours are shown on the screen and the user is asked to give the coordinates of that particular formation from a large grid. Jet Set Willy gave you the co-ordinates and asked you for the colours, Stellaryx does it the other way round.

The quality of the printing on the colour grid supplied with the packaging is so hazy that finding the three sets of four colours seems impossible at times (there are so many different shades it only takes a slight twiddle of the brightness knob totally to throw out the balance). I am sure this will deter pirates but the time it takes for an innocent owner of the original game to get into it is too long for comfort.

As you can probably tell from the screenshots, Stellaryx is an update on the Asteroids theme. Each level is played on a single "wrap around"



asteroids, chunks of rock floating peacefully through space. They may not mean any harm but a collision with one of these is fatal, so blast them to bits if you want to

STELLARY Laser Gameship more powerful weapons to be



screen, sprites leaving the screen reappear on the opposite edge. The controls have been altered from the old rotate and thrust buttons, now the mouse moves a sight across the screen and any thrust or cannon shots are directed straight to it.

Your initial enemies are the

stay alive. The further into the game you get, the more hazards appear. Space men, satellites, missiles and flying saucers can be expected before long. To add a bit of confusion there are magnets that pull you around in their wake.

With these new enemies come

more powerful weapons to be picked up. Guided missiles, grenades and photons help clear the galaxies while a tractor beam is helpful for scooping up ship addons.

All the sound is very basic. The music is a simple arrangement of dings and dongs, and the effects are little more than blips and bangs. Stellaryx graphics benefit from the backgrounds of planets and stars but the remaining asteroids and aliens are small and often uninteresting.

Since the early days of arcadegoing we have come to expect detailed graphics, swirling alien attack waves and definite goals to go for. In the light of these more recent shoot 'em ups, Stellaryx looks very weak at times. The simple thrust and blast action has been reproduced well and is enjoyable in short bursts. Whether it can hold out against the ever-increasing quality of recent arcade hits and Amiga games in general is another matter.

Graphics: 5 Sound: 5 Playability 6 Value: 5

T.H.

THE AMAZING AMIGA



Pack Includes:

A500 CPU, Mouse, P.S.U., T.V. Modulator, Very First Tutorial, Workbench 1·3, Basic, Extras and

PLUS POSTRONIX BONUS PACK WORTH OVER £250 which includes 10 Blank

Disks, Disk Storage Box, 10 Excellent Games, Mouse Mat, Mouse Bracket (Mouse Holder) Deluxe Paint.

+ £5.00 post and packing

AMIGA 500/DISK DRIVE

Instruction Manuals, Extra Disk, Workbench 1.3, The Very First Tutorial, T.V. Modulator, Photon Paint, Mouse PLUS additional Amiga Compatible Disk Drive and 10 Blank Disks.

+ £5.00 post

AMIGA 500 + 1084S COLOUR MONITO

(including the Amiga 500 deal) £649. (including the

+ £10.00 post and packing



MPS 1200P

+£5.00 post and packing

The Commodore MPS1200P printer presents the state of the art in dox matrix printers, with all the features of a printer that would cost much more. The MPS1200P is designed to be like three printers in one. It can act just like an Epson FX printer, or with the flip of a switch, it can act just like an IBM Graphics Printer with IBM Group II-I character set (Danish/Norwegian character set) support. It can also print all the characters available with the Amiga in the Amiga configuration. The MPS1200P is capable of all the printing functions you would expect, as well as some additional features you may not expect.

MPS 1500C COLOUR PRINTER

A. TECHNICAL CHARACTERISTICS + £5.00 post and packing

PRINTING TECHNIQUEImpact dot matrix (9-needle print head). DRAFT MODE - matrix: 9 vertical dots x (5 + 4) horizontal dots; - print speed: 120 char/s, at 10/char in

TABULATION SPEED2 char/s

PRINTING DIRECTIONbi-directional, with optimised head movement

CHARACTER SETASCII characters and special characters.

MAX. PRINT LINE LENGTH40 top 192 characters, according to print pitch selected.



Compatible with PC. Amiga, C64c, C128

+ £5.00 post and packing



AMIGA 1010 DISK DRI

Amiga 3.5" external drive. Capacity 880K PLUS FREE DISK STORAGE BOX & 10 BLANK DISKS

+ £5.00 post and packing

A501 RAM 512K for the Amiga

+ £5.00 post and packing

AND MORE BESIDES!



FANTAVISION

The magic motion special effects generator. Use "Fantavisions" simple tools to make imaginary creatures creep, clouds sail, or lightning flash in amazing detail. Even create your own sound track with our library of realistic sounds. Then capture all the magic of "Fantavision" on a show disk.



PHOTON PAINT

At last, a powerful Lo and Hi Resolution, hold and modify paint program with overscan and special effects for the Amiga



ZUMA FONTS

High quality typestyles for your Amiga font library

• Each volume contains 3 typestyles, each in 6 sizes approximately 20 to 100 lines useable in 3 screen resolutions.



THE WORKS

The Amiga computer starter kit includes wordprocessor, spreadsheet and database. £120.00

- · A powerful electronic spreadsheet module.
- · The word processing modules come with a spelling checker and mail merge facility.

FLIPSIDE

£59.99

Should you create a large spreadsheet,

"Flipside" can easily print the sheet as

large as necessary, thus allowing unlimited columns and column widths.

The professional database module helps you collect and manage information or data easily.

DON'T FORGET - IF ITS NOT LISTED IT DOESN'T MEAN WE DON'T STOCK IT. RING FOR DETAILS & PRICES OF ANY AMIGA SOFTWARE PRODUCT/ACCESSORIES (0604) 791771.



TV SHOW

Special effect slide show. Incredible screen transitions, supports all IFF graphics formats and includes powerful script editor. All these facilities make producing animated presentations of your graphics a snap.

£69.95

TV TEXT

TV Text brings the capabilities of expensive video character generators to you and your Amiga. Create professional quality lettering and backgrounds for presentation graphics or video applications. Build your palette from 4096 colours and make exciting titles with automatic rendering attributes.



ZUMA

DIGI PAINT

Finally you tap the full graphics potential of the Amiga with Digi Paint. The first full featured 4096 colour paint program.



EXCELLENCE

Grammatical checker for word processing. Sophisticated enough to use in desktop publishing.

£185.00



WRITE AND FILE

The integrated word processor and database manager. Because "Write and File" has both a word processor and database manager in one program, it is easy to do mail merge.

£34.99

£65.00



ANALYSE

Integrated spreadsheet graphics for the



ORGANISE

- Professional Data Information Manager
- Powerful Mathematical Functions
- Reports Files Sorts



- Full Featured Word Processor
- · Spelling Checker · Mail Merge Whether you are a beginner or an experienced user, Scribble is the word processor that can accommodate your needs.

£59.99



Over 100 enhancements . . . V1.03 the fastest way to access the powerful Amiga operating system. Execute hundreds of operations without having to type complex commands at the keyboard.

£54.99



ZING KEYS

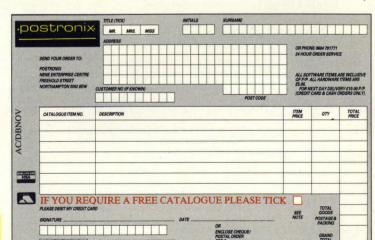
Powerful utility package which provides you with full keyboard and mouse control

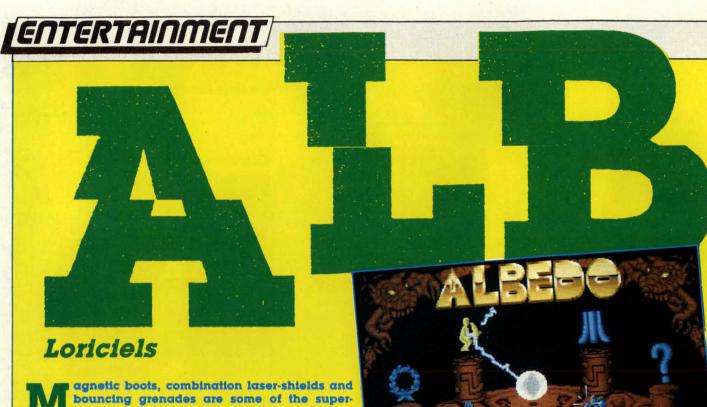


ZING SPELL

Check and correct your spelling as

£54.99





bouncing grenades are some of the superheroic gadgets kitting out the players of Albedo, a kind of sci-fi sport of the future.

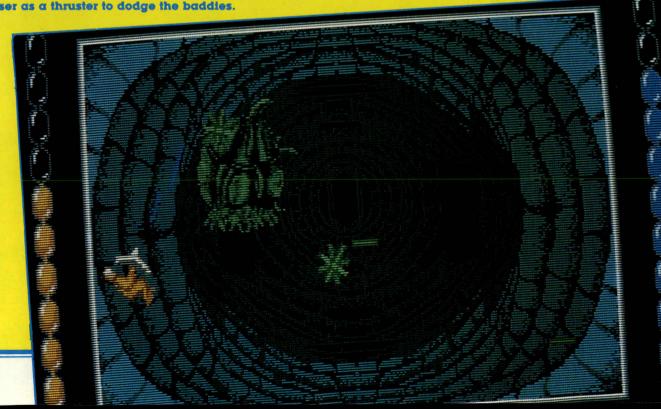
The game is broken up into a number of "trials", various tasks ranging in size and difficulty that must be completed to gain access to the ultimate trial. Some are played in a network of screens that form a maze, others are just single screens. All are inhabited by aliens which materialise and float around, draining your energy on contact.

In the game you are in a zero gravity state, so your magnetic boots are used to keep you stuck to the floors. As there is no gravity, you can never suffer from being upside-down. The sprite may look top-down when running along the top of the screen but he is able to act exactly the same as if he were on any of the other four walls. Adjacent walls can be reached by running up to the corner, where the warrior automatically continues along the next surface. Opposite walls are reached by squatting against the floor and springing up (or down!)

While you glide across the screen you can use your laser as a thruster to dodge the baddies.

I have only ever seen anything like this once before, that game being Jeff Minter's Ancipital a long time ago. In that, you played some kind of long-horned yakly-goat, leaping from wall to wall in similar alienfilled screens. However, Albedo has a lot of new and highly interesting features of its own and is far easier to get into.

You carry a shield with you at all times. This can be raised and lowered very precisely with the mouse or joystick. On the front of the shield is a laser capable of firing shots of various strengths. Hold down the fire button longer for a shot that can demolish an entire



mother-alien, or tap it for small zaps that rid you of the smaller menaces. Grenades are limited but can be very effective when let loose on a biggy.

Albedo is extremely neatly presented. The trial selection screens have you moving a spark from a central globe onto surrounding icons, beneath which is explanatory scrolling text that contains a number of layers of parallax scrolling within the lettering. Your sprite is smoothly animated, bearing more than a passing resemblance to the hero of Impossible Mission. As for the rest of the graphics, the sprites are

mostly fairly basic, as are the backgrounds. On the other hand, the music is very pleasant, on equal terms with the sound effects.

The simultaneous two-player mode is a bonus for anyone with a friend to hand. While Albedo is a lot of fun to play, it could do with a bit more punch and a few surprises to keep you at it. Games tend to last quite a while without much change in the aliens and skills demanded from the player. Still, it is nice to see something different and Albedo is definitely that, making a very playable variation on the shoot 'em up

T.H. Graphics: 6 Sound: 8

Playability: 7 Value: 7 Price: £19.95

Battleches Interplay/Electronic Arts

OR as long as I care to remember, I have always had access to a chess-board of some sort or another and. although I've never become a very proficient player, I still enjoy a game now and then.

When I purchased my first Commodore, along with all the bits in the box, I bought a copy of the 'ultimate' chess game at that time, called "Colossus 4 Chess".

Since then, if ever I have wanted to play, it has been this program that I have used. Many other chess games have come and gone since, but none have ever come up to its standard.

Well, that's until now!

Form Electronic Arts comes "BATTLE CHESS", and apart from being one of the most playable games of chess I've ever seen on any computer, it is definitely the most entertaining. (More about

Battle Chess is supplied on a single disk and runs equally well on all Amigas, although I got a 'not enough memory' error on the 500 if I left the external drive connected.

Supplied within the very thorough manual, is a complete list of moves made in twenty games played between chess masters. The games vary from one played on the San Diego Freeway between Zimmer and Thaimann, sometime this year, right back to one played in London between Labourdonnias and MacDonnell in 1834!!

These lists not only provide an insight into how a master plays, but also serve as protection for the game. Once the game has loaded, you are requested to enter into the computer a randomly selected move from one of the lists. When you've got it right, the game commences.

Battle Chess pieces are red and blue, rather than black and white and all movement is mouse-controlled. To move a piece you simply position the

finger-shaped pointer over it. If it is capable of moving, the border of the square that it is standing on will flash. Press the left-button to select the piece and reposition the pointer over the square that you wish to move to. If the move is legal the border of this square will now flash. Press the leftbutton again and the chosen piece will move to the selected square.

"The Move menu lets vou force a move, go back a move (handy for cheating!!). replay the game, or get the computer to suggest a possible move for you."

Pressing the right-button (when it is your move) reveals four menu selections at the top of the screen: Disk, Move, Settings and Level. In the Disk menu you may load and save games, start a

This will allow you to preposition pieces onto the board before you start playing.

The Move menu lets you force a move, go back a move (handy for cheating!!), replay the game, or get the computer to suggest a possible move for you.

Settings are as you would expect, with adjustments available for sound, 2D/3D, who plays which colour, if Human or Amiga and, very interestingly, whether you are playing via a MODEM. The Levels menu offers a Novice setting plus nine levels of play and the ability to limit the amount of 'thinking-time'

Because of space limitations, I have only run through the options very briefly, but even so you can see that Battle Chess is a very sophisticated program that can be as simple, or complex, as you wish.

This is all very nice and, to be quite honest, you would expect this sort of flexibility and quality of programming from Electronic



new game and quit the program, much as you would expect, you may also select 'Setup Board'.

Arts. As I said earlier, the playability is excellent and I would unreservedly recommend this program to you on that basis alone.

But that is only HALF of the

For the 'chess purist' a twodimensional board with chess piece icons upon it is perfectly adequate, as, for them, it's the ebb and flow of the game itself that is important. Bit for others, myself included, a little entertainment goes a long way, and with Battle Chess. entertainment is what you get!!

Allow me to digress for a moment..

Some while ago I was watching a film, I think it was one of the "Star Trek" movies, in which two of the crew were playing chess. The pieces were holograms that fought together when a piece was 'taken', the vanquished piece disappearing once beaten.

THAT is what makes Battle Chess so entertaining!

When you select the 3D mode, the 'standard' pieces are replaced by actual 'live' figures that move and fight in the

character of the piece!! The King is an old man and moves very sedately but the Queen is younger and she has got quite a wiggle!

The knight is unmounted and clanks as he walks whilst the pile of rocks that make up the castles, transform themselves into pounding great rock-monsters that stomp across the board. A rank of smaller men-at-arms fight as pawns.

"When a knight gets booted between the leas it's hilarious!''

When one piece is 'taken' by another, they move to the same square and start slugging it out with not only the weapons they carry, but also magic and a fair smattering of cunning and foul-

I won't say too much about what happens, but as a teaser, when a knight faces up to an attacking pawn, the look of anguish and pain on his face as he gets booted squarely between the legs is hliarious!!

There are many, many other examples of humour, which I shall leave for you to find. Suffice it to say that I set the game up to play itself and spent a delightful hour watching it.



To sum up; I think that Battle Chess is an excellent program that will appeal to players of all ages and levels. Not only are the graphics and sound effects superb, but it also plays a MEAN game of chess!! Highly recommended.

Graphics: 9 Sound: 9 Overall: 9 Price: £24.99

N.S.

CUSTOM BUILT COMPUTERS AMIGA AMIGA

BOXED FLOPPY DISK DRIVES AN EXTERNAL ADD ON BOX WITH **POWER SUPPLY & THROUGH** PORT

*Plus the ability to disenable the Amiga System Memory CBC-720 Amiga 3.5 CWO **CREDIT**

SINGLE £120

*We also supply a range of XT & AT compatables — computer peripherals Our pricing is keen — our service excellent eg. 20 MB Seagate 65 MF XT KIT

£195.00 Available Ex-stock-48 hr delivery

Carriage at cost.

£130

CALL NOW, HOTLINE (0255) 424078 C.B.C. UNIT I, COMAC YARD, 305 OLD ROAD, CLACTON, **ESSEX CO15 3NT**

Plaster State of the second se Pioneer





Julia Forester attempts to save the universe from destruction. (Again?) . . .

IONEER Plague is a shoot 'em up, albeit a highly polished one, that does not pretend to be anything else. It is based in the near future, and sees the player defending Earth against a rampaging mob of genetically mutated, terraforming robot probes of

The main screen depicts the interior of your ship. The top part being dedicated to the various instrumentation and most of the rest just there for decoration. At the helm are four small monitors used to execute various sub-fuctions of the game itself: Planet Defence, Interplanetary Flight, Drone Programming and saving drone patterns to disk. If memories of Cinemaware's awful SDI suddenly come flooding

Clicking over the leftmost monitor launches the LifeStar. An intermediate screen pops up showing the planet with the Approaching message. From then on it is up to you. The LifeStar can only really be described as an impregnable technicoloured bubble drifting over the beautifully defined planet surface. Aha!, HAM graphics! Moving the joystick and clicking the fire button launches the AirShip and puts you into the thick of it.

The Pioneer Probes have a defensive system provided by the designers in case of a threat, you for example. Suffice to say the beggars have built themselves a mean armoury. With little more than a verbal "Enemy approaching" blurted under the stereo soundtrack — the swarms arrive.

Initially there are just the Star Shark fighters. These are quite easy to pick off either with a photon missile or a good shunt from one of your two drone aircraft. Then there are the Homers, odd shaped beasts these, roaming around trying to pick you off when your guard is down. Easy to shoot but ramming with drones causes unpredictable results. Thirdly there are the various sorts of shield-draining Air Mines — the manual is not much help in dealing with these: avoid them.

Finally there is the ultimate foe, only referred to as a Boxer. I'm not sure if I have encountered one but they could be the reason I have died very abruptly several

If you manage to make it back to the safety of the LifeStar, the problems are only just starting, because the drones never rest and while you are busily cleaning up one planetoid they are happily recolonising another. Now comes the really nasty bit. Getting between planetary systems requires navigating your way through Sub-Euclidian space via a wormhole.

If all has gone well, and the navigation computer is still working all you have to do is survive the journey. While passing through the wormhole it is necessary to knock out the tractor mines laid down by the probes. Let just one get past and you will be dragged back to the starting point. This is made even tougher because to get to the planet you have to shoot at its image as it appears in the wormhole. Not easy I assure you.

If, on the other hand the navigation computer is no longer functioning — you have to set your co-ordinates manually. This is achieved with some cleverly designed overlay sheets and maps of Sub-Euclidian space. However, you only have limited time to do this or the wormhole closes, but get it wrong and you could

In the end there just is not room to describe the sheer fun of this original shoot 'em up. The multi-directional scrolling is well up to par and the HAM graphics very pleasing although the game is not any better for them. There is plenty of fast action for all arcade freaks with enough depth to hold the interest for some time. Great stuff. Highly recommended.

> Graphics: 9 Sound: 7 Playability: 9 Overall: 8

Strip Poker II+ Data Disks Anco

urther to their release of Strip Poker II+ earlier this year, Anco have come up with the first of the data disks to breathe new life

For anyone unfamiliar with the original game, it gave you the chance of playing strip poker against a couple of fun-loving girls, Donna and Shish, sorry I mean Donna and Sam. A series of digitised pictures gradually unfold before the successful player. The quality of the graphics is a little below par but they are pretty realistic from a distance. It looks to me as if they had trouble persuading the girls to strip off completely, as the final picutres have some very odd details!

Three other disks are available, and just to prove Anco are not sexist, one features the masculine attractions of Lee and Roy. If things go the same way as they did with Beverly and Dawn on the first disk, someone could have a



tricky job retouching those piccies! If you enjoyed the first installment and need a second helping, the data disks should sort you out. Price: £9.95

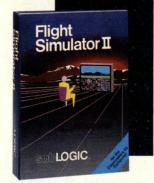
JET

£34.95 (Commodore 64/128 £24.95)

The award-winning premier jet fighter simulator. Strikingly beautiful carrierbased sea missions complement multiple land-based combat scenarios. Jet also lets you explore the world of SubLOGIC Scenery Disks at lightning

FLIGHT SIMULATOR





Nearly 1.5 million copies of this classic, premium flight simulation program have been sold to date. Compatible with SubLOGIC Scenery Disks.

SubLOGIC is a small company dedicated to producing the finest in flight simulation software. Look for our "Flight Notes" advertisements, coming soon, for in-depth descriptions of current SubLOGIC software products and projects.

> Suite 101-110 London W1V 9PB Telephone: 01-439 8985

Get it to Get it to Melissa: Nowyou've got to put your thinking separate where

ISTEN to this: "Round up your friends! Grab a ball! It's time for STREET SPORTS BASKET-BALL.

Everybody wants to play. There's Butch, a great leaper, there's Kevin, a straight A student and genius of the basketball court, and Dana, who'll add spice to any game.

So flip a coin. Choose up sides. Out on the street, the action's just about to begin!"

That is part of the introduction to Epyxs' "Street Sports Basketball", a simulation that takes you away from the usual joystick-destroying, waggleit-as-fast-as-you-can, type "professional sport"

simulator. Here you control a team of ordinary kids playing basketball out on the street.

You get to choose where you want to play from a selection of four play areas; At School, in an alley, out in the suburbs, or in the City. As you make your selection the area is shown to you and gives you some idea of what each "court" looks like.

Having decided where you wish to play, you now choose whether you will be playing against an opponent or the computer, the level of play (easy, intermediate or tough), and the name of your team.



Now you've got to put your thinking-cap on! What you've got to do is pick the best team for your chosen area. The team will be made up of three kids chosen from a selection of ten. Each of the ten boys and girls have different characters and skills, so it is important to get the balance right. The toss of an on-screen coin decides who gets first pick.

The ten kinds now line up in the street and by moving an arrow over them, you get a facial close-up and details of their strengths and weaknesses. For example, "Radar, who can't run so fast, but they call him 'The Slammer'. Just get him the ball and he'll rocket through the air, stuffing the hoop with an incredible slam dunk." Or Melissa, who has "got great moves: she can jam with the best of 'em. She shies away from the spotlight, but if you need to move the ball, get it to Melissa."

OK. So now it's time to move out to the street. One final selection: how many points you're going to play (2-100), then it's time to play! Game control is by either mouse or joystick and I would suggest you play with the latter.

"Pressing and holding the fire button changes the player currently under your control, the computer will look after the other two for you."

Obviously, with three players on each side, you can't control all three at the same time, the shirt of the player that you directly control is lighter than the other two. The teams wear blue or green shirts and the only way to tell the individual players apart is by their faces and hair-styles. Pressing and holding the fire button changes the player currently under your control, the computer will look after the other two for you.

Once play has started, you are able to dribble, pass, steal the ball from an opponent and of course, shoot to score goals. When you are in a shooting position and you press the fire button, the computer will make the shot for you, deciding which type of shot to use: jump shot, hook shot, or slam dunk.



All things considered, the game actually plays white well. The backgrounds are well-drawn and scroll smoothly and the kids, though quite small and 'blocky', are easily recognisable.

A couple of things, though, let the game down. Firstly, the animation of the players tends to be a bit 'jerky' and they seem to move in 'jumps' rather than in smooth steps. Secondly, the sound, or rather the LACK of it!! I counted a total of only SIX different effects: the ball bouncing, hitting a manhole cover, hitting the net (\times 2) and two pitiful little cries when the kids bump into each other and fall over. Never mind, I thought, they must be

saving it all up for a fantastic fanfare, or something, to proclaim the winning team. WRONG!!! All the winning team get to do is leap around the screen like a bunch of demented punks, pogo-ing all over the place, in total silence!!

Sorry Epyx, I got bored with this one very quickly. Maybe I was expecting too much after the excellent "Games" series. Still, please remember that this is only my own, personal view. If you like sport simulations, or basketball, and are looking for something a little different, pop down to your local stockist and check this one out. YOU might like it.

NS



Amiga Chart

In any have taken a long time—
in computer terms three years is
an age—but there are now so
many games being released for the
Amiga that, in the U.K. and other
countries too, it is beginning to
make up a significant part of the
entertainment software market.

Games have always taken an important role in the Amiga's development. In the U.K. Commodore said that the emergence of the then -sensational Defender of the Crown from Cinemaware sold more Amigas than anything else had caused to happen until then. Since then Cinemaware has had interesting games but hardly made the impact of some others. Now they have released Rocket Ranger which is confidently predicted to head for the top of the Amiga Charts at the bigselling and of year period. At the present, however, another company is dominating the stores' games areas in the U.K. That company is Telecomsoft with its Rainbird and Firebird labels. Three out of the top four sellers in the U.K. this month

come from the Telecomsoft stable. In fact four out of the top ten Amiga games have been developed by that same team. That is one hell of an achievement considering the U.K. companies were, in general so late into the Amiga field. It is interesting to see that the biggest U.K. software entertainment houses, U.S. Gold and Ocean, are still suffering from that delayed entry into the Amiga game market. They have been outpaced by Telecomsoft, although they claim that their big releases for the end of 1988 should help make up that lost ground. The same applies to Mediagenic (the erstwhile Activision) although they have the advantage of having the distribution in Europe of Microillusions of Faery Tale fame.

It is odd that five out of the Top Ten all have some connection to a flying theme. But what is most exciting is the much higher standard of creativity we are beginning to see in Amiga games. AUI has said all along that Starglider II is an exceptional product and many consider its creator Jez Sans is on his way to establishing new and astonishing standards for Amiga games, levels of achievement that will make video or cinema-like games into stunning reality. Other companies too like the longtime Amiga supporters, Psynosis, who have just released the excellent Menace, are also showing the brilliant imagination that will give Amiga gameplayers the kind of entertainment that they have been dreaming of.

The Top Ten in the U.K.

Name	Company	Price
1 Starglider II	Rainbird	£24.95
2 Daley Thompson's		
Olympic Challenge	Ocean	£24.95
3 Carrier Command	Rainbird	£24.95
4 Virus	Firebird	£19.95
5 Interceptor	Electronic Arts	£24.95
6 Menace	Psygnosis	£24.95
7 Bionic Commando	GO!	£19.99
8 Football Manager II	Addictive	£19.99
9 Skychase	Image Works	£19.95
0 Starray	Logotron	£19.95

Julia Forester meets the isometric arachnid . . .

OU could be forgiven for thinking Spidertronic is a rip-off of Marble Madress, because in many ways the two games do resemble one another. In fact Spidertronic, seems to be an uneven blend of marble Madness and Crystal Castles without the finessé of either — it isn't all bad though. Like Crystal Castles, the game is views and played in a 3D isometric projection — which invariably means the joystick control is a little odd until you get used to it.
Although this is where the similarity ends.
You play the part of a spider, which is unusual in

itself since spiders are most often thought of as the

To move on to the next level, the spider must repair certain parts of the web. This, in essence, is the main objective of the game. At the bottom of the screen is an

"The particular spider in question seems to have taken its web far off into some unchartered backwater of the milky way and built it more along the lines of a space platform."

indicator showing which coloured tile must be collected - run over - next. As the spider runs over the holes, they fill in allowing her to get to the teleport — and the next level. Not always as easy as it sounds since certain tiles stun the spider and webs cannot be



bad guys. Let's face it, spiders catch helpless insects bad guys. Let's face it, spiders catch helpless insects in their stickly webs, paralise them with an injection of powerful venom, wrap them up with silk and then store them — still alive — for consumption some time later. Fortunately for the faint hearted, Spidertronic is considerably less likely to put you off dinner. It is, on the other hand, remarkably addictive and likely to keep you absent at meal times anyway.

you absent at meal times anyway.

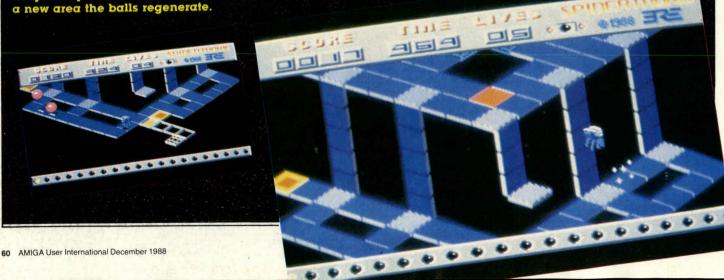
The particular spider in question seems to have taken its web far off into some uncharted backwater of taken its web far off into some uncharted backwater of the milky way and built it more along the lines of a space platform. Predictably, as you might expect in space, there isn't a juicy bug in sight — not a even midgey. And just to aggravate matters the place is swarming with balls. The balls wander almost aimlessly around the squash poor Spidey if she gets too close. Like all good arachnids, she builds webs and these are the only way to destroy the balls — temporarily at least — since once the spider moves into a new area the balls regenerate. traversed. There is a time limit to complete a level, but this can be increased by collecting the special time

pastilles.

Spidertronic is not going to win any medals for stunning graphics or ear shattering sound, but what it lacks in style it more than makes up for in lasting appeal — the screen designer assures that. The dedicated arcadian will probably find the ten supplied screens too easy — but the beginner will find a game that is easy to live with. When either wants a new challenge, it is a simple matter of designing a new set of tougher screens. However, the key definitions for the editor are very French, try it for yourself and you will see my point. Overall, not shattering but still worth a quick look.

J.F.





POWEISITA Axxion

OWERSTYX is one of the many games around at the moment that originate from the early days of the arcades. Breakout, Pacman, Tron, Asteroids have all been re-hashed for the growing Amiga market. Powerstyx is a version of one of Qix, one of those early games with gameplay so simple it could almost be played by a monkey. (Was the level that manufacturers thought technically possible or was it their opinion of players?)

In Powerstyx, you control a small diamond that leaves a trail behind it wherever it goes. Around the screen are a number of aliens, some confined to the screen border and your trail, other have the freedom of the entire screen. Your task is to fill in the majority of the screen by closing off areas with your trail. Just like Tron, doubling back on the trail you are currently drawing kills you. If any of the aliens around the screen happens to touch the line before you box it off, another life bites the dust.

"An added incentive to clear the screens is that unlike the old Qix, when a section is filled, a part of what is usually an excellent picture is revealed."

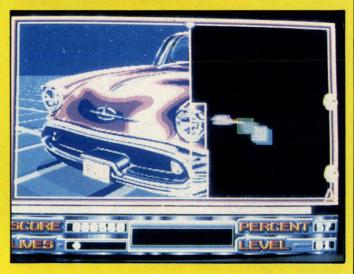
The longer line you draw, the more risk you have of getting hit by an alien, but the quicker you fill in the screen the bigger bonus you get. Each person has a key alien that snakes around the screen and decides which section of the screen is filled when you complete a split. This can be used to your



advantage to speed up the screen filling. If you manage to section off a large area with this alien in the smaller area, the whole of the bigger area is filled.

An added incentive to clear the screens is that unlike the old Qix, when a section is filled, a part of what is usually an excellent picture is revealed.

Lines, skulls and rotating squares are hardly exciting to look at but the quality of the backdrops makes up for this. A very short piece of sampled music is looped throughout the game and the straightforward effects put up a weak fight as you reach for the volume knob.



I would much rather see something new than a spruced up arcade grandfather, but fans of these old style games will find it a worthwhile pursuit at the price. Everything looks neat, the graphics are smooth and it plays as well as any Qix variant can.

I was bored before long (I must do something about my minute attention span!), but going on the opinions of some of the others around the office there are many that will get a lot more out of it! Try it, you may well be one of them.

T.H.



Ultima IV

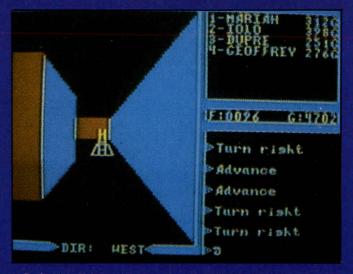
HAS LORD BRITISH'S ULTIMA IV BECOME THE ULTIMATE ADVENTURE FOR THE AMIGA? ANDY MOSS GOES IN QUEST OF THE AVATAR

ENTION the Ultima series to any hardened adventurer and you will nearly always get the same answer. A wry smile, a knowing look and the feeling that something special has been shared between you, something that only experienced adventure role players have been a party to. There's no doubt that since the first Ultima appeared the series has attained almost cult-like status and even though others have tried to copy the Lord British style, and some taken even further steps with better graphics and sound, somehow whenever a new Ultima game appears, that is the one that they all want to solve. What is the secret? Why is it that everyone goes crazy over it? The graphics are sure nothing to write home about, little stick creatures that slide from one Pixel space to the next, the sound consists of a few white noise crashes and with no smooth scrolling technique, just a good old fashioned jerky roll, you would be forgiven for thinking the author had only recently been taught programming. What I am saying is, if these were any other games they would get slated on the graphical element alone. But because they are Ultima, and the format is accepted as such, they are classics.

"What makes them such fabulous pieces of work is simply the sheer depth of the games. The plots are complex intricate puzzles that need careful working out and patience that almost goes beyond human endurance."

What makes them such fabulous pieces of work is simply the sheer depth of the games. The plots are complex intricate puzzles that need careful working out and patience that almost goes beyond human endurance. It proves the point doesn't it? That you do not need flashy graphics to get a hit on your hands.

So now we have Ultima IV on our Amiga, and does that mean a new look state-of-the-art Ultima? An Ultima with lifelike characters beautifully depicted in 3D multicolour, using a subtle hint of pastel shading which balanced against the fine tuned sonics would provide a never-before-seen backdrop of computer-digitized graphics? No, siree, Bob. You get just the same as before, only this time round, it's bigger and brighter, with a few more spells and a much enhanced character interaction routine.



In fact, talking with the people in the game is one of the most important features of Ultima IV. It is virtually impossible to solve the quests without talking to all the people in each town. The sort of conversation you would want to embark on typically would be to ask their name, and then about their job or health. Picking up on the wording of their answers will give you the basis for your next question and so on. Conversely, the people you speak to may choose to ask you a question, in which case you need to answer honestly. Depending on how these conversations go will result in you getting important information, or an additional member to your party, this second option is particularly useful in strengthening your party and should be done as soon as possible.



The storyline for Ultima IV begins with something a bit different as well. You get a brief text story, about your afternoon walk in the country where you find a comfortable tree to rest against. On closing your eyes you suddenly hear a pitched sound and see before you, a shimmering blueness rising from the ground. This soon disappears to leave a ring of stones and an amulet shaped like a cross. It is an Ankh, the sacred symbol of life and rebirth, and with it is a book wrapped in a cloth. The cloth turns out to be a map of Britannia and the book is in fact two works: the history of Britannia and a cluster of magic spells (these three items are contained in the game box and very well produced they are too).

"After this you are transported to Britannia to try to become an Avatar, the highest honour known to the kingdom."

After a few screens of pretty pictures depicting a carnival you are drawn to an old gypsy wagon, where upon answering a few questions your hit status and general well being is decided. After this you are transported to Britannia to try to become an Avatar, the highest honour known to the kingdom, and goes to the one who becomes enlightened in all Eight Virtues of the Avatar.

Before playing you need to copy a character disk, and this is the one you play with throughout. It is advisable to save your status many times in order to not die a violent and tragic death that you cannot return from, and remember that although monster bashing is part and parcel of Ultima's enjoyment, it is not the be-all and end-

all of it. The trick is to discover as many of the Virtues as you can, and they are hidden deep in the temples all over the Britannia. There are eight principal towns to visit, each unique in look and feel, and many sub-quests to be completed before intelligence is gained about which prayer to chant in which temple in order to find those hidden virtues and be on your way to becoming an Avatar.



For those of you turned on by the Amiga's fabulous graphic capabilities and stereo sound Ultima is not for you. If you really want the greatest challenge in your role-playing life then get Ultima for the ultimate experience and catch up on a little bit of history in the making.

My only wish is that Ultima V hurries along sooner rather than later, the role-playing audience out there are waiting with bated breath.

A.M.

AMIGA 500-THE GREAT COVER UP!



CONLY CONE II NOW!

Your swish new Amiga 500 should not be subjected to the ordeal of C — coke, coffee, crumbs and crips — at least not while you are not using it! So the best thing to do is cover it up — keep it protected by an exclusively designed Amiga 500 cover. Each CCI Amiga 500 cover is tailor-made, to fit the machine. It has the official Amiga logo printed in full colour on the top and is specialy created to give complete protection against dust and other damaging substances. It is expertly sewn throughout, fully bound and manufactured from very high quality grey supported nylon material.

It has a special mouse pocket and the whole cover fits snugly over the complete Amiga 500 computer, giving it extra protection to help keep it in good working condition.

The Amiga 500 co	over — only £7.99 inc. p&p.
Commodore Amiga User 40 Bowling Green Lane, L I enclose cheque/P.O. N for the amount shown al my ACCESS account No	ondon EC1R 0NE lo. bove payable to 'Croftward Ltd' or please debit
ШШШШ	
Signature	Expiry date
Name	

Telephone Number

Address

lease allow 28 days for delivery





Supscription rates
UK: £16.50
Europe: £26.50
Outside Europe: £39.50 Cheques/postal orders should be made payable to Croftward Ltd





11/13/5/5/19/21/19

12 MONTHS WARRANTY ON ALL PRODUCTS Specialists in Mail Order

Tel. (0703) 330544

We Only Sell Genuine Specified Amigas



MEGASOFT

SOFTWARE CLUB **ENORMOUS DISCOUNTS** ON SOFTWARE Membership £20 per year Introductory membership SPECIAL OFFERS

£30
£5
£5
£5
£5
£8.95
£8.95
£8.95
£8.95

ACCESSORIES

Amiga A501 RAM Exp

£129.95 inc VAT Mouse Mat £4.95 inc VAT Amiga Dust Cover £4.95 inc VAT Philips 8833 Dust Cover

£7.95 inc VAT **Printer Cables** POA Printer Ribbons POA £9.95 inc VAT Amiga Joystick 2 x Amiga Joystick £17.95 inc VAT TV Modulator £19.95 inc VAT

LC10 Sheet Feeder £55+VAT LC24-10 £290+VAT CMB MPS 1500C £179+VAT Star Lazer Printer £1495+VAT EXP 1081 Pan £139+VAT NEC PP 2200 £277+VAT MP 135 £129+VAT Epson LX800 £189+VAT Zerox 4020 £949+VAT **HP Paint Set** £775+VAT

MEGA DISKS

31/2" D/D Bulk £1.40 inc 10x31/2" D/S, D/D in plastic box **£14.95**

20 x 31/2" D/S, D/D in lockable disk box

MEGALAND MEGA PACK SAVE OVER

£250

AMIGA A500

FREE Photon Paint **FREE** Skyfighter

FREE Las Vegas

FREE Demolition

FREE Gridstart

FREE Karate Kid II

FREE Goldrunner FREE Wizball

FREE Platoon

FREE PO disks with 24 games

FREE TV Modulator

FREE Joystick

Amiga B200 Mega Pack XT Bridge Board 2090 Controller and 20MB Hard Disk 1084 Monitor **FREE Photon Paint**

FREE DELIVERY

£1399

B2000 - £839 + VAT

2090 Controller and 20MB Hard Disk £499 + VAT B2000 Internal 31/2 Drive £75 + VAT XT Bridge Board

£399 + VAT

Cumana 51/4" external floppy drives (Model CAS 1060 S) FREE copy of transformer FREE DELIVERY £159.95

Vision 2400 Stereo (Badged Philips 8833)

£189 + VAT

SPECIAL OFFERS

STAR LC/O Colour Printer FREE A500 or B2000 Connecting Cable FREE Black Ribbon FREE Colour Ribbon **FREE Delivery Enormous stocks** £259.95 inc. VAT LC10 £219 inc VAT, delivery and 2 black ribbons 3.5 inch EXTERNAL FLOPPY DISK DRIVE For your Amiga A500, A1000, B200 Using Citizen Drive Mechanism On/Off Switch Through Port Connector One Megabyte Unformatted capacity Very quiet

FREE DELIVERY £85 inc VAT

LC10 Sheet Feeder	£55+VAT
LC24-10	£290+VAT
CBM MPS 1500C	£179+VAT
Star Laser Printer	£1495+VAT
KXP 1081	139+VAT
NEC PP2200	£277+VAT
LP 135	£129+VAT
Epson LX800	£189+VT
XEROX 4020	£949+VAT
HP Paintset	£775+VAT

1084 £199 1084 Stereo £209 Philips 8833 £219 Vision 2400 £189 Please deduct a further ten pounds if ordered with Computer

Cumana CAX354 £76+VAT **B2000 Internal Drive** £75 £99+VAT Commodore 1010

I wish to order Tel. No 0703 330544



OPENING SOON!!! RETAIL CASH & CARRY PHONE FOR **DETAILS**

SEE US **ON STAND 40/41**



Pacmania

Grandslam



acmania, the latest in the Pac series takes us back to the simplicity of the game that introduced the famous gobbling globe to our screens. The '88 remix takes advantage of the leaps forward in technology since then, beefing up the game to comply with today's strict standards.

For anyone new to the game, the idea is very straightforward. Guide Pac around the maze, gulping dots as you go, not forgetting to avoid the deadly ghosts. Eat a power pill and the tables are turned, giving you the chance to digest on spooks that get in your way.

Update number one is the revamped look. The 2D maze now has a 3D slant which gives everything a lovely solid feel. To make it all more attractive, Pac and the ghosts are a lot bigger than before, which means to accommodate a decent sized playing area, the mazes take up a few screens of scrolling background.

"Unlike the original,
Pacmania gives you the
choice of three start
levels, ranging in
design and difficulty"

The biggest new feature in the gameplay is Pac's ability to jump. A flick of the fire button can get you out of certain spots that would have been fatal in the first game. Fruit still appears beneath the ghosts' central refuge, but other goodies such as

turbo pills and cups of coffee have now been added for further bonuses.

Also there is the incentive of further levels with new features later in the game. Pacmania was recreated on the

Pacmania was recreated on the Amiga by programming team Teque, authors of The Flintstones and Terramex. They have done a terrifically expert job, converting the game amazingly accurately. Not only are the graphics bold and colourful, Pacmania is one of the few games that uses the entire screen, leaving none of those black borders we are used to seeing. Lively tunes back the game together with familiar effects.

Every now and then a game comes along that establishes itself as a firm favourite in the office. Pacmania is the latest and has proven its instant playability with old hands and novices alike.

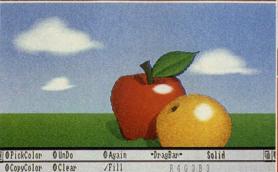
The familiarity of the gameplay may cut down lastability levels for experienced "paccers", but kids, part-time gamers and addicts of the coin-op should be sure to grab a copy as soon as possible. Highly recommended.



Grahics: 8 Sound: 7 Playability: 8 Value: 8 Price: £19.95

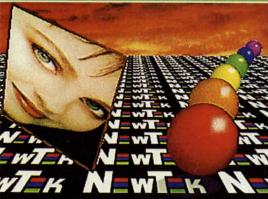




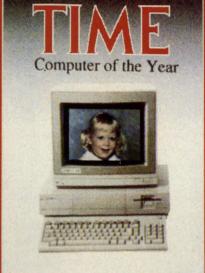














ONLY DIGITATION PAINT CAN DO ALL THIS

Digi-Paint gives you the best Amiga graphics possible — using all 4,096 colors at once! Unleash your creativity with powerful tools and dozens of special effects, including blend, shade, tint and mirror. Digi-Paint is the perfect way to manipulate pictures digitized with NewTek's Digi-View Gold. Create images for printouts, presentation or desktop publishing with the award winning Digi-Paint.

Here's what people are saying about Digi-Paint . . .

"We were very impressed with the power of Digi-Paint. We found lots of potential for creativity and enjoyment."

AMIGA WORLD

"We've been blown away by the effects and the tools that Digi-Paint supplies. The results can be spectacular."

INFO

"Digi-Paint is the first paint program that makes it feel as if you're actually painting. Digi-Paint gives you unlimited freedom."

COMPUTE!

"We have personally seen \$40,000 computer graphic terminals that couldn't come close to Digi-Paint's power."

COMPUTER SHOPPER

"Digi-Paint is remarkable."

BYTE

"Digi-Paint is a \$60 wonder. Using the dizzying menu of features, the results can be startlingly realistic."

VIDEO MAGAZINE

"Digi-Paint is a new generation paint program with exciting and unique features you will simply not find anywhere else. It is extremely powerful, and at its price, it's a steal."

AMAZING COMPUTING

Digi-Paint is available now at your local Amiga dealer or call 010-1-913-354-1146

PAL VERSION f 39.95



TORCH



Julia Forester discovers a sheep in a wolf's clothing . . .

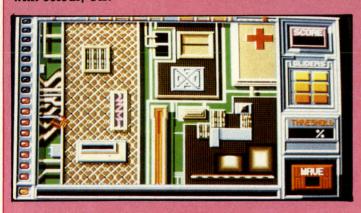
OU know, copy writers are really starting to get up my nose. They are the chaps responsible for dreaming up the mindless dross printed on software packaging to tempt you to buy a particular product. Case in point, Torch 2081, or so the blurb says is set in the 21st century; where, firey remnants of some previous nuclear warfare are bombarding the surface of the planet Torch.

You are cast in the role of a brave young fighter pilot and the last hope of defending your home planet with nothing but a 20 year old surface defence glider. The glider has no weapon systems but instead is used to construct and maintain a metallic shield 10 miles

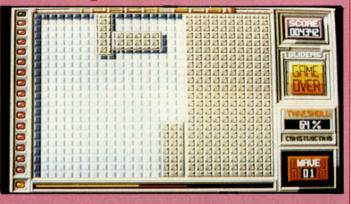
above the surface of the planet.

This all sounds great until you boot the game and start to play. Am I suffering from déja vous? Isn't this a Qix? Qix (pronounced kicks) is a very old game now. It used to be an Atari coin-op, but that was years ago. Since then it has vanished into the long lost mists of time and 8 bit conversions. This is, as far I know it's first venture out onto the 16 bit stage, albeit wearing new clothes. But was it worth it?

The idea of Qix and therefore Torch is essentially to fill a set percentage of the screen with colour. To do this you drive around the perimeter, launch yourself off and fly to another part — the path traversed being marked by a thread or road — in so doing, two parts of the perimeter wall become joined together and the area of the rectangle outlined by the new road is filled with colour, OK?



Digital Concepts



While you're busy doing this the baddies are trying to stop you. In Qix, the Qix were a set of flashing lines which bounced randomly between the boundaries and would destroy you if they touched a road while you were building it. Additionally there were the Pigs, these little fellas nipped around both the perimeter and the new roads trying to ram you. Once rammed you lost a life. On later screens the Qix also released Sparx which had very much the same effect.

In essence, Torch is exactly the same with the major difference being the vastly improved graphics. The Qix have been replaced by glowing fireballs. Pigs by the perimeter patrollers and the Sparx by spitfires — blobs of fire. Other than that, there are a few extras like bonus multipliers and extra lives to pick up but

nothing exciting.

The reason I am a bit miffed with Torch 2081, is it presents quite valiantly to be something new — when in truth it isn't. Qix was a good game with simple graphics and excellent gameplay, even a little strategy. Torch on the other hand has only average graphics by Amiga standards and plays in virtually the same way. Now while I have nothing against revamps of old games — just look at Arkanoid and the other spin-offs all spawned from Breakout — I dislike the same old formula with little else added. I can only hope Digital Concepts will try harder next time.

J.F.





All prices include VAT/delivery

SPECIAL OFFER AMIGA PACK

Our new special offer pack includes the following:

- ★ Amiga 500 computer
- TV Modulator * Mouse & Mouse mat
- * Joystick
- Photon
- ★ Karate Kid II
- * Sky Fighter
- ★ Quiz Am ★ Black Shadow
 - ★ Las Vegas
 ★ plus 5 disks of public domain s/ware

* Grid Start

* Demolition

The total retail value of extras supplied is £270.45.

All this for only £399.00!

P	
Pye 1022 TV/Monitor excellent medium res. picture, with	
full remote control as well. Lead supplied, next day delivery	£199.00
Philips CM8833 colour monitor suitable for Amiga 500	£259.00
Philips CM8852 monitor as above, but higher resolution	£299.00
Philips TV Tuner AV7300, use with any composite monitors	£79.00
Word Perfect	£149.95
Superbase Personal	£69.00
Superbase Professional	£179.95
Logistix	£79.95
Amiga 500 Dust Cover, protect your computer	£4.95

Cumana 5.25" External Floppy Disk Drives

(model CAS 1000 S)

We are now supplying whisper quiet slimline 5.25" floppy drives for the Amiga user from Cumana. The 'Transformer' compatible drive features an integral power supply, 40/80 track switching, 360/720K formatted storage capacity and throughport connector. It also has an on/off switch which effectively unplugs the

drive from the Amiga when it is not required.



Only £34.95

inc.VAT/delivery

Probably the best and most complete 3.5" disk copier for the Amiga user. Can even copy MS-DOS, Atari ST, CP/M, Xenix and Archimedes disks. Because of the high specification of the Amiga drive, this copier is probably the best for the Archimedes or ST. Also includes track editor. Updates will be available in the future as and when new software protection schemes arise.

Hugely successful 9 pin printer, the Star LC10 provides 4 NLQ fonts (with 96 print combinations) at 36cps and 144cps draft. Has a large 4K buffer and IBM/parallel interface built in, includes a comprehensive front panel operation and features paper parking, allowing single sheets to be used without removing tractor paper.

as from 1st September Our reflect this change. Please er this when comparing prices.

Colour version also available,

Only £269.00 Prices include 2 extra black ribbons free of charge.

Star SF-10DJ cut sheet feeder for LC-10	£64.95
Star LC24-10 feature-packed multifont 24pin printer	£339.00
Star NB24-10 24 pin printer 216/72 cps,	
including cut sheet feeder and 2 extra ribbons	£499.00
Star Laserprinter 8 high specification 8ppm / 300dpi laser,	
(price inc. 1 year on site maintenance)	£1795.00
Panasonic KXP1081 reliable 9pin 10" printer 120/24 cps	£169.00
NEC P2200 budget 24 pin 168/56cps	£319.00
NEC cut sheet feeder for P2200 printer	£69.00
Citizen 120D budget 9pin 10" 120cps	
Citizen LSP-100 budget 150/30cps 10" carriage	£169.00

AMIGOS low price hard disks

'Amigos' good value hard disks now available, incorporating ever-reliable Seagate mechanisms with an average access time of 65ms for 21Mb and 30Mb, and 40ms for 40Mb and 60Mb versions. Including cooling fans, they are smartly and sturdily cased in beige, colour matched to your Amiga. They are even strong enough to stand your monitor on top. Software included.

21 MEG £399.00 30 MEG £469.00

40 MEG £549.00 60 MEG £649.00

EXTERNAL DRIVES using Citizen drive mechanisms



Suits Amiga 500 or Amiga 1000
 Top quality Citizen drive mechanism
 On / Off switch on rear of drive

Throughport connector
 One megabyte unformatted capacity
 Slimline design

Very quiet
 Long cable for location either side of computer
 Full 12 months guarantee

Ultra low price!

£89.95

inc.VAT and delivery

25" Dieke

١	J.J DISKS	
-	10 Bulk packed DS/DD 3.5" disks with labels, fully guaranteed	C11 OF
Ì	25 bulk disks as above	£27.95
	10 disks as above with plastic case	£13.95
1	25 disks as above, with 40 capacity	2000
		£34.95
	Verbatim DS/DD disks, top quality media	040.00
	with lifetime guarantee. Box of 10 only SKC MF2DD DS/DD 3.5" disks. Box of 10	£19.95
	ONC MITZULU DOVUU 3.5 CISKS. BOX OI 10	217.90

How to order from

vesham Micros

Phone us with your ACCESS or VISA card details on: **T** 0386-765500

All prices include VAT and delivery. Next day delivery £5.00 extra. Send cheque, Postal Order

or ACCESS/VISA card details

Govt., educ. & PLC orders welcome Same day despatch whenever possible All goods subject to availability, E.&O.E. Open to callers 6 days, 9.30-5.30

Evesham Micros Ltd 63 BRIDGE STREET EVESHAM WORCS WR11 4SF © 0386-765500 0386-765354 lex 333294 fax 0386-

Also at: 1762 Pershore Rd., Cotteridge, Birmingham B30 3BH Tel: 021 458 4564



GIFFOR

21 WHERNSIDE AVENUE, LANCASHIRE TELEPHONE 061-330 9939

	A ! F	th - II Managar II	£14 95	Pink Panther	£14	4.9	95
Title 19	CALOFF	I- O Crand Briv	£ 14 95	Platoon	L 10	0.7	13
19	.£14.95 F	ormula One Grand Prix	C19.35	Plutos	f1	1.2	25
19 1943	.£18.75 F	oundations waste	C10.75	Palice Quest	£18	8 7	75
A	£10 75 C	N	t 1 1 / h	Protector	*****		50
A market and a second a second and a second	478 /h c	_ _	118/5	I madranen	****	7.0	00
Arcade Classics Vol 1	. f 18./5 (Colden Path	L 14.33	Rally Silliulator			
Arcade Classics Vol. II	£14 95	Sorilla Ware	£18.75				
Arkanoids	£18 75	Cont Cianna Sisters	£18.75	Realm of the Troils	£18	8.7	75
Army Moves	£14.05	reat Glaina Sisters	£18 75	Return to Genesis	£14	4.9	95
Army Moves	C14.95 (dulid of Thieves	£18 75	Road Blasters	f1	8.7	75
Astoroth	E14.95 (iunship	67.50	Roadwar 2000	£11	8 7	75
Backlash	£14.95 F	lacker	C10.75	Roadwar Europa	£11	Q.	75
Bad Cat	£18./5 F	lardball/Mean 18	E 10.75	Roadwar Europa	61	1 0	05
Ralance of Power	£22.45 L	Jelter Skelter	L 1.Z5	Roadwars	L 1	4.3	15
Ball Rider	£14.95 p	lero's of the Lance	£18.75	Rocket Ranger	EZ.	2.4	45
Rarharian (Psygnosis)	£18.75 F	Hill 19	£ 14.95	Rockford	£1	4.	95
Barbarian (Palace)	£14.95 F	Hollywood Poker	£/.50	Roque	£	1.	50
Parharian II	f14.95 L	Hollywood Poker Pro	£18./5	Rolling Thunder	£1	8.	75
Battleshins	£14.95 i	Hostages	£18.75	Rugby League	£1	1.	25
Battleships	.£18.75	Hunt for Red October	£18.75	Scrabble Delux	£1	4.5	95
Better Dead Than Alien	£14 95	Ludionie	£14.95	Screaming Wings	£1	1.	25
Beyond The Ice Palace	£18.75	kari Marriore	£18.75	Seconds Out	f1	4	95
Beyond The Ice Palace Beyond Zork	£19.75	Kall vvalilitis	£11 25	Seige on London	f1	4	95
Beyond Zork	C14.05	mpact	£18.75	Sentinel	£1	0	95
Black Lamp		mpossible Mission II	£19.75	Shadowgate	£1	8	75
Black Tiger	£18.75	nsanity Flight	£14.0E	Snadowgate	E1	0	75
PMV Simulator	£11 25 I	nternational Soccer	L 14.90	Sherlock	L1	0.	AF
Romb Rusters	.f14.95 I	nto the Fagles Nest	£14.95	Shiloh	L2	2.	40
Romb lack	£14.95	let	LZ9.90	Side Arms	£1	8.	15
Pone Cruncher	£11.25	let Scenery Disks	£ 14.95	Sidewinder	£	.7.	.50
Brainstorm	f7.50	lewels of Darkness	£ 14.90	Silent Service	£1	8.	.75
Rubble Robble	f14.95	links	£18./5	Silicon Dreams	£1	4.	.95
Bubble Ghost	£18.75	linyter	£18.75	Sinhad	£1	8.	.75
Buggy Boy	£14 95	loan of Arc	£18.75	Skyhlaster	£1	4.	.95
California Games	£19.75	les Plade	£7.50	Slaygon	£1	14.	.95
California Games	C10.75	Joe Blade	£11 25	Soccer Supremo	f1	11.	25
Captain Blood	E 18.75	Jump Jet	£18 75	Soldier of Light	f1	8	75
Carrier Command	£18.75	Karate Kid Part II	C11 25	Space Baller	£	7	50
Casino Roulette	£14.95	Karate King	C22 45	Space Baller	61	0	75
Chamonix Challenge	£18.75	King of Chicago	£22.40	Space Harrier	C1	10,	05
Championship Cricket	£11.25	King Quest 3 Pack	£18./5	Space Ranger	E I	14.	95
Championship Golf	£26.25	Knight Orc	£14.95	Spidertronic	£	14.	95
Championship Golf	£18.75	Leaderboard	£18.75	Spinworld	£1	14.	.95
Chubby Grietle	f14.95	Leaderhoard Collection	L 10./2	Spittire 40	£1	14.	.95
City Defence	f11 25	Leatherneck	£14.95	Spitting Image	£1	14.	.95
C-IChassa	£19 75	I award of the Civerd	1 18.75	Star Glider	£1	18.	.75
Computer Hits	£22.45	Leigure Cuit Larry	£22.45	Star Glider II	£1	18.	.75
Corruption	C10 75	L'ittle Commuter Popule	£7.50	Star Bay	f1	18.	75
Crack	E10./5	Little Computer reopie	£14 9F	Ctor Mara	f1	14	95
Crack	£14.95	Live and Let Die	£18 7F	Steve Davis Snooker	£1	14	95
Craps Academy	£18.75	Madadam Bumper	C14 OF	Stir Crazy (BoBo)	£1	11	95
Crash Garrett	E18./5	Mach III	£10 70	Stockmarket	C1	11	OF
Crazy Cars	£18.75	Mean Streak	C10.7	Stockmarket	L	14.	00
Cubarnaid	£14 95	Mercenary Compendium	L 10./3	Storm Lord	L	14.	25
					£1	18.	./5
Dungeon Master	L18./5	Nord & Bert	£18.7	Technocon	f	14	95
Fire Blaster Flight Sim. II	£29.95	Phantasie III	£140	5 Time Pandit	F	14	gr
Football GFL	£18.75	Pinball Wizard	L 14.9	5 Traders		. 0	.,.

D SOFT

ASHTON-UNDER-LYNE OL6 8UY (9.00am to 6.00pm)



Trackers	£18.75
Triv Pursuit new beg	£14.95
Trivia Trove	£7.50
Typhoon	£18.75
Ultima III	£18.75
Ultimate Golf	f14 95
Uninvited	£20.20
Universal Military Sim	£18.75
Vampire Empire	
Vectorball	f11 25
Victory Road	£18.75
Virus	£14 95
Wanderer	
War in Middle East	
Wargame Const Set	
Warlocks Quest	
Way of the Little Dragon	£14.95
Wec Le Mans	£10.75
Whirligig	£14.05
Winter Comes	C10.75
Winter Games	
Winter Olmpiad	
Wizard Warz	
Wizball	
World Darts	
World Games	
World War II	
Xennon	£14.95

OTHER DETAILS

All software is guaranteed and will be replaced without question. We also supply software for the following machines:

Amiga, Spectrum, CBM64, BBC, Electron, Msx, Sega, Nintendo, Atari 8 Bit, PC & Compatibles, Apple, Amstrad, C16.

Also with every order over £20 we will give you a free disk. All orders will be despatched within 24hrs (subject to availability). We also supply a full range of computers and peripherals and all hardware needs.

PRIZE DRAW INFORMATION

With every £10 spent with us the customer will receive one entry into GIFFORD SOFT PRIZE DRAW. All purchases for the draw must be accompanied with the coupon provided in the advert. All entries must the received by us NO LATER than the 31st December to enable the draw to be held on the 4th January.

The prizes are as follows:

- An ATARI STFM Summer Pack with over £400 of software plus the current top three games in the gallop chart at the time of the draw or a CMB PCI with Mono Monitor.
- £100 software voucher to be redeemed against any software of your choice. 3. A £50 voucher to be used against any software to your liking.

POSTAL DETAILS

All prices inc. VAT and first class recorded delivery in the UK.

Overseas please add £2.00 extra. Please send SAE for a free price list stating machine used. Please do not send cash through the post and if you must send it recorded delivery. If you require an up- to-date, information list on the latest releases, please phone the above telephone number for immediate attention.

To: GIFFORD SOFT, DEPT PCW. 21 Whernside Avenue Ashton-under-Lyne, Lancs. OL6 8UY

Please send me copies of
Please send me copies of
Price £
Name
(BLOCK CAPITALS) Address
Post code

Cheques payable to: GIFFORD SOFT

We are open six days a week till 6.30 p.m.

QUME SCRIPTEN

Desk Top Publishing has, up until recently, not been taken very seriously. This was primarily due to the limited quality of the final output. The advent of laser printers has begun to change all that. John Walker was happy to put one to the test.

aser printers are already into their second generation, though the new machines follow the pattern set at the beginning, with the virtually simultaneous appearance of the HP LaserJet and the Apple Laser-Writer.

Once, the LaserJet, was aimed at replacing the daisywheel and the dot-matrix printer for business use. The other, the LaserWriter, aimed more to emulate typesetters. The difference between them was cost and Adobe's PostScript, the page description language that gave Apple's machine its power.

For a time, the Apple LaserWriter was the only PostScript printer available. That situation has now changed, as more manufacturers rush to bring out machines that undercut Apple in price, or offer more for the money. One of the newest competitors is Qume's ScripTEN, which is a development of an earlier laser printer that emulated the LaserJet and its successors. It can still do that but it also has a PostScript driver so that it can keep up with the LaserWriter as well. Its advantages over earlier Post-Script printers are its speed - it can print, as its name suggests, ten pages a minute rather than the more usual six or eight — and its use of a 'write white' engine.

The first laser printers used a 'write back' engine, which gave areas of solid black a rather sport look. With a 'write white' engine, the blacks are very black and of an even density. The trade-off is that the serifs on typefaces are slightly thicker, which makes the smaller type-sizes, of 6 point or less, less easy to read.

The Qume can be connected to the Amiga either by the parallel port, using a standard cable, or via the slower serial port. It can be used with the Preferences HP LaserJet driver. But it is obviously at its best in Post-Script mode, although the number of Amiga programs that use PostScript is still limited. There are Excellence! and Professinal Page and that is about it, for the moment, although a PostScript driver for ProWrite 2.0 is on the way. It will not be long before there is a draw program for creating high quality graphics with PostScript.

Inside the ScripTEN is the same processor as the Amiga's — a Motorola 68000 - 3 megabytes of RAM and Adobe's Poscript version 47.1, which helps explain its hefty cost of \$4995. It comes with 35 typesfaces in ROM: Times Romad,ITC Avant Garde, Helvetica Narrow, Helvetica, Palatino, Courier, New Century Schoolbook and ITC Bookman in standard, bold, italic (or oblique) and bold italic (or oblique) styles, Zapf Chancery in medium italic and two collections of signs - Symbol and Zapf Dingbats. Downloadable fonts should be available for it soon. They are already around for the IBM PC and Macintosh but laser printer makers are taking a little longer to realise that the Amiga has arrived.



The ScripTEN is a bulky printer and not something that you would want to move around much, since it weighs around 20lbs. It is easy to use, with a knob at the back to set the correct interface, a simple panel on the front containing three buttons - for Form Feed, Manual Feed and Self Test and a variety of lights to indicate some problem such a paper jam. It has a paper-tray that holds 250 sheets of paper for automatic feed, or it can be fed in a sheet of so at a time manually when used for printing labels and the like. Running costs work out at around 2p a page, plus the cost of the paper.

In use, it is quiet — quieter than an Amiga 2000's fan. As with all laser printers, there is an appreciable pause when you switch it on until it warms up and prints a test page to show that it is working. Complex pages also take their time to be printed. You can wait 20 minutes or more for the first page of detailed graphics to emerge. After that, copies follow on every six seconds.

It is the versatility of PostScript laser printers that appeals. They can print text and graphics in 16 shades of grey and rotate and scale fonts to virtually any size. The Qume's quality to print matches that of the LaserWriter that I previously used.

I can say little about the ScripTEN's reliability in the long-term — or even in the short term. The machine comes with a year's on-site warranty which, in my experience, is just as well, as my ScripTEN developed a serious fault after less than two months' use. The company contracted to do Qume's maintenance responded swiftly and efficiently to my increasingly desperate calls. However, at the time of writing, its problems remain unsolved.

Price: \$4995 J.W.

LAN COMPUTER SYSTEMS



SHOW ROOM OPEN MON TO SAT 10.30am to 5.30pm ONE OF EUROPES LARGEST AMIGA CENTRES WE ONLY SELL GENUINE U.K. SPEC AMIGA



LAN AMIGA SOFTWARE PACK

AMIGA 500

Free 20 programmes condensed onto 2 disks for your convenience.

FREE MOUSE MAT FREE DUST COVER FREE DELUXE PAINT! FREE JOYSTICK
£100 OF SOFTWARE WITH YOUR AMIGA

YES YOU CHOOSE THE SOFTWARE YOU WANT WITH YOUR AMIGA (£100 RRP) IF YOU WISH TO ORDER A TV MODULATOR THEN YOU WILL HAVE £75.00 TO SPEND ON SOFTWARE

£419 INC. VAT

* MONITORS *

1084 High Res Col monitor £199.00+VAT if purchased with computer £189.00+VAT Philips 8833 monitor £219.00+VAT if purchased with computer £209.00+VAT High resolution monochrome monitors from £69.00+VAT

tors from £69.00+VA

* ACCESSORIES *

A501 RAM expansion	£99.00 inc VAT
Mouse mat	£4.95 inc VAT
Amiga dust cover	£4.95 inc VAT
Philips/1084 dust cover	£6.95 inc VAT
31/2" disk drive cleaning kit	£7.95 inc VAT
TV modulator	£24.15 inc VAT
10 Sony D/S 3.5 disks 20 Sony D/S 3.5 disks in	£14.95 inc VAT
80 capacity lockable box	£29.95 inc VAT

* DRIVES*

Cumana CAX354 with on/off switch £99.95 inc VAT Supra 20mb hard disk £400.00 inc VAT

* PRINTERS *

Citizen 120D	£129.00+VAT
Panasonic KXP 1081	£145.00+VAT
Star LC 10 Printer	£199.00+VAT
Star LC 10 Printer, Stand	Paper +
Cable	£209.00+VAT
Nec 24 Pin Printer	£269.00+VAT
Epson LX 800	£179.00+VAT
256K Printer Buffer	£160.00+VAT
Printer Cable	£13.00+VAT
Box of Paper 2000 Sheets	£13.00+VAT
Printer Stand	£9.95+VAT
Printer Stand	£26.00+VAT
Printer Ribbons from	£3.00+VAT
New Star LC24-10	£299.00+VAT

* SPECIAL OFFER *

Star LC10 Colour Printer (Parallel Version) £239+VAT

> LC10 Colour Printer Commoddore 64/128 £199+VAT

Okimate 20 Colour Printer £139.00 inc VAT

All prices exclusive of VAT + delivery unless otherwise stated

AMIGA COLOUR PRINTER PACKAGE

AMIGA 500. Free Mouse Mat, Free Dust Cover, Free Deluxe Paint 1, Free 20 programmes condensed onto 2 disks for your convenience.

Okimake Colour Printer
The Work (Word Processor, database +
worksheet)
SAVE £100

£499 + VAT

* AMIGA B2000 *

Phone Phone
£849.00
£399.00
£399.00
£399.00

A501 RAM EXPANSION NOW IN STOCK

APPLICATIONS SOFTWARE

The Works All For £69.00 inc. VAT

A Wordprocessor + Database and Spreadsheet

The Works is A Three in One Pack

Scribble 2 is the Word Processor Analyse 2 is the Spreadsheet Organise is the Database

LANSOFT CLUB

The Club for St and Amiga users everywhere all prices include VAT

- ★ Special Introductory Prices ★
- ★ Membership £20 (per year) ★
- ★ Save up to 80% off Games Software ★
- ★ Up to 30% Off Application Software ★ Special Club Prices on Cumana Disk Drive £89.00 inc VAT

01 597 8851 1063 HIGH RD, CHADWELL HEATH, ROMFORD, ESSEX, RM6 4AU

HOW TO ORDER

Telex: 995548.

Enclose letter with cheque, postal order or credit card number for amount including VAT and delivery charge. Credit card holders may order by telephone. Contact sales desk. Dispatch normally in 24 hours. Prices current at time of going to press. Subject to availability.

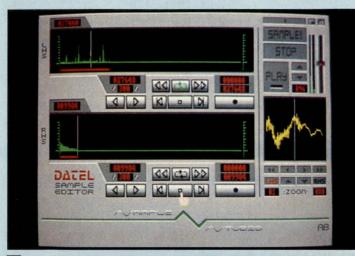
Official Orders from Educational Establishments, Local Authorities and Government departments welcome. Contact Education Department. FAX: 01-590 6057. Telex: 995548.

TV TUNER

Turn your monitor into a TV. 12 Programmes selection complete with all cables + aerial switchable between TV + computer.

ONLY £59.00 + VAT if ordered with monitor £55.00 + VAT

DATEL ELECTROPICS





AMIGA PRO SAMPLER STUDIO + DATEL JAMMER

- A top quality sound sampling system at a realistic price.
- 100% machine code software for realtime functions. HiRes sample editing.
- Realtime frequency display.
- Realtime level meters.
- Files saved in IFF format.
- Adjustable manual/automatic record
- Variable sample rate & playback speed. Seperate scroll line waveform windows plus zoom function with Edit windows for fine accurate editing.
- 3D shot of sound waveform. Wave editor to design your own waveforms or adjust existing ones. Microphone & line input 1/4" Jack &
- Din connections. Software files can be used within other music utilities

To complement the Sample Studio the Datel Jammer gives you a 5 octave keyboard to play & record your sampled

FEATURES:-

- 4 track sequencer up to 9999 events.
- Tempo & Beat controls.
- Mixer Controls on Instruments.
- Load & Save sequence.
- Works on standard IFF file sounds.



ONLY £69.99 PLEASE STATE A500/1000/2000



MIDIMASTER

- Full Midi Interface for A500/1000/
- 2000 (please state model). Compatible with most leading Midi packages (including D/Music).
- Midi In Midi Out x3 Midi Thru. Fully Opto isolated.
- No need to pay more Full Midi

ONLY £34.99

MIDI CABLES

- Top quality.
- 3 metre length.

ONLY £6.99 PAIR UNBEATABLE VALUE



MIDI MUSIC MANAGER

A TRULY PROFESSIONAL MIDI PACKAGE AT A REALISTIC PRICE

- Play sampled sounds on Amiga from any Midi track.
- Full dubbing listen to one track while recording another.
- Works with many Midi interfaces including Datel Midi Master (see Ad) 8 realtime Midi tracks for record/
- playback. Adjustable track length limited only
- by available memory. Works with standard IFF files.



DISC/STORAGE DATA/SWITCH BOX OFFERS

DD40 holds 40 3.5" discs. Lockable.

ONLY £6.99

DD80 holds 80 3.5" discs. Lockable.

ONLY £8.99

DISCS

- 3.5" DS/DD.
- Top quality, bulk packed.

ONLY £22.99 FOR 25 DISCS

ROBOTARM

Explore the fascinating science of

- Robot Arm. Human like dexterity - with 5 Axis of
- movement it is so versatile. It can manipulate small objects with amazing ability.
- Easily controlled using 2 joysticks (any 9 pin type) or connect to your Amiga with our Interface + Software to give Computer/Robotic control (see Interface offer).



BOXES

- A/B type connect two printers to one
- computer or vice-versa. Centronics connections or RS232 Serial connections (25 pin). Please state.
- ONLY £24.99

 ABC type connect three printers to
- one computer or vice-versa.
 Centronics or RS232 connections.
 ONLY £34.99

PRINTER LEADS 25 pin 'D' to 36 way Centronics

- parallel lead. 1.2m length.
- A500 or 1000, please state.
- ONLY £8.99

FULL FUNCTION - 5 AXIS MOVEMENT

- Robotics with this full feature
- Comes with Accessories including 'Finger' Jaws, Magnetic Attachment, Shovel Scoop, 4 Stabilizing Suction
- Base Legs, etc.
 Uses 4 HP2 batteries (not supplied) to power motor movement so uses no computer power.
- Self contained, ready to use (except batteries, joysticks).

ONLY £49.99

INTERFACE OFFER

- Unique Software/Hardware package to allow you to interface your Amiga with the Robotarm.
- Train mode allows you to store & then repeat movement sequences.
- Very easy to use.
- This Interface is not needed to use the Robotarm but interfacing with your Amiga has great possibilities.

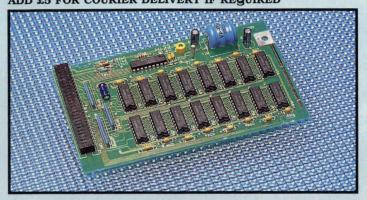
ONLY £24.99 COMPLETE WITH CABLES.

DATEL ELECTROPICS

EXTERNAL 3.5" **DISC DRIVE**

- Slimline extra low profile unit only
- Top quality NEC drive mechanism. Throughport allows daisy-chaining
- other drives A superbly styled case finished in
- Amiga colours.
- Fully compatible 1 meg unformatted capacity.
- Good length cable for positioning on
- Value for money before you buy a drive please compare the features this drive has an NEC drive unit & is housed in a superb housing - many units available are built to a price & not a standard. Don't spend a few pounds less & end up with 'rubbish' & remember you are buying from the manufacturer.
- Complete no more to buy.
- Single or twin drive models available.

ONLY £89.99 SINGLE DRIVE £149.99 TWIN DRIVE ADD £5 FOR COURIER DELIVERY IF REQUIRED



512K RAM EXTENSION CARD

- Available with/without calender/clock option.
- Simply plugs internally into A500 slot.
- Switch in/out with switch supplied.
- Fitted in minutes no soldering etc.
- Accepts 41256 DRams (zero K fitted).
- With calendar/clock onboard time/date automatically booted.
- Battery backed to retain time/date.

ONLY £19.99 FOR STANDARD CARD TO ACCEPT 512K ONLY £34.99 FOR VERSION WITH CLOCK/CALENDAR **PHONE FOR LATEST**

FULLY POPULATED BOARD / RAM PRICES.



QUITE SIMPLY THE BEST DISC COPIER AVAILABLE FOR THE AMIGA (ALL MODELS)

- Superfast disc copier will copy almost any commercial disc
- Friendly user Interface Mouse driven throughout.
- Completly compatible with Amiga multitasking system.
- Even decrypts many encoded programs including D. Print/Video/ Paint/Music/II etc.
- Supports up to 4 drives simultaneously for multple copies.
- Special 'Strategy Files' cope with even the most advanced protection
- Now shipping the latest version.
- Fast option typically around 80
- USA's top selling copier.



EXTERNAL DRIVE

- Switch in/out of external drives.
- Save on memory allocated for drives
- not currently in use. DF1 & DF2 controlled



REPLACEMENT MOUSE

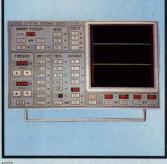
- Fully Amiga compatible.
- Rubber coated ball.
- Optical type

ONLY £24.99

SPLITTER LEAD

Allows joystick & mouse to be connected to same port.

ONLY **£4.99**



DATA ACQUISITION

- UNIT Turn your Amiga into a sophisticated measuring instrument capable of measuring a wide range of data inputs.
- Sample & display events from microseconds to hours- with
- amplitudes from milivolts to 50 volts. A Hardware/Software package with very high spec. including:

DIGITAL SCOPE DISPLAY - 2 channel inputs.Manual or continuos display Timebase 500ms/div to 20us/divaccurate to 5%

6 bit flash conversion gives 2 million samples/sec

PLOTTER DISPLAY

Timebase range 1 sec to 10hrs per plot. All features found on units costing thousands of pounds.

ONLY £89.99 PLEASE STATE A500/1000/2000

ALL ORDERS NORMALLY DESPATCHED WITHIN 48 HRS

BY PHONE

24hr Credit

Card Line

TO VISA

0782 744707

BY POST

Send cheques/POs made payable to "Datel Electronics

FAX 0782 744292

LIK ORDERS POST FREE OVERSEAS ADD £3

PRICES AND SPECIFICATIONS CORRECT AT TIME OF PRESS AND SUBJECT TO CHANGE WITHOUT NOTICE

CALLERS WELCOME - Please reserve goods by telephone prior to visit.

DATEL ELECTRONICS LTD., FENTON INDUSTRIAL ESTATE GOVAN ROAD, FENTON, STOKE-ON-TRENT, ENGLAND.

> SALES ONLY 0782 744707

TECHNICAL ONLY 0782 744324

AMIEXPO LIA 88

IF you are a follower of leading edge Amiga developments then an AmiEXPO is the place for you. Al Meric, an avid follower of Amiga fashion jetted off to the Los Angeles AmiEXPO, held in the appropriately futuristic setting of The Westin Bonaventure Hotel — He reports...

"T'S not quite ready yet", "yeah I know we said it would be finished in August but we want to make sure it is really something special before we release it" etc etc . .

It is almost starting to get boring. The same products at every show, big banners, trumpets, flags and flashing lights all proclaiming the greatest products since 'unsinkable ships' and yet half of then are not even finished yet!

We have seen some remarkable hardware and software displayed show after show, month after month. As Vapoulware, they soon begin to lose their appeal. By the time some of them hit the streets they are going to be last year's news. We won't mention names but; V%d£o_T%a\$@r, P\$b&sing P£\$t&r P£\$f\$\$\n^*I, M*%c X — They know who they are!

Enough of the griping . . . Some products that HAVE made it to our faithful Amigas are: Magellan, an artificial intelligence/expert system building tool from Emerald Intelligence (first presented at Ami-Expo

in Chicago). This product has been designed to enable programmers and non-programmers alike to be able to develop expert systems for almost any application.

The Viking 1 from Moniterm Corporation is a 19" 1008 × 800 pixel, flicker free, high resolution monitor. Sound familiar? It should do as it closely follows the specifications for



commodore's own new high resolution display. The big difference is the Viking 1 is ready NOW!

Pioneer Plague from Antic, publishing review of this *AUI* is being promoted as the first ever game to take advantage of the Amiga's HAM mode. Also from the same stable but due for release later in the year is Zoetrope, a powerful animation package. If the demonstrations I saw were anything to go by then this is going to be a biggie in 1989.

Brown Wagh had us all up at the



continued on page 78 🖠



AMIGA 500

for the price of £349 inc. V.A.T.



Are We Quackers!

Last month we ran the advertisement opposite and it certainly generated a lot of calls. Many people asked if we could also supply computers as well.

The answer is yes.

We are now able to offer not only a service but also offer computers at remarkable prices as you can see. Every Amiga Computer comes fully guaranteed complete with all manuals, 1 meg disk drive, mouse workbech 1.2 and softwae plus BASIC, just plug in and go!

To order this computer or to find out more about our product range complete the coupon below or contact us on 01-800 6632 (10 lines).

Latest Software Releases: Roger Rabbit: £24.95 (Amiga) Transfighter: £19.95 (Amiga)

ORDER YOUR PC ENGINE NOW: £19.95 inc.

ENCOM

ENCOM HOUSE (HEAD OFFICE) 318 ST. ANNES ROAD, HARINGEY, LONDON N15 5TA 01-800 6638 The Encom Sales Team Mail Order Sales: Marcia Connage Export Sales: Wayne Justin Corporate Sales: Chris Bousquet Maintenance: T.W. Graham Executive Director: Terence W Graham

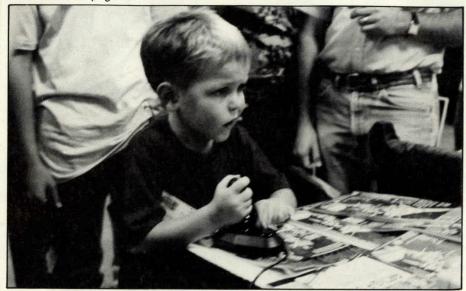
561	VICA
	VISA



TO ENCOM, ENCOM HOUSE, 318 ST. ANNES RD, LONI(Qty) Amiga 500	
(Qty) Colour Monitor (1084)	£220.00
(Qty) Modulator	£213.00
	£19.00
	TOTAL
Please send me your latest catalogue £5.00	
lenclose cheque/postal order for £	
Name	
Address	
*	
	Tel

FIELD REPORTS

continued from page 76



crack of dawn one morning to show us their latest releases; Express Paint 3.0 and MIDI Magic. Express Paint 3.0 now includes virtual pages (image size is no longer restricted by the 512k Chip RAM limitation), unlimited undo's, and 3D perspective to name a few. Turning to music, MIDI Magic we were told was somewhere between Soundscape's Pro Midi Studio and Dr T's KCS — and so it seems from the review in this **AUI**.

A little kinder to us were A.S.D.G. who held their press gathering immediately after the show one evening. We were greeted with some very impressive displays of colour images scanned in from glossy magazine fronts etc with their latest version of the Sharp JX-450 colour scanner. This when combined with their Twin-X card and Spectra-Scan software driver is able to digitize and manipulate high resolution colour graphics between 30-300 dots per inch. However, the colour output obtainable with this system is not restricted to the range of colours displayable by the Amiga.

"A full 24 bits per pixel of colour information is stored and can be used to produce a palette of up to 16 million colours."

Gold Disk gave a stunning display of the output from their latest animation package — Movie Setter. Everybody's imagination was captured by the vivid images combined with a great sound track. Look out Steven Speilberg . . .

Another company to watch for in the field of video presentations is Innovision Technology. They were showing off a 'broadcast' quality titler program that enables the user to load in images and smooth out those nasty jaggies that so often let a great titler program down. Also to be found at their stand was Video Effects 3D. This program can manipulate, high resolution logos and titles causing them to tumble, spin, turn, zoom or shatter.

Page Flipper Plus/Fx although now available in the USA is still not quite ready for the European market. The reason — it has been specially doctored NOT to work on PAL systems. So it's no good sending off to your friendly US Amiga dealer for this one. Precision Software, responsible for the European marketing drive assured me it will soon be available on our FULL screen machines.



Whilst on the subject of Precision Software, they were keen to show me their latest version of Superbase Professional which now has several new features including Comms. The old Superbase Professional (less the database programming language) now becomes Superbase Personal II.

Microillusions were putting Photon Paint II through its paces at their booth much to the delight of crowds of onlookers. It has lots of new features and looks set to get off to a good start as soon as it is released. Photon Video, however, still does not have a firm release date.

MSS, creators of Excellence! are almost ready to start shipping their upgrade to 'The Works!' — 'The Works! Platinum Edition'. This con-



tains five integrated programs instead of its predecessor's three. Also included now are Sideways and a telecommunications facility. The wordprocessor (Scribble!) has been improved and has had its word spelling checker bumped up to 104,000+ word (US English).

Microfiche Filer Plus has been added to the Software Visions' catalogue and is designed to fill the professional niche. It has several extra features over its baby brother including automatic field calculations, HAM and overscan graphics support and optional macro programming using the ARexx language.

The overall feeling of the show was one of 'settling down to some serious business'. Some major applications are beginning to find their way onto the Amiga scene and the quality of much of the software now appearing has a professional feel about it. Yet the Amiga has not lost any of its magic. It was great to watch developers showing off their latest goodies and to see end users look on in disbelief as they saw the latest all singing and dancing demos, and soon, Tim Jennison assures us. very soon, we'll all be playing with Newtek's Video Toaster! At last! The Amiga may have matured but it's still just a big kid at heart!

A.M.

AMIGA 500 XMAS PACK

inc. Modulator, Joystick, Photon Paint, Demolition, Gridstart, Karate Kid II, Skyfighter, Goldrunner, 22 public domain games/utilities

£399.99 inc. VAT

AMIGA 500/1084S Pack

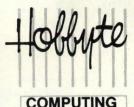
With extras as above, and with NEW 1084S STEREO monitor, but without modulator

£629.99 inc. VAT

AMIGA 500/1084S WITH 2ND 3.5" DRIVE

and Photon Paint

£659.99 inc. VAT



INCORPORATING BUSINE BUSINESS COMPUTER SERVICES

PERSONAL CALLERS WELCOME AT OUR BRANCHES - PLEASE BRING A COPY OF THIS AD WITH YOU TO TAKE ADVANTAGE OF SPECIAL MAIL OFFER PRICES

New... New... New... SEX VIXENS FROM SPACE

Adult graphic adventure game for the Amiga 500.

FULL AND PART-TIME STUDENTS (SCHOOL OR FURTHER ED.) LECTURERS, EDUCATIONAL ESTABLISHMENTS, LOCAL AUTHORITY WORKERS, MEDICAL WORKERS, ETC.

IF YOU CAN PROVIDE AN ORDER ON HEADED NOTEPAPER, OR A LETTER FROM YOUR PLACE OF EDUCATION STATING THAT THE EQUIPMENT WILL BE USED FOR WORK OR STUDY PURPOSES, YOU ARE ELIG IBLE FOR SPECIAL LGEM/EDUCATIONAL PRICES - PLEASE RING IF YOU THINK YOU MAY ALSO QUALIFY:

AMIGA 2000, 1084S MONITOR, 3.5" DRIVE, 5.25" DRIVE

AND XT BRIDGE BOARD

£1099

A500 EDUCATIONAL PACK

INC. DATABASE, WORDPROCESSOR, MUSIC, GRAPHICS SOFTW

INC vat ADVENTURE CONTRUCTION KIT

A500/1084S PACK as above, but including new 1084 stereo monitor

INC vat

SOFTWARE BARGAINS

GUARANTEED LOWEST PRICE - We will match or beat any other advertised price

Business And Utilities

AC Fortran	199.00
Cambs Lisp	79.99
Citidesk	79.99
Introcad	49.99
Kind Words	44.99
Logistix	79.99
Metacomco Toolkit 34.99	
Metacomco Shell	29.99
Prism Plus Paint	49.99
Textcraft	39.99
The Works	79.99
Superbase Pers.	69.99
Transformer	19.95

· Items in bold are at special

Graphics And Music

Aegis Images	24.95
Aegis Video Titler 79.99	
Aegis Videoscape 3-D	9900
Deluxe Paint II	39.99
Deluxe Video	39.99
Deluxe Video Pal	64.99
Express Paint	49.99
Graphicraft	29.99
Soundscape Sampler/Digit.	99.99

BOOKS 10% OFF LIST ALL TITLES.

Games - All titles 20% off RRP

SOFTWARE PRICES INCLUDE VAT

ORDERING

Send cheque or Postal Order for total, plus £8 per hardware item (software carriage free) and VAT where appropriate, to DEPT AAU, Hobbyte Computers Ltd., 10 Market Place, St. Albans, Herts AL3 5DG If you have ACCESS or BARCLAYCARD, phone your order to our Sales Desk on 0727 56005.

2nd 3.5" DRIVE FOR A500 £ 87 AMIGA A500 GENLOCK DIGITISING PACKAGE V3.0- £349 DIGIVIEW, VIDEO CAMERA, LENS & ADAPTOR A501 RAM EXPANSION call PRICES ARE EX-VAT

Chameleon ADAPTING

TECHNOLOGY TO YOUR ENVIRONMENT 10 MARKET PLACE STALBANS HERTS AL35DG TEL: (0727) 41396/56005

IG THE ARNDALE CENTRE LUTON BEDS LU1 2PG TEL: (0582) 457195/411281

You are Captain Brad Stallion, owner and operator of the one-man space vehicle known throughout the galaxy as the "Big Thruster". You have been assigned to a high priority mission by the Government.

The Government has long been harried by a series of raids on the population of its colonies. It is rumoured that these raids are conducted by "The Tribe", a colony of beautiful sex-starved female clones from the mysterious planet Mondo. Your mission is to locate the colony and destroy the deadly Sex-Ray Gun.

Be prepared to spend hours admiring the stunning graphics of this game. Be entranced by the crisp detail of the ships control panel. Gaze upon the sleek silouhette of the verdant valleys of Planet MONDO. Enjoy the spectacular beauty of outer space.

There is no age limit for buying Sex Vixens From Space, however people who suffer from high blood pressure should refrain from buying this exciting game.

Sex Vixens From Space Retail Price £24.95

Ask your local dealer.

Asoft

18 High Street, Pershore, Worcs, WR10 1BG. Telephone (0386) 553153.

Prices correct at time of going to press, but are subject to change without notice. E & OE.

CRAPS ACADEMY

Following up their excellent Blackjack Academy, Microillusions have released another gaming simulating — Peter Lee puts it odds-on to baffle most punters this side of the Atlantic.

raps is a peculiar casino game centering on the throw of two dice. As with most gambling games, the odds are well stacked in favour of the House but there are some interesting aspects of betting which make this an entertaining novelty.

Some people pour scorn on gambling simulations simply because they cannot win any money with them. This is a naive attitude for two very good reasons: some people actually enjoy the game itself and also there is no danger of going broke by frittering away real cash.

In the case of Craps Academy, part of the aptly-named Micro-Vice series, as well as being a well-designed simulation it gives novices the chance to hone up their tactics before innocently contributing money to the Casino management's lifestyle fund, should the urge ever arise.

Having played Craps in Las Vegas and seen it played (usually by hoodlums!) in many American movies, I was intrigued to learn the finer points of the game and also fascinated to learn just how hard it is to win. Luckily for non-experts, the program is extremely friendly to use, offering advice if you make wrong bet and the manual explains fully the complex

The computer implementation is straightforward, with two thirds of the craps table displayed until a player throws the dice at the click of the mouse button; the the screen follows their beautifully animated path as they tumble to the far end of the table,

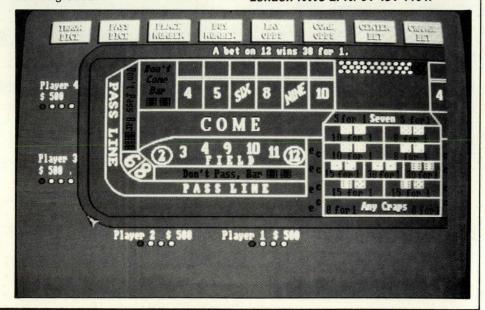
which scrolls effortlessly from right to left. Once the dice have come to rest, a moving hooked stick collects them and any payouts are made before the next series of bets and throws.

As well as a set of helpful pull-down menus, an on-screen gambling menu is also shown, together with the cash reserves of four players. Bets are made by clicking the mouse on your chips until the required amount is reached, then placing the pile on your chosen bet (or in some cases leaving it for the table operator to do). The computer sees to all the money management (it is easier to lose than to win, believe me!) and play continues until you go broke, quit - or save the current game if you happen to be on a winning streak.

The manual is an essential read to get the most out of the game but the betting structure is such that even with this help, novice players should be ready to invest some time in discovering the betting wrinkles. Apart from the superb glossary, the 20-page booklet is also vital for providing the percentage odds in favour of any one particular bet; in fact there are only four bets at all which give the house no advantage.

Author Dennis Saunders states bluntly that there are no betting 'systems' which work; even the advice he offers to gamblers will in the long term only minimise losses and not pave the way to riches. Which takes me back to square one: if you know you cannot win in a real life game but enjoy playing, then a computer simulation, especially at this realistic price, is the safest way to pander to your gambling vice.

This is the type of game to load up and enjoy with a couple of friends in the evening because it is not really too exciting for the solitary player. Whether Craps will find any following outside the U.S. is a bit of a gamble though — and I for one would not put money on it... Price: £29.95 Contact: Activision, 23 Pond Street, London NW3 2PN. 01-431-1101.



AMIGA HARD DRIVES

Incredible Value

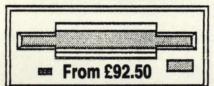
20MB £499.95 40MB £599.95 60MB £699.95

PUBLIC DOMAIN DISKS ONLY £2.00 EACH Includes Postage & Packing

AMIGA A2000 plus 1084 £1,399.00



3.5" External Drives



SOUTHAMPTON'S FIRST APPROVED

AMIGA. & PC

COMMODORE DEALER

Printer Cables £7.99

AMIGA A500 NOW ONLY £389.00

FANTAVISION

The Complete Animation and Sound Package

Turns your Doodling into dazzling motion

ONLY £34.95



AMIGA A500 + 1084
COLOUR MONITOR
only £625.00
AS ABOVE + NEC
EXTERNAL DRIVE
only £699.95

CALL ON US FOR ALL YOUR COMMODORE AMIGA AND P.C. REQUIREMENTS

SEE THE AMIGA IN ACTION!

SUPERB SOUND - STUNNING GRAPHICS DESK TOP PUBLISHING - ANIMATION

Unbranded Disks 3.5" DS/DD 10 for only £9.95

including free copy of VirusX
Price includes Postage & Packing

DIGIPRO LTD

Enterprise House, Howards Grove, Southampton SO1 5PR

Locking Disk Boxes Holds 100 Disks £6.99 Okimate 20 Colour Printer including free cable £139.99

JOIN OUR XMAS CLUB - CALLFOR MORE DETAILS



All Prices INCLUDE V.A.T.
Orders over £25.00 Postage and Packing FREE!
All other orders add £1.00 for Postage and Packing
For prices outside UK please telephone



STAR LC-10 COLOUR

Has the age of the colour printer finally arrived? Alastair Statham tries out a new contender for the low price crown.

here was once a time when colour printout from a personal computer was well beyond the scope of most people's equipment or, more importantly, their budgets. Today, that is thankfully just a bitter memory. There are now several printers, costing between £150 and £300, which are capable of delivering reasonable quality colour output. The Star LC-10 is one such printer.

Based on tried and tested dot matrix technology, the LC-10 provides both colour and near letter quality text. By making multiple passes over each line it can print characters using up to 18 by 23 dots. Bit-image graphics in quad density have a resolution of 240 dots per inch. Print speeds vary between 120 characters per second in draft pica and 30 characters per second in near letter quality pica. While graphics and near letter quality text are printed in only one direction, the draft setting can also operate in bi-directional mode.

The four-colour fabric ribbon is contained in an easy-load cartridge and has an expected life-span of around one million characters per colour. The black, red, yellow and blue coloured bands of ribbon produce seven different colours. Mixing pairs of the red, blue and yellow bands produces the three intermediate colours of green, violet and orange.

This standard configuration includes: A Centronics compatible interface (uses 7 or 8 eight bit data) and an 8k printer buffer, although this is reduced to one line of text when downloadable characters are used. A simple switch setting determines whether the LC-10 will emulate an Epson LX-800 or an IBM Proprinter II. The Epson JX-80 driver supplied in Workbench Preferences seems to work with the Epson setting.

The standard character set contains ninety-six ASCII characters while the IBM compatible set contains two hundred and forty-four including ASCII, interna-



tional characters, symbols and simple block graphics. The fourteen international character sets include French, German, English, Danish, Swedish, Norwegian, Italian, Spanish, Latin-American and even Japanese. If all this is insufficient then up to one hundred and ninetytwo characters can be downloaded in draft mode. This figure drops to seventyeight when printing in near letter quality.

In draft mode there is only one type style that may be used with or without an italic slant. The near letter quality mode,

however, allows three type styles, each of which are also available in italics. The styles are Courier, Sanserif and Orator. Both Pica and Elite print pitches may be used in either normal or condensed mode and proportional spacing can be selected for all four resultant pitches. Extra large characters can also be printed using double height, double width, both together, or even quadruple height and width. Line spacing defaults to one sixteenth of an inch but is also programmable in eighths, seventy-

STAR LC-10 COLOUR

seconds or two hundred and sixteenths of an inch. A print width of eight inches allows the printing of between eighty characters per line using Pica and one hundred and sixty with condensed Elite. Normal Elite gives ninety-six and condensed Pica one hundred and thirty-seven characters across the line.

'One of the attractive features of this printer is the clever paper parking mechanism'

Single-sheet paper measuring five and half to eight and a half inches wide is easily accommodated in a neat singlesheet feeder. Loading may be either manual or semi-automatic. The semi-automatic mode accurately feeds the paper ready for printing. Fan-fold tractor fed paper can also be used. This can vary between five and ten inches wide and up to three-ply multi-part. One of the attractive features of this printer is the clever paper parking mechanism. This relieves the need to remove Fan-fold paper from the tractor mechaniam in order to produce the odd friction-fed single-sheet document. Parking is achieved by setting the printer offline and then pressing both the paper feed switch and print at the same time. The paper is automatically withdrawn from the platen. Moving a release lever now selects single-sheet feed. Unparking is even easier as it only requires you to move the paper bail and set the release lever to its former position. Once the Fan-fold paper has realigned itself the bail is replaced and printing can resume using the tractor feed. This is as simple and effective a system as I have ever seen on this class of printer.

The controls of the LC-10 are well thought out and easy to use. With the exception of twelve DIP switches under the top cover which are used to select the rarely changed settings, all of the controls are on the top right face of the printer. The DIP switches control functions like default page length, character set and whether the buffer RAM will be used as a print buffer or to hold a downloadable character set. International character set selection and emulation mode setting is also by DIP switch. Using these controls it is also possible to disable automatic carriage returns, the auto-sheet feeder and paper-out detection. Orator type style can use either small capitals or true lower-case letters. These are selected by another simple switch setting. The front panel controls are used to select more frequently changed settings. The controls consist of four membrane switches with ten small rectangular LEDs which indicate the settings selected. The four switches are marked Online, Paper feed, Print Pitch and NLQ type style although combinations of these switches do perform other functions such as the parking action

'The LC-10 is packed with features and is probably the quietest dot matrix printer I have heard for a long time'

mentioned earlier. All except the paper feed switch beep when pressed and the adjacent LEDs indicate their current status. One of the LEDs lights to indicate that the power is on, as controlled by a rocker switch on the left front face. The style indicators show whether courier, sanserif or orator style is selected and whether it will print in italics or not. Four more show whether the pitch selected is Pica or Elite and whether or not it is printing condensed or using proportional spacing.

[N.L.Q. Italic Sanseria Selecting the Italic Sa the <u>Simple</u> Touch Panel on all Star Printers

[N.L.Q. Elite Sanserif.] Selecting the Elite Sanseri the <u>Simple</u> Touch Panel that on all Star Printers

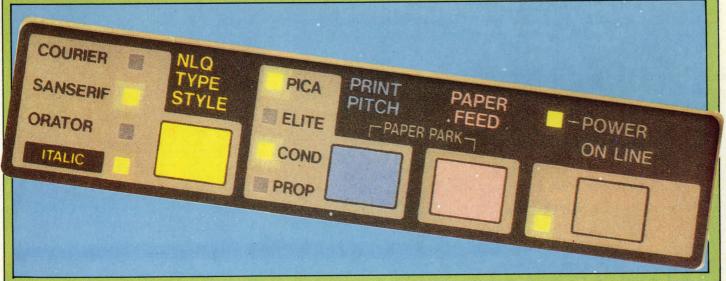
[N.L.Q. ORATOR SC.]
SELECTING THE N.L.Q. ORATOR
THE <u>SIMPLE</u> TOUCH PANEL THAT
ON ALL STAR PRINTERS

[N.L.Q. Orator Selecting the is so easy on on all Star Pr

Despite its budget price the LC-10 is packed with features and is probably the quietest dot matrix printer I have heard for a long time. Even the test-mode selectable at power-on by holding down the appropriate front-panel switches provides both long and short test options. All of the expected highlighting features such as bold, underlined and overlined text are available together with both subscript and superscript. The repertoire of commands available though escape codes is enormous and includes page formatting, character control and most of the front panel operations. The quality of the NLQ text is superb. The colour printing is probably more suitable for producing colour text, charts and graphs than high quality artwork but if all you need is a good quality NLQ printer and the ability to produce the odd colour hardcopy then the STAR LC-10 could well be the machine for you. A.S.

A.3

Price: £299.95.





Starvision Stereo sound sampler

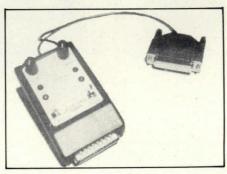
We have seen sound sampler software supplied without hardware. Now Ron Webster looks at an exciting sound sampler that comes with no software...

here are many superb pieces of demonstration software around for the Amiga. A common thread running through the best is the use of a high quality soundtrack to complement the stunning gyrations presented on the display. Of course, some of the soundtracks are generated entirely by the software but others take advantage of digitised sound recorded from a more conventional source. There are some sound digitisers on the market ranging in price from around twenty pounds to over ten times that amount. The range of features offered is as wide as the price spread. Basic models allow either line or microphone input but not often a choice between them and usually only support a mono input.

Mono may be quite sufficient for many applications such as talking sales demos or simple educational software but for more sophisticated uses such as the reproduction of music or complex sound effects stereo is almost essential. There are now a number of stereo audio digitisers available for the Amiga. One of the latest to arrive on the scene is made in Denmark and supplied by Starvision International. Other features of the Starvision device are selectable line and microphone inputs and LED indicators to show when data is being processed and when the sound level could be set too high and therefore cause distortion. There is also an adjustable level control for each channel.

As with most other audio digitisers the Starvision model is a compact unit having a footprint of three and a half by two and a quarter inches and being just under an inch thick. The case is well constructed of black plastic with a white facia plate containing the two switches, two level control knobs

and four indicator LEDs. One of the short sides accommodates a male D-25 connector which plugs into the parallel port of the Amiga. On the opposite side is a 3.5mm stereo socket through which the sound source is connected, whether that be a microphone or line input from a Hi-Fi. A short lead terminating in a hooded D-25 socket exits the case nearby. This is for connection to the serial port of the Amiga. The serial port appears to be used only for power.



The controls of the sampler are simple but effective. The two flick switches select whether input will be from a microphone or the line output of a Hi-Fi and whether that input is in mono or stereo. Each channel has a red and green LED associated with it. The green LED flashes to show that a signal is present and is rather euphemistically called a VU indicator. The red one shows when the signal is peaking. The level control for each channel can be adjusted to give the strongest signal possible without too much distortion caused by overloading.

The unit is based on an 8-bit analog to digital converter able to sample at a rate of

28 kilohertz. When sampling in stereo this rate is split into 14 kiltohertz per channel. Sampling at this high a rate causes a large amount of memory to be used to hold the sample data but quality not far from that heard from a compact disc player is possible. For comparison purposes I should mention that most compact discs are sampled at 44 kilohertz. Speech and non Hi-Fi applications only need a rate of around 10 kilohertz to sound quite acceptable. The sample rate is determined by the software used to drive the digitiser. On the box in which the Starvision unit is supplied it says that stereo software is included. However, do not be surprised when you find none in the box. The software referred to is in the public domain and will be supplied free of charge when you return the purchase registration form that does come in the box. A nice touch is the inclusion of a stereo jack-plug adapter and 5ft lead fitted with a 3.5mm jack at one end and two phono plugs at the other. I much prefer to be supplied with the required connectors instead of having to scrabble around to find those leads I know I have somewhere but never seem to be able to put my finger on whenever I need them.

In use the unit performs remarkably well, with very little hiss present and a forgiving top end when the signal level is getting a little high. The flashing LEDs provide reassurance that all is well and a good signal is present. I do not particularly like the use of a 3.5mm jack for the audio input. A more robust connection would have been provided by phono sockets or a larger quarter-inch jack. Having said that I experienced no problems with connection to the test unit. The quality of construction is high and the unit neat and effective in use. The combination of stereo with dual input level and adjustable gain together with visual indication of a good signal must rank this Danish unit as one of the best I have seen.

R.W.

Contact: Starvision International, 305 Madison Avenue, Suite 411, New York (212) 867-4486.

THE CP/M CONNECTION

Many businesses have, at some time or other, used CP/M based computers. Quite a few continue to do so and have programs which still provide useful service. When new machines arrive moving an 'in house' program to a new machine usually causes more problems than it should. Occasionally things 'go right' and this month Susan Maxwell outlines some experiments in an area which could be of use to a lot of business users.

'quick and dirty' 3 wire 'no protocol' RS232 lead (just using pins 2, 3 and ground pin 7) was made to link the Amiga with the CP/M machine (I actually used the Osborne) via the machines' serial ports.

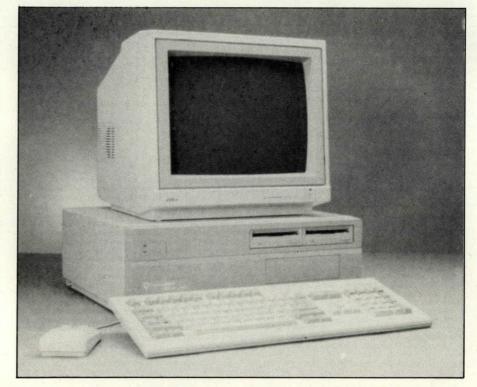
The three wire serial link arrangement will only work properly at slow baud rates. The first job was to configure the CP/M machine's serial port to a nice slow and safe 300 baud. At the same time I also assigned the LST: device to the serial port and used ED to create a short text file called TEST.

ASCII files are well catered for by CP/M's file transfer utility program PIP. I booted up, loaded PIP on the CP/

ROGRAMS written in BASIC are notorious for 'portability' problems. The situation has improved over the years and it is probably fair to say that one of the prominent reasons for this was the acceptance of Microsoft BASIC as a sort of 'defacto standard' on the wide range of available CP/M based machines.

Although 8 bit CP/M machines are 'old hat' nowadaways there are still plenty in use and that means there is a lot of useful software floating around — I still use an 'Osborne 01' and a Rair 'Black Box' for certain jobs an they are happily running Microsoft BASIC programs which were written many years ago. Although I am not a great lover of any BASIC these programs work and are fully tested so there is little incentive to re-write them whilst the eight bit CP/M machines are still operational.

Nowadays I use an Amiga and, because the bulk of my Amiga programming is done using C and assembler, I had not even looked at the BASIC manual properly until the other day. Amiga BASIC is also by Microsoft and although substantially enhanced it still supports a 'core' of commands almost identical to the older CP/M based Microsoft BASIC(s). Somewhere in the literature it was mentioned that "programs written in older versions of Microsoft BASIC should run with little or no change".



I had heard all that before but nevertheless decided that it might be worth spending a couple of hours experimenting — just to see. Whenever I do any of 'experimental' type projects I have one rule...keep it simple. The initial object was to see whether an idea will work or not, so a

M machine and then moved over to the Amiga to load up its BASIC Interpreter.

Here are the seven lines of BASIC code that were used to get the Amiga to read data from the serial device and place it in the RAM disk as a file called 'TEXT'....

THE CP/M CONNECTION

OPEN "RAM:TEXT" FOR OUTPUT AS #1

OPEN "COM1:300,n,8,1" AS #2 \$="D" 'just a dummy value to get into loop

WHILE (ASC(X\$)094) X\$=INPUT\$(1,#2):PRINTX\$;:PRINT 1,X\$;:

WEND

CLOSE 1: CLOSE 2.

I selected 'run' from the options menu...and the program just hung there. It waiting for some kind of input to arrive from the serial port. I went back to the CP/M machine, which was waiting with PIP's '*' prompt and asked it to send my test file to the 'LST: device', i.e. I typed LST:=A: TEST.

The Amiga screen started displaying the data file as it was being received. The transfer worked perfectly but...at the end of the transmission the Amiga just sat there, i.e. it 'hung'. It was, of course, waiting for the ASCII 94 character which it uses to recognise the 'end of file' condition. This was easily solved by typing control P (so that CP/M started echoing the keyboard), control Z (that sent the Amiga its end of file character), then control P to turn the echo off again. Amiga BASIC promptly gave its 'O.K.' sign off message so I know the program had recognised the end of the file and terminated properly. Since my CP/M'ing days are over I no longer have access to the manuals PIP sends an 'End of File' terminator or not depends on the file size, namely whether or not an exact number of 128 character blocks are being sent. If this actually is the case you might find that you will not have the problem mentioned above.

Only 30 minutes into the experiment I became a bit more ambitious. I loaded BASIC on the CP/M machine,

read in one of the old Microsoft BASIC programs, then re-saved it in ASCII form before returning to the CP/M system level. After re-loading PIP again I transferred this ASCII file to the Amiga. Once the file transfer was complete I selected 'open' from the Amiga BASIC menu, loaded the file 'TEXT' from the RAM disk and selected the 'run' option. I still do not believe it happened but it worked...and without any alterations at all! I repeated the procedure with another quite large BASIC applications program and again it ran without problems. Within two hours I had moved all of my main applications programs onto the Amiga.

Admittedly this 'experiment' used a quick and dirty' approach but it did the job and took me less than a couple of hours to do. I was, incidentally, very impressed by the ease with which the Amiga's BASIC can handle the serial port and suspect that this could be worth more investigation. If, like me, you use an Amiga (or for any other machine running an 'enhanced' Microsoft BASIC) but still use CP/M machines running Microsoft BASIC, you will probably find that moving programs to the new machine could be far easier than you might have imagined.

S.M.



THE AMIGA GRAPHICS AND VIDEO SPECIALISTS AUTHORISED EDUCATION DEALER

IMAGINE an Amiga dealer that knows so much about Amiga graphics, that even BBC's 'Micro File' asked for their advice. IMAGINE an Amiga dealer that always gives detailed demonstrations and then checks all systems before they leave the premises. IMAGINE an Amiga dealer that will continue giving helpful advice even after you've handed over your money. UNIMAGINABLE? THEN IMAGINE TRIANGLE TV — THE UNUSUAL AMIGA DEALER.

Bureau Service for Slides, Xerox prints and Video Recordings.

Broadcast Quality Genlock in stock.



HARDWARE Amiga 2000's, Amiga 500's, Memory Expansion, Hard Discs Fitted, Genlocks RGB-

Coders Digitzers.

IN STOCK — Delixe Paint (full screen), DigiPaint (4096 colours), Deluxe Video 2 (PAL), "New Aegis 3D Videoscape, New Pageflipper, "TV Text, "New Aegis Video Titler, "Digiview (PAL), "Deluxe Print, "New Digiview 3 (PAL), "Pagesetter/Laser Script, "New Colour framegrabber in stock, "New Deluxe photo-lab, "New Photon Paint (PAL), "New Deluxe Productions, "New A4 Graphics tablet.

NEW IN STOCK Fantavision 2D animation with sound. New Provideo Plus

TRIANGLE **BROADCAST** NEW: **GENLOCK** — This unit has been developed to Triangle's TV own specification. It is the only unit that has been used by the BBC for live transmission. It is also being used to record on to I" broadcast VTR's. Cost: £795 + VAT or £895 + VAT with remote control.

TRIANGLE TELEVISION (Computers) 130 Brookwood Road, Southfields, London SW18 5DD Tel: 01-874 3418. Fax: 01-877 1029

BAINSTAR



£370.00 £620.00 £1,325.00 £399.00 £269.99 £299.00 Atari 520 STFM .. Atari 1040 STFM £470.00 ...£99.95 .£124.00 Atari 10405 FM
Cumana Cax 354 disk drive...
3D Specs (New) (for prof use with Digiview, Sculpt 3D, EGC).
Micron 2Mb memory expansion (2,000 only).
NEC external 3.5" drive...
NEC internal 3.5" drive...
Professional Genlock version A8806.
Rendale Genlock version A8802. £580.00 £75.00 £730.00 £268.00 The Works software pack ...

£127.00 athe New A501 Ram extension hand

MUSIC	
Amiga + Dr. T	£559 00
Atari 520 + Dr. T version 2, plus free Sound Editor	
Atari 1040 + monitor + Dr. T + free Sound Editor	£790.00
Deluxe Music (PAL)	
Deluxe music construction set	£65.00
Dr T. V.1.6A (Amiga)	£190.00
Dr. T., KCS V1.6 or V2.00 + free Sound Editor (Atari)	
Kawai K1 Editor	
MT 32 Editor	£75.00
Roland D110 Editor	£75.00
Roland D50 Editor	£89.95
Yamaha 4 × 4 Editor	£75.00

SOFTWARE

£106.00
£65.00
£120.00
£44.00
CALI
£58.74
£399.00
£49.00
£35.00
£34.00
£40.00
£49.99
£27.00

Digipaint (PAL)	£35.00
Fancy 3D fonts	£45.00
Prowrite V.2	£80.00
	£80.00
	£338.00
	£62.00

CHIVILO	
Skychase	£19.99
Virus by Epyx	£19.99
Final Assault (New) by Epyx	£19.99
Basket Ball (New) by Epyx	
Carrier Command	
New! New! Hybris	
Fairytale	
The state of the s	

* SPECIAL OFFER: 15% DISCOUNT ON ALL AMIGA SOFTWARE * (Subject to availability!) The above is just a small selection of our products. All prices include VAT. For further details Telephone: (0252) 877431.

For the best after sales support, home tuition of music and graphic software at competitive prices.

GAINSTAR, Unit 1, Rear of 7 Wellington Road, Sandhurst, Surrey GU17 8AW

_ AMIGA SPECIALISTS



ALL PRICES INC VAT & **UK POSTAGE**

Unit 1, Willowsea Farm, Spout Lane North, Stanwell Moor, Staines, Middx TW19 6BW

Telephone:			
TANGLEWOOD	£19	.99	£1

	AAARGH ADVENTURE CONSTRUCTION SET ALIEN SYNDROME ANNALS OF ROME ARCADE CLASSICS ARKANOID ARMAGEDDON MAN ARMY MOVES ARTIC FOX BALANCE OF POWER BABBARIAN BARDS TALE II BERMUDA PROJECT BETTER DEAD THAN ALIEN BEYOND THE ICE PALACE BIONIC COMMANDOES BLACK LAMP BLACK JACK ACCADEMY BOMB JACK BUBBLE BOOBLE BUBBLE GHOST BUGGY BOY CARRIER COMMAND CHAMPIONSHIP GOLF CHESSMASTER 2000 CHUBBY GRISTLE CITY DEFENCE CORUPTION CRACK CRAPS ACADEMY CRASH GARRETT DEFENDER OF THE CROWN DEJAVU DIVISION ONE EBONSTAR ECO ELF EMERALD MINES EMPIRE EMPIRE STRIKES BACK ENLIGHTENMENT FAERY TALE ADVENTURE FERRARI FORMULA ONE FIRE AND FORGET FIREBLASTER FIREPOWER FIRE HIGHT SIM. II FOOTBALL MANAGER II FOOTBAL MANAGER II FOOTBAL MANAGER II FOOTBAL MA	S.S.P OUR	TANGLEWOOD TEMPLE OF APSHAI TERRAPODS THE JEWELS OF DARKNESS THEXTER THREE STOOGES THUNDERCATS TIME AND MAGIC TIME BANDITS TRACERS ULTIMA III ULTIMA III ULTIMA III ULTIMA III UNINVITED VECTORBALL VYPER WARZONE WHIRLIGIG WINTER OLYMPIAD WITTERSS WIZZBALL WORLD DARTS WORLD TOUR GOLF XENON ZOOM VIRUS IF YOU DON'T SEE IT ON THE LIST THE WE CAN'T LIST EVERYTHING AV STARGLIDER II ZYNAPS CAPONE P.O.W. AROUND THE WORLD IN 80 DAYS FUSION	£19.99 £13.50	INSTANT MUSIC INTERCHANGE INTRO CAD
ı	AAARGH	£19.99 £13.50	TEMPLE OF APSHAI TERRAPODS	£24.99 £19.50 £24.99 £16.50	INTRO CAD K SPREAD 2
	ADVENTURE CONSTRUCTION SET ALIEN SYNDROME	£29.99 £20.50	THE JEWELS OF DARKNESS	£19.99 £13.50	K SPREAD 2 K SEKA ASSEMBLER KARA FONTS KIND WORDS
	ANNALS OF ROME	£24.99 £16.50	THREE STOOGES	£29.99 £19.50	KIND WORDS
ı	ARKANOID	£26.00 £16.00	TIME AND MAGIC	£19.95 £13.50	LATTICE C 4.0 LATTICE C PROFESSIONAL DEV. VERSION M.C.C. PASCAL MACRO ASSEMBLER MADDIDED IN THE PROFESSIONAL
	ARMY MOVES	£19.99 £14.50 £24.99 £16.50	TIME BANDITS TRACERS	£19.99 £13.50 £24.99 £16.50	DEV. VERSION M.C.C. PASCAL
	ARTIC FOX BADCAT	£24.99 £17.50	ULTIMAIII	£24.99 £16.50	MACRO ASSEMBLER
	BALANCE OF POWER	£29.99 £19.50	UNINVITED	£29.99 £19.50	MACHO ASSEMBLER MARAUDER II MAXIPLAN A500 MAXIPLAN PLUS MICROFICHE FILER MODULAII MUSIC STUDIO ON LINE PACE EL INDED
	BARDS TALE I	£24.99 £16.50 £24.99 £17.50	VECTORBALL VYPER	£24.99 £16.50	MAXIPLAN PLUS MICROFICHE FILER
	BARDS TALE II RERMUDA PROJECT	£24.99 £17.50	WARZONE	£9.99 £7.00	MODULAII
	BETTER DEAD THAN ALIEN	£19.99 £13.50	WINTER OLYMPIAD	£19.00 £13.50	ON LINE
ı.	BEYOND THE ICE PALACE BIONIC COMMANDOES	£24.99 £16.50 £24.99 £19.50	WITNESS	£29.99 £19.50	PAGE FLIPPER PERFECT SOUND PHOTON PAINT
	BLACK LAMP	£19.99 £13.50	WORLD DARTS	£14.95 £10.25	PHOTON PAINT
ì	BOMB JACK	£24.99 £16.50	XENON XENON	£19.99 £17.50	PIXMATE POWERWINDOWS 2
	BUBBLE BOOBLE BUBBLE GHOST	£19.99 £13.50	ZOOM	£19.99 £13.50	PRISM
	BUGGYBOY	£24.99 £16.50	IF YOU DON'T SEE IT ON THE LIST THE	EN PLEASE ASK	
	CHAMPIONSHIP GOLF	£34.99 £27.75	STARGLIDER II	£24.99 £16.50	PRO SOUND DESIGNER PRO VIDEO
ľ	CHESSMASTER 2000 CHUBBY GRISTLE	£24.99 £17.50 £19.99 £13.50	IF YOU DON'T SEE IT ON THE LIST THE WE CAN'T LIST EVERYTHING AV STARGLIDER!! ZYNAPS CAPONE P.O.W. AROUND THE WORLD IN 80 DAYS FUSION SARGON III CHESS MOTORBIKE MADNESS REVENGE OF THE MUTANT CAMELS OFF SHORE WARRIOR LANCELOT TETRAQUEST DALEY THOMPSONS OLYMPIC CHALLENGE SPECIAL OFFERS WHILE CURRENT S ALIEN STRIKE	£19.99 £13.50	PROFESSIONAL PAGE
	CITY DEFENCE	£14.95 £10.25	P.O.W.	£29.99 £19.50	ROCK AND ROLL
H	CRACK	£19.99 £13.50	FUSION	£19.99 £13.50 £24.99 £17.50	SCULPT 3D
	CRAPS ACADEMY CRASH GARRETT	£24.99 £16.50	SARGON III CHESS	£24.99 £16.50	SCULPT 3D ANIMATE
3	DEFENDER OF THE CROWN	£29.95 £19.50	REVENGE OF THE MUTANT CAMELS	£9.99 £7.00	SHAKESPEAR
	DIVISION ONE	£19.99 £13.50	LANCELOT	£24.99 £16.50 £19.99 £13.50	SIMPLIBRARY
	EBONSTAR FCO	£24.99 £16.50	TETRAQUEST	£19.99 £13.50	SONIX
	ELF	£14.99 £10.25	LANCELOT TETRAQUEST DALLEY THOMPSONS OLYMPIC CHALLENGE SPECIAL OFFERS WHILE CURRENT S ALIEN STRIKE BATTLESHIPS BLACK SHADOW BLASTBALL BORROWED TIME BRAINSTORM CASINO ROULETTE COUGANS RUN DIABLO EAGLES NEST EXTENSOR EYE FUED FLINTSTONES FOOTMAN FROSTBYTE GALACTIC INVASION GOLDRUNNER JUMP JET KARATE KIDII KWASIMODO LEVIATHAN MACH3 MINDSHADOW MISSION BLEVATOR MOEBIUS OGRE PINK PANTHER PLUTOS POWER STRUGGLE O BALL ROADWORKS ROCKEY SECONDS OUT SILICON DREAMS SLAYGON SPACE PORT STARWAYS STRANGE NEW WORLD TASS TIMES	£24.99 £16.50	PUBLISHER PLUS ROCK AND ROLL RUBY VIEW/TERM SCULPT 3D SCULPT 3D ANIMATE SEASONS AND HOLIDAYS SHAKESPEAR SHELL SIMP LIBRARY SONIX SUPERBASE SUPER BASE PROFESSIONA T.V. SHOW T.V. TEXT TOOL KIT TURBO SILVER
	EMERALD MINES EMPIRE	£19.99 £13.50 £24.99 £17.50	SPECIAL OFFERS WHILE CURRENT S ALIEN STRIKE	674.99 £15.50	T.V. SHOW T.V. TEXT
	EMPIRE STRIKES BACK	£19.99 £13.50	BATTLESHIPS	£19.99 £12.50	TURROCHAER
	FAERY TALE ADVENTURE	£49.99 £32.50	BLASTBALL	£9.99 £5.50	TURBO SILVER VIDEO TITLER 1.1 VIDEOSCAPE 3D WORD PERFECT 4.1
	FERRARI FORMULA ONE FIRE AND FORGET	£24.99 £17.50	BORROWEDTIME	£24.99 £15.50	VIDEOSCAPE 3D WORD PERFECT 4 1
	FIREBLASTER	£9.99 £7.00	CASINOROULETTE	£19.99 £12.50	X CAD ZUMA FONTS 1 ZUMA FONTS 2 ZUMA FONTS 3
	FLIGHT SIM. II	£39.95 £26.50	DIABLO	£14.99 £9.00 £19.99 £12.50	ZUMA FONTS 1 ZUMA FONTS 2
	FOOTBALL MANAGER II FORMULA GRAND PRIX	£19.99 £13.50	EAGLES NEST	£19.99 £12.50	ZUMA FONTS 3
	FORTRESS UNDERGROUND	£14.99 £10.25	EYE	£14.95 £9.00	EXCELLENCE FANTAVISION NOW AVA ANIMATION PACKAGE JU 639.99 OUR P
	GEEBIE AIR RALLY	£19.99 £13.50	FUED FLINTSTONES	£9.99 £5.50 £19.99 £12.50	E39.99 OUR P
	GETTYSBERG	£29.99 £22.50	FOOTMAN	£24.99 £15.50	LIGHTS, CAMERA, ACTION COMIC SETTER
	ICE HOCKEY	£24.99 £16.50	GALACTIC INVASION	£24.99 £15.50	CHIPS ART LIBRARY DISK F
	INTERCEPTOR	£24.99 £16.50 £24.99 £17.50	GOLDRUNNER JUMP JET	£24.99 £15.50 £14.99 £9.00	NEW RELEAS
	IRIDION	£19.99 £13.50	KARATE KID II	£24.99 £15.50	HOTSHOT NETHERWORLD
	JINX	£24.99 £19.50	LEVIATHAN	£19.99 £12.50	ROBBEARY
	KING OF CHICAGO	£29.99 £22.50 £29.99 £19.50	MACH3 MINDSHADOW	£19.99 £12.50 £29.99 £12.00	ALTERNATE REALITY DALEY THOMPSON'S OLYM
	LEATHERNECK APLAYER ADAPTOR	£19.99 £13.50	MISSION ELEVATOR	£19.99 £12.50	CARCIELD
	LEGEND OF THE SWORD	£24.99 £16.50	OGRE	£24.99 £15.50	CARFIELD WIZARD WARS
	MARBLE MADNESS	£19.99 £13.50 £19.99 £14.50	PINK PANTHER PLUTOS	£19.99 £12.50	CHRONOQUEST STRIPPOKER DATA DISC ON
	MEAN 18	£24.99 £17.50	POWERSTRUGGLE	£14.99 £9.00	BATTLE CHESS
	MIND FIGHTER	£24.99 £16.50	ROADWORKS	£19.99 £12.50 £19.99 £12.50	WIZARD WARS CHRONOQUEST STRIP POKER DATA DISC ON: BATTLE CHESS TRIVIAL PURSUIT (NEW BEGI HARDWARE LIST AS FRI A500 COMPUTER (BUILT IN AMIGA DOS KICKSTART, WI THE VERY FIRST) A500 (AS ABOVE)
	MIND FOREVER VOYAGING MOONMIST	£29.99 £19.50	ROCKEY	£9.99 £5.50	A500 COMPUTER (BUILT IN
	MORTVILLE MANOR	£24.99 £16.50	SILICON DREAMS	£19.99 £12.50	THE VERY FIRST)
	OTHELLO	£9.99 £7.00	SLAYGON SPACE PORT	£19.99 £12.50 £19.99 £12.50	A500 (AS ABOVE) WITH 1084 COLOUR MONITO
	PANDORA PASSENGERS ON THE WIND	£19.99 £13.50 £24.99 £16.50	SPACE PORT STARWAYS STRANGE NEW WORLD	£19.99 £12.50 £19.99 £12.50	A500 BUSINESS PACK
	PHALANXII	£14.99 £10.25	TASS TIMES	£29.99 £12.00	A500, 1084 COLOUR MONITOR AF880 (ON/OFF SWITCH THE
	PHANTASIE III PINBALL WIZARD	£24.99 £19.50 £9.99 £7.00	TERRAMEX TETRIS	£19.99 £12.50 £19.99 £12.50	MPS1200C DISC DRIVE
	PLATOON PLUNDERED HEARTS	£24.99 £16.50	TETRIS THUNDER BOY VAMPIRE EMPIRE WALL WESTERN GAMES	£14.99 9.00	1084 COLOUR MONITOR 1084 COLOUR MONITOR & T.
	POOL	£9.00 £7.00	WALL	£14.99 £9.00	T.V. TUNER
	PINBALL WIZARD PLATOON PLUNDERED HEARTS POOL PORTS OF CALL POWERPLAY PROTECTOR QUADRALIEN RED OCTOBER RETURN TO ATLANTIS RETURN TO GENESIS ROCKFORD ROLLING THUNDER ROMANTIC ENCOUNTERS IN THE DOME S.D.T. SACROPHASER SCENERY DISC 7 SCENERY DISC 7 SCENERY DISC 7 SCENERY DISC 7	£39.99 £25.50 £19.99 £13.50	WESTERN GAMES BUSINESS SOFTWARE	£19.99 £12.50	CUMANA AMIGA CAX 354 CUMANA AMIGA DRIVE INC
	PROTECTOR	£9.99 £7.00	A.C./BASIC	£195.99 £132.50	CVC3EV
	RED OCTOBER	£24.99 £16.50	A.C./BASIC ADRUM ANIMATOR/IMAGES ARTS PARTS I ARTS PARTS II ANIMATOR APPRENTICE ANIMATOR APPRENTICE JUNIOR AUDIOMASTER AWARD MAKER	£129.95 £105.00	AMIGA GENLOCK (A500) RF302C SLIMLINE AMIGA 2NI A501 ½MG RAM UPGRADE
	RETURN TO GENESIS	£24.99 £17.50 £19.99 £13.50	ARTS PARTS II	£9.99 £7.50 £9.95 £7.50	A501 ½MG RAM UPGRADE A2000(B)
	ROCKFORD	£19.99 £13.50	ANIMATOR APPRENTICE	£199.95 £132.50	A200(B) WITH 1084 COLOUR MO A2058 (8MB RAM BOARD-PC
	ROMANTIC ENCOUNTERS IN THE DOME	£24.99 £16.50	AUDIOMASTER	£46.00 £32.00	
	S.D.T. SACROPHASER	£29.99 £19.50 £14.99 £10.25	AWARD MAKER	£39.99 £29.50 £199.99 £132.50 £29.99 £21.50	A2088 XT BRIDGEBOARD A2286 AT BRIDGEBOARD
	SACROPHASER SCENERY DISC 11 SCENERY DISC 7 SCENERY DISC 7 SCENERY DISC JAPAN SCRABBLE DELUXE SENTINAL SEVEN CITIES OF GOLD SHADOWGATE SIDEWINDER SINBAD AND THRONE OF THE FALCON SKYCHASE	£19.99 £13.50	AZTEC C PROFESSIONAL BUTCHER	£29.99 £21.50	A2096 20MB MSDOS HARD DI
	SCENERY DISC EUROPE	£19.99 £13.50	C. LIBRARY CALLIGRAPHER	£79.99 £60.50 £89.99 £72.50	A2300 INTERNAL A2000 GENI A2010 INTERNAL 3½" FLOPP
	SCENERY DISC JAPAN SCRABBLE DELUXE	£19.99 £13.50	CLIMATE	£39.99 £29.50	AUCHA D
	SENTINAL	£19.99 £13.50	DELUXE MUSIC CONSTRUCTION SET	£69.95 £50.50	A2024 III RES MONO MONITO
	SHADOWGATE	£24.99 £16.50	DELUXE PHOTOLAB	£69.99 £50.50 £69.99 £50.50	14" COTRON HIRES COLOUR N
	SIDEWINDER SINBAD AND THRONE OF THE FALCON	£9.99 £7.00	DELUXE PRINT	£24.95 £18.50	20" COTRON HI RES COLOUR M
	SKYCHASE SKYFOX II	£19.99 £13.50	CLIBRARY CALLIGRAPHER CLIMATE DATA RETRIEVE DELUXE MUSIC CONSTRUCTION SET DELUXE PAINT II DELUXE PHOTOLAB DELUXE PRIONT DELUXE PRIONT DELUXE VIDEO DEVPAC ASSEMBLER DIGA DIGIPAINT DIGIVIEW 3.0	£69.99 £50.50	A2024 III RES MONO MONITO A26200 UNIX CARD 14" COTRON HI RES COLOUR M CO" COTRON HI RES COLOUR M CHERRY PAD A3 DIGITISING T VIDEO DRIVER CARD
	SPACE QUEST	£24.99 £17.50 £29.99 £19.50	DEVPAC ASSEMBLER DIGA	£59.95 £45.50 £57.50 £42.50	
	SPACE STATION STAR WARS	£9 99 £7 00	DIGIPAINT DIGIVIEW 3.0	£59.95 £42.50 £149.99 £105.00	A2000 SPECIAL OFFER (WHIL A2000B COMPUTER WITH 10 A2090/2092 20MB AMIGA HAR
	STARFLEET 1	£19.99 £13.50 £24.99 £17.50	DIGIVIEW ADAPTER	£22.95 £19.50	PERIF
	STIR CRAZY(BOBO)	£24.99 £16.50 £19.99 £13.50	DIRECTOR DOS 2 DOS	£59.95 £45.50 £39.95 £29.95	DISK BOX (HOLDS 50 DISKS) DISK BOX (HOLDS 100 DISKS)
	STOCK MARKET	£19.99 £13.50 £19.99 £13.50 £14.99 £10.25	DIRECTOR DOS 2 DOS EXPRESS PAINT FACCII	£69.95 £50.50	CLIK MOUSE MAT
	SKYFOXII SPACE GUEST SPACE GUEST SPACE STATION STAR WARS STARFLEET 1 STARRAY STIR CRAZY(BOBO) STOCK MARKET STREETGANG STREETFIGHTER STRIKE FORCE HARRIER STRIKE FORCE HARRIER STRIKE FORCE HI	£24.99 £19.50	FORMS IN FLIGHT	£29.99 £21.50 £69.95 £50.50 £175.00 £155.00	PRO 5000 JOYSTICK RAM DELTA JOYSTICK SPEED KINGS JOYSTICK
	STRIKE FORCE HARRIER STRIP POKER II	£24.99 £16.50 £14.99 £10.25	FUTURESOUND GOLDSPELL 2	£175.00 £155.00 £29.95 £21.50	SPEED KINGS JOYSTICK ALSOP UNIVERSAL PRINTER
	STRIP POKER DATA DISCI	£9.99 £7.00 £24.99 £19.50	EXPRESS PAINT FACCII FORMS IN FLIGHT FUTURESOUND GOLDSPELL 2 GOMF 2.0 GRABBITT HAICALC	£29.99 £21.50	
	SUBBATTLE SIMULATOR SUMMER OLYMPIAD	£19.99 £13.50		£29.95 £21.50 £59.99 £42.50	CITIZEN 120D PRINTER RIBBO 10 BLANK DISKS WITH BOX
_	SWOOPER	£19.99 £13.50	HOT AND COOL JAZZ	£9.99 £7.50	DISK DRIVE HEAD CLEANER

VV		
I.F.F. LIBRARY	£79.99	£60.50
IMPACT	£63.99	£44.50
INSTANTMUSIC	£24.95	£18.50
INTERCHANGE	£49.99	£39.50
INTRO CAD	£59.99	£42.50
K SPREAD 2	£79.99	£60.50
K SEKA ASSEMBLER	£49.95	£32.50
KARA FONTS	£59.95	£45.50
KIND WORDS	£49.99	£32.50
LATTICE C 4.0	£172.50	£122.50
LATTICE C PROFESSIONAL	0075 00	-
DEV. VERSION	£275.00	£205.00
M.C.C. PASCAL MACRO ASSEMBLER	£89.95 £69.99	£69.95 £49.50
MARAUDER II		£29.50
MAXIPLAN A500	£39.99 £99.99	£72.50
MAXIPLAN PLUS	£149.99	£102.50
MICROFICHE FILER	£79.95	£62.50
MODULAII	£139.00	£102.50
MUSICSTUDIO	£34.99	£24.50
ONLINE	£110.46	£99.50
PAGE FLIPPER	£120.00	£99.50
PERFECT SOUND	£79.99	£60.50
PHOTON PAINT	£ 69.99	£50.50
PIXMATE	£49.95	£39.50
POWERWINDOWS 2	£69.99	£50.50
PRISM	£59.95	£45.50
PRO BOARD	£475.00	£375.00
PRONET	£475.00	£375.00
PRO SOUND DESIGNER	£79.99	£60.50
PRO VIDEO	£249.95	£175.00
PROFESSIONAL PAGE PUBLISHER PLUS	£249.00	£175.00
	£99.50	£72.50
ROCK AND ROLL	£9.99	£7.50
RUBY VIEW/TERM SCULPT 3D	£99.99	£72.50 £65.50
SCULPT 3D ANIMATE	£85.00 £129.95	£105.00
SEASONS AND HOLIDAYS	£9.95	£7.50
SHAKESPEAR	£129.95	£85.00
SHELL	£49.95	£34.50
SIMPLIBRARY	£79.99	£60.50
SONIX	£57.50	£39.50
SUPERBASE	£89.95	£72.50
SUPER BASE PROFESSIONAL	£249.00	£185.00
T.V. SHOW	£69.99	£50.50
T.V. TEXT	£69.99	£50.50
TOOLKIT	£39.95	£29.95
TURBO SILVER	£139.95	£115.00
VIDEO TITLER 1.1	£110.00	£85.00
VIDEOSCAPE 3D	£143.75	£110.00
WORD PERFECT 4.1 X CAD	£228.85	£175.50
ZUMA FONTS 1	£460.00 £34.95	£325.00 £24.50
ZUMA FONTS 2	£34.95	£24.50
ZUMA FONTS 3	£34.95	£24.50
EXCELLENCE	£199.99	£135.00
	RB SOUN	
	AMERICA	
£39.99 OUR PRICE ONLY £2		
LIGHTS, CAMERA, ACTION	£57.99	£39.50
COMIC SETTER	£69.99	£50.50
CHIPS ART LIBRARY DISK FOR COMIC SET		Entry Company
	£24.99	£18.50
NEW RELEASES NOW IN ST		
	£10.00	C12 E0

19.99 £

£24.99 £
£24.99 £
£24.99 £
£29.99 £1
£29.99 £1
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£19.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.99 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£29.90 £
£

£95.50 £125.50 £290.00 £287.00 £91.50 IC P.S.U. ND DRIVE

£399.99 £350.00

E150.99 £125.00 £299.99 £260.00 £105.99 £150.00 £1489.25 £1275.00 £1489.25 £1275.00 £1489.25 £1275.00 £07.20 £555.00 £148.85 £995.00 £402.85 £355.00 £286.35 £250.00 MONITOR POPULATED W DISK NLOCK PPY DISK DRIVE £182.85 £159.00

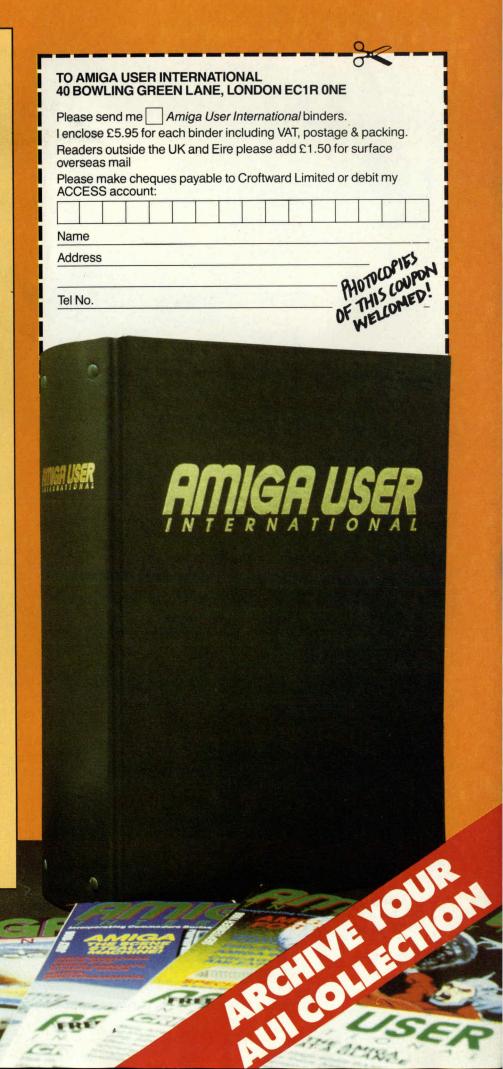
£764.75 £701.00 £1956.15 £1755.00 £747.50 £650.00 £2070.00 £1879.00 £632.50 £565.00 RON £396.75 £350.00 HILST STOCKS LAST] 1084 COLOUR MONITOR AND ARD DISK £2241.35 £1970.00 RIPHERALS £3240.50 £3450

£10.50 £13.50 £5.00 £14.50 £9.50 £12.50 £22.50 £32.95 S) E23.99 £15.99 £19.99 £19.99 £17.99 £17.99 £17.99 £17.99 £17.99 £17.99 DISK DRIVE HEAD CLEANER

ARCHIVE YOUR AUI COLLECTION

Now you can keep your Amiga User International magazines safe and clean. No more dog-eared covers or missing copies... You can protect your magazines in this high quality, specially-created AUI binder. This Amiga User International binder will comfortably hold a complete year's issues of your favourite Amiga magazine. It is a high quality product, British-made and comes with full binding instructions. It is manufactured in a rich, sage green with genuine gold blocked lettering.

Enhance your Amiga User International Magazine collection now for only £5.95 (inc. postage and packing). Send for one today! The AUI binders also make an ideal gift for other Amiga users too!





O YOU ever find it strange that graphic artists often choose to make their sprites cute and cuddly rather than mean and muscular in games where your prime concern is to murder everyone and everything in sight? Take Bionic Commandos, Joe Blade or Ikari Warriors for example, all feature characters that look almost as much like teddy bears as soldiers. Perhaps it helps us get away from the fact that with each shot we are brutally killing 'humans'. and makes it all seem more like a harmless game with tin soliders. Whatever the reason, it works, and deliberately or not that same technique comes through in Fernandez Must Die, where once again the sprites look friendly but act lethally.

Your part is that of a lone commando with a mission to terminate the evil dictactor Fernandez. Not the most original background for a game, but then the game idea is not that new either. We have already had Letherneck and Ikari Warriors, and Fernandez follows a very similar trial.

It starts at the bottom of an enemy-occupied vertically scrolling landscape. You are kindly supplied with a jeep at the gates of the death zone. Mounted on the front is a machine gun that sees to the baddies, or if you feel really nasty you can run them over instead! This jeep can take a lot of hostile lead but is not indestructible. When it has had enough it starts flaming under the bonnet before exploding a short while later. This gives you time to jump out and make a run for it to escape the blast.

Graphics: Sound: 7 Playability: 8 Value: 7 Price: £19.95

Ferme

There are times when leaving the relative safety of the jeep is necessary. One such incident is when you come across an armoury or other building. Run up to the door and a stick of dynamite is automatically attached.

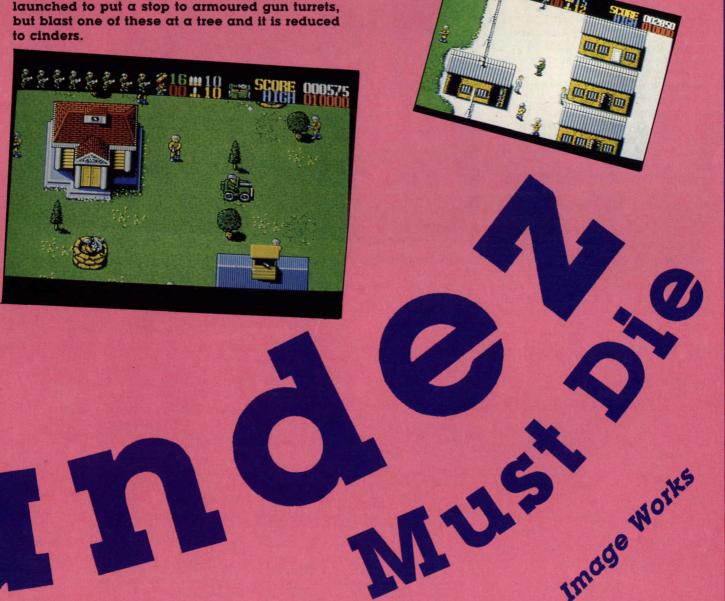
"Take cover and once the door has blown off you can get at all that lovely ammo, or in some cases, rescue friends from prison camps."

There are loads of little touches that pull Fernandez well above the level of other Commando variants. When you approach a level-crossing the odds are that the barriers will be up. Hang around and they are lowered as a train chugs past, killing any soldiers on the track who die with a tragic scream. One jeep is parked at a petrol station. Get in the jeep and you can even drive through the car wash! Rockets can be launched to put a stop to armoured gun turrets, but blast one of these at a tree and it is reduced to cinders.

One thing Fenandez could do with is a proper title screen. The non-savable highscore table is not enough on its own. As far as I could tell, the landscapes in the game are continuous, not broken up into levels (if they are they must be pretty long because I never got to the end of one). I would have preferred to see a level system as it can overcome the problem of having miles and miles of ground to cover every game without a break. Still, Fernandez Must Die is about on par with Ikari Warriors in terms of gameplay and has some nice sampled sound effects on top of that, while there is still room for improvement on the theme.

Definitely in the running for anyone without such a game, this is one blast 'em up that will appeal to the aggressive instincts of all game players. The sprite may not look it but Fernandez Must Die is one hell of a violent game. But that's what arcade playing is all about isn't it?

B.V.







t is true to say that, compared to the supposed advantages enjoyed by the 'Atari ST brigade' there remains a shortage of good MIDI software for the Amiga. However, the situation has dramatically improved recently due to the release of Dr. T's KCS sequencer and with the growing Amiga/MIDI market there is plenty of room for more software of this quality.

The package we are going to look at this month is called MIDI Magic. It is a MIDI sequencer package which comes from Circum Design Inc. MIDI Magic comes on a single unprotected disk together with an 80-page manual covering the operation of the sequencer. The manual, which was written by Rick Hamouris, assumes that you are familiar with the overall concepts of MIDI and concentrates exclusively on the operation of the sequencer itself. The manual does its job well but I could not help feeling that the presentation of the MIDI Magic package would be greatly improved if the manual adopted the A5 loose leaf binder arrangement used by so many



established packages. It is a small point but is nevertheless one which is worth making because the package looks likely to have to compete with the best of the existing Amiga/MIDI software.

Sequence Menu Project Controls Song Sequence ABCDEF Select: G H I J K L M N O P Q R Load File Request Save STUVWX 24 ppqn Delete Append to: Set Resolution YZ 48 ppqn 192 ppqn 480 ppqn Loop Control Custom Time Signature Play Once 2/4 Information Auto Loop Custon

MIDI Magic acts in much the same way as a 16-track tape recorder but records MIDI data rather than acoustic sounds. Recording of sequences is straightforward: by using gadgets (including some familiar looking fastforward, reverse, record, start and stop 'tape recorder type' ones) it is possible to set and adjust tempo and sequence length characteristics. To record data you simply select a track then hit the record and play gadgets. You can choose between various 'start' options including a metronome count down, a 'first note received' cue or an immediate start. You can set different receive/transmit channels on any of the 16 tracks so it is possible to re-channel data very easily. If you were using a single keyboard set on channel 1 to record bass parts, drum parts and keyboards that you wanted to playback on channels 1, 16, and 2 respectively, then the appropriate tracks could be arranged to re-channel the data automatically.

💻 continued on page 94 💻

SCC MAIL ORDER

COMMODORE HARDWARE PACK 1 & PACK 2. PACK 1 PACK 2 **A500 Modulator** Pack 1 + the following **Delux Paint** the following **Competition Pro** Mouse 5000 Joystick Barbarian Work Bench + **Terropods** Mouse Mat Basic/Extras Highball **Dust Cover** The very first 5X 3.5 DS/DD Discs Eco and Manuals £369.99 £409.90 £389.99

THE RESERVE OF THE PERSON NAMED IN	_		-
сомм	ODOF	RE HARDWARE	100
American EOO	CHER OR	Amino 2000	£POA
Amiga 500 A500/1084s A1010 Floopy Disk Drive A1084s Fil/Med Res Colour Monitor	£359.99 £579.99	Amiga 2000 . Amiga 2000/1084s	FPOA
A1010 Floopy Disk Drive	£109.99	A2010 3.5" 1 Mb Internal Disk Drive	£139.99
A 1084s Hi/Med Res Colour Monitor	. £229.99	A2094 20Mb Amiga DDS Hard Drive	£499.99
1900M Hi Res Mono Monitor	£99.99	A2092 20Mb Ms-DDS Hard Drive	£476.99
A520 Modulator	F22.50	A2088 PC XT Bridge Board	£459.99
A520 Modulator MPS 1200 Printer	£179.99	A2088 PC XT Bridge Board	£209.99
		A DRIVES	
1Mb3.5°Floppy Disk Drive	£89.99 , £116.99	1Mb5.25"Floppy Disk Drive + P.S.U	£121.99
SI	IPRA	DRIVES	
20Mb Hard Disk Drive A500/1000		20Mb Hard Disk Drive A2000	cees on
30Mb Hard Disk Drive A500/1000	£629.99	30Mh Hard Disk Drive A2000	F629.99
60Mb Hard Disk Drive A500/1000	£1079.99	30Mb Hard Disk Drive A2000 60Mb Hard Disk Drive A2000	£899.99
PHII	IPS N	MONITORS	
CM880114 AGB Colour		CM883314"RGB/CVBS Med Res Colour	F759 99
CM880214*RGB/CVBS Colour	£208.99	CM885214*RGB/CVBS Hi-Med Res Colour	£294.99
MAT	RIX I	PRINTERS	
Amstrad DMP2160	£147.99	NEC P2200	£389.99
Amstrad LQ3500 Canon PW1080A	£349.99	NEC P6	£542.99
Canon PW1080A	€309.99	Panasonic P1081	F218 99
Canon A-60 F Epson LX800	£423.99	Panasonic P1082 Seikosha SP-180A1 Seikosha SP-1200A1	£252.99
Foson I 0500	F394.99	Seikosha SP-1200A1	£189.99
EpsonLQ500 Micro PMP135+ Micro PMP165-	£149.99	StarLC10	£221.99
Micro PMP165 -	£199.99	StarLC10Colour	£249.99
LAS	SER P	RINTERS	
Canon LBP-8A2	£1790.00	HP Laserjet II	£2199.00
Epson GQ3500	£1795.00	Panasonic P4450	£2030.00
GRA	PHIC	TABLETS	
CRPA4Tablet	£372.99	Cherry A3 Tablet	£534.99
CRPA3Tablet	. £615.99	Easyl A4Tablet	£269.99
VIDEO DIG	ITISE	RS/ENHANCERS	
Digiview 3.0 + Rdaptor	£149.99	VD3FrameGrabber	£569.99
Digipic Frame Grabber	£199.99	VD3 + Colour Frame Grabber	£822.99
SOUND DI	GITIS	ERS/SAMPLERS	
PRO Sound Designer	£67.99 £24.50	Future Sound	£156.99
PROMIDIFIUS	1.24.50	Perrect Sound	103.33
		ERFACES	
ECE Mid/Interface	£49.99	Midi Master 500	£30.99
	MOD	EMS	
Demonil	£82.99	Pace Linnet	£139.99
Designer Miracom WS2000	. £102.99	Pace Series Four 1200S Pace Series Four 2123S	£389.99
Miracom WS2000	£169.99	Pace Series Four 21235 Pace Series Four 24005	£487.99
F	MIII	ATORS	
64Emulator			£49.99
	045	1.50	
Standard Centronics Printer Cable		BLES	54.00
Deluxe Centronics Printer Cable	£9.99	Midi Cable	£2.99
Deluxe Centronics Printer Cable	£4.99	4-Way Raptor Midi Cable Modem Cable	£9.99
DISK STOR	AGE/	HEAD CLEANERS	
D	04.00	DiskBox for 10 x 5.25" disks	£1.99
Disk Box for 10x3.5 disks Disk Box for 40x3.5 'disks Disk Box for 80x3.5' disks Disk Box for 120x3.5' disks Disk Wallet for 10x3.5' disks	£7.99	DiskBoxfor50x5.25*disks	£8.99
Disk Box for 120 x 3.5° disks	£9.99	Disk Box for 100 x 5.25" disks	£10.99
Disk Wallet for 10 x 3.5" disks	£10.99	Disk Walletfor 10 x 5.25 disks	£10.99
3.5" Disk Head Cleaner	£4.99	5.25" Disk Head Cleaner	£4.99

	V	VORD PROCE			
BeckerText	£98	LPD Writer Pro Write V2.0	£98	VizaWrite	£82
Kind Words	£35	TextPro	£47	Write & File	£55
		Coming Soon. PROTEXT fr			
		DATABAS			
Acquisition V1.3 Data Retrieve	£196	db ManK Data	£113	Microfiche Filer Superbase Personal	£69
Data Retrieve Prof	Ring	Mi Amiga File	£39	Superbase Prof	£173
		SPREADSH	EETS		
Hai Calc	£47 £60	Logistix V1.15 Maxiplan A500	£94 £76	Maxiplan PlusVIP Professional	£113
	DE	SK TOP PUB	LISHII	NG	
City Desk V1.1	£82	Professional Page	£196	Publishing Partner Prof	Ring
Pagesetter	£63	Publisher Plus	£49 ipt Module f	Shakespeare26	£118
LANGI	JAGE	S/ASSEMBL	ERS/	COMPILERS	
AC/Basic Compiler		Benchmark Cl ih	£63	MCCPaecalV2.0	£62
AC/Fort/Turbo Amiga	£232	Benchmark IFF Lib Benchmark Simplifier	£63	MCC Macro Assembler Modula 2 Standard	£49
AC/Fort/Turbo Amiga	£406	Benchmark Simplifier	£63	Modula 2 Standard Modual 2 Developer	£69
APC 68000 Amiga Assempro	£47	Cambridge Lisp Devpac	£45	SAM Basic	£76
Aztec C Professional	£158	Devpac Fortran Prof Pack K Seka Assembler V1.5	£150	MCCShell	£35
Aztec C Developer	£245	K Seka Assembler V1.5 Lattice C V4.1	£38	Toolkit	£28
Benchmark Modula 2	£110	Lattice C Prof	£208	T/Basic Runtime System	£57
	True Ba	sic Programming Libi			
3D Graphics Adv String Function	ns	Business Graphic Developers Toolk	it	Scientific Graphics Sorting & Searchin	9
		UTILITIE	S		
Access 64 A500/1000	F49	Gizmoz 2 0	F41	Maxi desk	£53
Amiga DOS Express	£26	Goldspell2	24	Newsletter Fonts Powerwindows 2	£20
Award Maker	£31	GOMFC2.1	£24	Powerwindows2	£55
Butcher2	£24	Goldspell 2 GOMFC2.1 Grabbit Interchange	£24	Project D	£19
Diskmaster	£33	Invotools Kara Fonts K Gadget	£50	Quarterback	£39
Disk2Disk	£41	Kara Fonts	£47	Reason	Ring
DOS 2 DOS Expert System Kit	£31	KRoget	Ring	Studio Fonts	£55
FACCII Flipside	£24	Lion Fonts	£31	The Calligrapher	£55
		GRAPHICS/A			
	SA SANGTER				
Aegis Animator/Images	£82	Deluxe Paint II	£54	Printmaster Plus	£39
Aegis Artpac 1	Bing	Deluxe Print V1.2	£19	P/master Clip Art	Ring
Aegis Impact Lights, Camera, Actional	£50	Deluxe Print V1.2 Deluxe Productions	£107	PrismPlusV1.2	£47
Lights, Camera, Actional	£45	Deluxe Video 1.2	£54	Pro Video	£126
Aegis Videoscape 3D Aegis VIdeo Titler	£87	Digi Paint Express Paint V2.0	£55	Pro Video Font Libs	£67
Animate3D	£99	Forms in Flight	£55	Sculpt3DSculpt3DAnimate	£99
Animator Apprentice	£158	Modeler3D	Ring	TVTextTVShow	£49
Animator Appr Jnr Anim Appr Jnr Libs	£13	Page Flipper	£91	The Director	£47
Deluxe Art Parts	£8	Photon Paint	£58	Turbo Silver	£110
	CON	IPUTER AIDE	-	SIGN	
Aegis Draw 2000 Dynamic CADV2.3	Ring	IntroCAD	£47	PronetXCAD	
Dynamic CAD V2.3			IND		
		MUSIC/SO			
ADrum	£28	Deluxe Music Parts	£8	ProMidiStudios/w	Ring
Aegis Audiom aster	£36	Drum Studio	£19	Pro Sound Designers/w The Music Studio	£28
Deluxe Music	£54	Musicx	Ring	Ultimate Sound Tracker	Ring
	(COMMUNICA	TION	S	
ATalkPlus	£68	BBS PC	Ring	Maxicomm	£38
A Term	£38	Digital Link	£53	On Line	£38
		EDUCATIO			The state of the s
Descartes!	£24	Galileo	£45	Mathamation	£41
Algebra	Tr	ue Basic Programming Libra Calculus	ries at £33 e	ach Probability Theory	v
Algebra 1		Discrete Mathemat	tics	Trigonometry	
Arithmetic		Pre-Calculus		True Stat	

WE CARRY A LARGE RANGE OF ENTERTAINMENT SOFT WARE, ALL NEW RELEASES TAKEN. PLEASE RING FOR PRICES & AVAILABILITY

All prices are inclusive of VAT orders over £30 P+P is FREE. Couriers Overseas Rates on request.

PLEASE MAKE CHEQUES/POSTAL ORDERS PAYABLE TO SCC MAIL ORDER

SCC MAIL ORDER

29 Crowtree Road, Sunderland SR1 3JU Tel: 091 565 5765 continued from page 92

Midi magic

Track editing facilities are available from a pull down menu and, when selected, an appropriate edit window is opened allowing track copying, cutting, inversion, pitch transposition, and quantizing, etc. Individual MIDI events can also be viewed and edited but there is no doubt that the absence of proper mouse orientated clipboard 'cut and paste' facilities make complex editing more time consuming than it ought to be.

CONCLUSIONS: In most respects MIDI Magic is well integrated into the Amiga environment and makes good use of gadgets and pull down menus. There are a large number of options available and, in theory, MIDI Magic's features should appeal to the professional market. The package behaved quite well yet it did not make the impact on me that I expect from a package aimed at the serious user. There is very little that you cannot do with MIDI Magic but I am afraid I simply don't think that the package is easy enough to use for routine studio or professional musician use.

MIDI Magic is going to be priced at around £149 and my biggest worry is

that this is too expensive. At this price MIDI Magic is close to being in direct competition with packages intended for professional use. The home user market, which looks like the most suitable sales target, always includes large numbers of users who have need of low cost sequencer packages. With a reduced price tag MIDI Magic would satisfy this corner of the market and would become a useful foothold for those wishing to move into the world of MIDI sequencing.

P.A.O

Price: £149.95

Contact: Brown Waugh (US) (408) 3953838.



Lattice Compiler Companion

Most programmers could do with a friend to turn to from time to time. Paul Andreas Overaa found a new companion to fit the bill.

THE Lattice 'Compiler Companion' is a set of ten utilities designed to enhance programmer productivity. In one form or the other the individual utilities have been available for some time (and are therefore 'tried and tested') but Lattice have now decided to offer the complete collection as a single package. The two immediate benefits of this policy are that firstly the overall cost of the utilities has been lowered and secondly that a manual is now available which, in a single volume, covers the complete set of tools.

Only one of the utilities is specifically language dependent and this is the CXREF module. It is used to generate cross-reference listings of C language source files and produces tables showing Preprocessor definitions, Functions, Labels, Structure identifiers and Identifiers together with the linenumbers of the program in which they occur. Because a line numbered program listing can also be produced it is easy, even with large source files, to correlate the table data with your program listings. CXREF is command line driven and it supports the AmigaDOS wildcard arrangement. It can handle 'include' file processing and program output can be redirected to any of the Amiga's standard output devices.

The Companion also contains the EXTRACT and BUILD commands which enable you to extract filenames from a directory and build batch command files. They provide a straightforward way to automating complex sets of commands and, in practice, are very useful indeed.

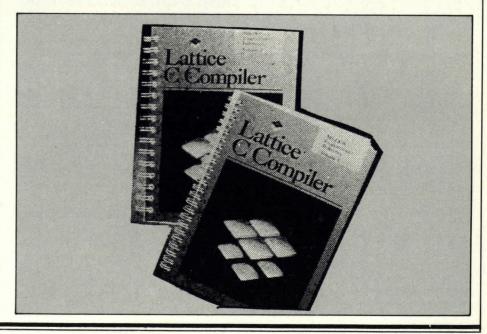
FILES is the file manipulation

utility. It allows you to search for, copy or erase files and directories and as well as dealing with named files it can also copy, move, or remove entire directory structures. File searching includes recursive examination of nested directories and options are available to limit the search of specific file types or those with particular date stamp or file size attributes. Filenames can include 'wild cards' so you can also use the utility to locate files even if you are unsure of both the complete name and the directory location.

GREP (Global Regular Expression Search and Print) is a utility which searches a set of files for a specified character pattern and prints each line containing the expression matching the pattern. This is a utility which I had not used before and to be honest I did not expect it to be particularly

useful...the search facilities offered, at first sight, seemed little different to those available with many editor/WP packages. It took about 15 minutes of using GREP to change my mind! Firstly it is convenient because it is available at the CLI...in a program compiling environment you have at least one and usually several, CLIs in use. Secondly, the pattern matching capabilities do in fact turn out to be very powerful indeed. GREP can handle disjunctive patern analysis and supports the concept of a 'character class', i.e. a sub-set of characters which can define a target character within a pattern definition. The command line syntax for the more complex operations takes a while to get used to but it is definitely worth the effort.

Remember that these utilities



Lattice Compiler Companion

have been designed to provide a 'framework' for the serious programmer and in this context it does not take long to appreciate the potential power of the utilities when viewed as an inter-related set. It is worth looking at a short example of how the functions of various utilities can be combined: The following example is rather 'contrived' but it should give you the general idea...Let us suppose that, rather than searching through pages of searching printed header files, you wish to instigate a computerised search of ALL of the Amiga C programmer's 'include files', (i.e. all of the header files in all of the sub-directories) to find the filename of the directory path of the header file which defines the expression 'NULL'. This is how it could be done using three Compiler Companion commands:



Firstly we use the command to create a RADdisk file containing the names of all of the header filenames and directory paths . . . files ram: MyDirFilename#?.h df1:include Then we 'build' a batchfile which will use the 'GREP' utility on every header file in MyDirFile . . . build >ram: ram:MyDirFile batchfile patcntile ram:MyDirFile grep "NULL"! (plus a control/to end text input) Lastly we instigate the 'include file' search by typing . . . execute ram:batchfile

The above lines take about twenty seconds to think about and type in and half a minute of so

after that in search identifies the we require . . . df1: reference include/exec/types.h 40:#define **NULL 0** It tells us that the definition of NULL occurs on the 40th line of the types.h header file . . . which can be found in the 'exec' sub-directory of the 'include' file directory.

I will not discuss the syntax of the example lines because it is not particularly significant. What is important, however, is command combinations such as these enable rapid and easy automation of many hundreds of necessary but time consuming jobs that you, as a programmer, will often need to perform.

There is an added bonus with GREP if you are programming in C or can handle the interface of C functions to assembler or another language. The utility makes use of several functions which construct an internal representation of a pattern and then check to see if this pattern is matched in a given string. The Compiler Companion disk includes a library file containing these routines as usable C functions. This provides you with a ready make way of building the same pattern matching capability

into your own programs.

DIFF is a utility which lets you compare files and determine textual differences between them. When combined with the Build/ Extract facilities it becomes possible to automate many types of file comparison operations. You could, for instance, compare the command directories of two disks and display a list of commands which are present in one directory but not in the other. Needless to say, the ability to automate these types of operations, especially in a hard disk environment, is most useful.

WC (Word Count) takes a filename and will display the number of characters, words and lines in the file. It can also compute a checksum based on the printable characters present in the file. WC can provide a rapid, although not foolproof, check as to whether two files are identical in terms of printable content. This is a useful check to be made after a file has been transferred to or received from another machine. Because this latter use needs WC running on both machines Lattice have actually provided the source code for the program.

SPLAT is a line based editor similar to the AmigaDOS system editor 'Edit'. Its inclusion in the Compiler Companion simplifies

the making of minor changes to files or sets of files. There is no need to read entire files into memory and since it can handle several files at once it is easier and quicker to use than 'Edit'. There is an added safeguard as well because, unless you specifically ask for the source files to be overwritten, your original files will remain intact with the modified versions either being placed in a separate directory or being given an additional filename extension.

TOUCH is another utility which adjusts the time and date stamp on specified files to the current system time and date. Automated procedures which modify sets of files can include Touch directives so that the modified files are given an amended time and date.



LMK is arguably the most sophisticated tool in the Compiler Companion package. It is a utility which is used to co-ordinate the maintenance of projects involving multiple files. It enables you to specify the dependencies which exist between sets of files and then automate the operations involved with generating your 'final product'. It is particularly useful in hard disk environments, in projects involving many programmers and for 'on-going' projects. Because the C language encourages the use of a modular approach involving many files LMK is frequently used to automate the compile-link cycle although the utility is not language dependent at all.

The Lattice Companion costs about seventy pounds. It is supplied on a single disk and, as would be expected, the documentation and presentation are excellent. The price, relative to other Amiga 'utility type' packages, is very competitive - it can be heartily recommended to

all serious programmers.

P.O.A.

Price: £79.95

Contact: HB Marketing Ltd, Brooklyn House, 22 The Green, West Drayton, Middx UB7 7PQ. (0895) 444433.

SOFTVILLE PD SERVICE

55 HIGHFIELD AVENUE, WATERLOOVILLE HAMPSHIRE PO7 7PY, ENGLAND. Tel 0705-266509

a SMALL selection from our collection of over 400 disks FULL of the best PD available for your

AMIGA

"PROBE", the best demo of its type.
TUTORIAL, commed with information
PERFECT SOUND player/recorder etc.
- CLIP ART in IFF formaat

SOF2 - IUTUKIAL, and ammed with Intermetation
SOF9 - PERFECT SOUND player/recorder etc.
SOF15 - CLIP ART in IFF formaat
SOF20 - NASA digiview sildeshow, 14 pics
SOF20-, ANSA digiview sildeshow, 14 pics
SOF10 - FULL of MIDI programs
SOF11 - DISK TWO of MIDI utilities
SOF17 - RAY TRACING construction set
SOF21 - Pagesetter CLIP-ART
SOF21 - Pagesetter CLIP-ART
SOF25 - JET FLIGHT demo from Sublogic
SOF33,34,35 & 36 - Four disks full of the
very best demos from the Badge Killer contest
SOF40 - The fobulous "Walking Legs" demo
SOF43 - AmigaSpell, spelling checker
SOF45,46,47 & 48 - Four disks full of tunes
for use with the SONIX program.
SOF49 - FONTS & FONT UTILITIES
SOF50 - Printer Driver Generator
SOF54 & 55 - The brilliant NEWTEK demo.
You need both disks, two drives and 1 Meg
SOF56 - The Incredible "DOC demo + 4 others
SOF57 - WORDWRIGHT Word processor

SOF59 - JUKEBOX MUSIC demo, great samples SOF60 - Digitised music, over 11.5 hrs worth! SOF66 - FIVE sampled tunes - half megs only SOF67 - Bootbench V2.0 - make your own demo programs you've always marveled over. SOF68 - CLASSIC BOARD GAMES SOF69 - CLASSIC ARCADE/BOARD GAMES SOF70 - CLASSIC AMIGA DEMOS SOF70 - CLASSIC AMIGA DEMOS SOF72 - Four great graphic mini-movies SOF73,74,75 & 76 - Miami Vice, digitised. You need all four disks (but only one drive).

All these plus the full range of FRED FISH disks (currently up to FF154), the best of the AMICUS collection, all the FAUG disks, the complete set of PoNorAmA disks and the SLIPPED DISK collection. Whatever you want, we've got it.

NO MEMBERSHIP - NOTHING TO JOIN

We simply provide the very BEST service to enable you to get great software cheaply. Plus GUARANTEED same day postage of all orders.

Disk prices; £3:00p each - £2:75p for 6 & over - £2:50p for 11 & over Deduct £1:00p per disk price if you send in your own blank disks.

Cheques/po's payable to 'SOFTVILLE' at above address.

We also stock a great range of essential goods for every Amiga owner PRO-5000 J/Stick (clear or black) - £13:50 Quickshot2 (Turbo) - £11:00 Disk Boxes (lockable) to hold 50 - £8:00 to hold 100 - £10:00 Library case to hold 10 - £1:50 MOUSE PADS, good quality - £3:50 CUMANA INSTRUCTS - £104:99

A full range of Amiga specific books at discount prices - ask for list

Commercial Software at 25% off r.r.p

e.g. Great Giana Sisters - Fire & Forget - £18:25 each
plus Labels, Paper, Blank Disks, branded and bulk etc. etc.

PUBLIC DOMAIN SOFTWARE

Send a stamp for our FREE 24 page catalogue, state clearly "AMIGA" and this magazine.

AINS Not PD SUPPL

R

Computers

A500 Games Pack Workbench, Extras, Tutorial Disk Handbook, Basic Manual, TV Modulator Karate Kid II, Goldrunner, Skyfighter, Demolition, Gridstart, 4 PD Disk's Quickshot Joystick ONLY!! £399.00

A500 + A1084 Colour Monitor As Above Only !!£649.00

Surrey AMIGA Owners

A Full Range of Software and Hardware Always in Stock. Please feel free to drop in for a chat, and to see what is happening in the exiting world of the AMIGA

> 6, The Broadway Kingston Road Staines Middlesex **TW18 4LG** Telephone 0784 60679

16-BIT SOFTWARE OF ROCHDALE — AMIGA BOOKS AND UTILITIES **SPECIALIST**

Amiga For Beginners (Abacus New Rev. Edition)	Motorola 68000 Programmers Reference Manual (Motorola)	£9.95
Amiga Machine Language (Abacus) (D)	Amiga for Beginners (Abacus New Rev. Edition)	£10.95
Kickstart Guide to the Amiga (Ariadne). £12.95 Kids and the Amiga (Compute!). £12.95 Elementary Amiga BASIC (Compute!) (D). £12.95 Amiga Programmers Guide (Compute!). £14.95 Amiga DOS Reference Guide (Compute!). £14.95 Amiga Tricks and Tips (Abacus) (D). £14.95 Amiga Applications (Compute!) (D). £14.95 First Book of the Amiga (Compute!) (D). £14.95 First Book of the Amiga (Compute!) (D). £14.95 Amiga BASIC — Inside & Out (Abacus (D). £16.95 Advanced Amiga BASIC (Compute!) (D). £16.95 Amiga User's Guide to Graphics, Sound, Telecom (Bantam). £17.95 Becoming an Amiga Artist (Scott-Foresman – NEW) £17.95 Using Deltuxe Paint! II (Compute!). £17.95 Inside the Amiga With C (Bam). £17.95 The Amiga Microsoft BASIC Programmer's Guide (Microsoft). £19.95 Inside the Amiga with C (Sams). £19.95 Amiga Hardware Reference Manual (Addison-Wesley). £22.95 Amiga DOS Manual (Bantam). £22.95 Amiga DOS Manual (Bantam). £22.95 Programmer Reference Manual: Exc (Addison-Wes	Amiga Machine Language (Abacus) (D)	£12.95
Lilent L	Kickstart Guide to the Amiga (Ariadne)	£12.95
Elementary Amiga BASIC (Compute!) (D)	Kids and the Amiga (Compute!)	£12.95
Amiga Programmers Guide (Compute!) £14.95 Amiga DOS Reference Guide (Compute!) £14.95 Inside Amiga Graphics (Compute!) £14.95 Amiga Tricks and Tips (Abacus) (D) £14.95 First Book of the Amiga (Compute!) (D) £14.95 First Book of the Amiga (Compute!) (D) £14.95 Amiga BASIC — Inside & Out (Abacus (D) £16.95 Advanced Amiga BASIC (Compute!) (D) £16.95 Amiga Machine Language Programming Guide (Compute! – NEW) (D) £17.95 Amiga User's Guide to Graphics, Sound, Telecom (Bantam) £17.95 Becoming an Amiga Artist (Scott-Foresman – NEW) £17.95 Using Deluxe Paint!! (Compute!) £17.95 Isamiga C — Prog. Graphics on Amiga & AtariST (Compute!) (D) £17.95 Inside the Amiga with C (Bam) £19.95 The Amiga Microsoft BASIC Programmer's Guide (Microsoft) £19.95 Inside the Amiga with C (Sams) £19.95 Amiga Hardware Reference Manual (Addison-Wesley) £22.95 Amiga Intuition Reference Manual (Addison-Wesley) £22.95 Amiga DOS Manual (Bantam) £22.95 Programmer Reference Manual: Exc (Addison-Wesley) £22.95	Elementary Amiga BASIC (Compute!) (D)	£12.95
Amiga DOS Reference Guide (Compute!)	Amiga Programmers Guide (Compute!)	€14.95
Inside Amiga Graphics (Compute!) (D)	Amiga DOS Reference Guide (Compute!)	£14.95
Amiga Tricks and Tips (Abacus) (D)	Inside Amiga Graphics (Compute!) (D)	£14.95
Amiga Applications (Compute!) (D) £14.95 First Book of the Amiga (Compute!) (D) £14.95 Amiga BASIC —Inside & Out (Abacus (D) £16.95 Advanced Amiga BASIC (Compute!) (D) £16.95 Amiga Machine Language Programming Guide (Compute!—NEW) (D) £17.95 Amiga User's Guide to Graphics, Sound, Telecom (Bantam) £17.95 Becoming an Amiga Artist (Scott-Foresman—NEW) £17.95 Using Deluxe Paint II (Compute!) £17.95 Learning C—Prog, Graphics on Amiga & Atari ST (Compute!) (D) £17.95 Inside the Amiga with C (8am) £19.95 The Amiga Microsoft BASIC Programmer's Guide (Microsoft) £19.95 Amiga Hardware Reference Manual (Addison-Wesley) £22.95 Amiga Hardware Reference Manual (Addison-Wesley) £22.95 Amiga DOS Manual (Bantam) £22.95 Programming the 68000 (Sybex) £22.95 Programmer Brogrammer's Guide (Abacus—NEW!) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Vol2 (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £24.95		
First Book of the Amiga (Compute!) (D)	Amiga Applications (Compute!) (D)	£14.95
Amiga BASIC — Inside & Out (Abacus (D)	First Book of the Amiga (Compute!) (D)	£14.95
Advanced Amiga BASIC (Compute!) (D) £16.95 Amiga Machine Language Programming Guide (Compute!-NEW) (D) £17.95 Amiga User's Guide to Graphics, Sound, Telecom (Bantam) £17.95 Becoming an Amiga Artist (Scott-Foresman-NEW) £17.95 Using Deluxe Paint II (Compute!) £17.95 Learning C- Prog. Graphics on Amiga & AtariST (Compute!) (D) £17.95 Inside the Amiga with C (8am) £19.95 The Amiga Microsoft BASIC Programmer's Guide (Microsoft) £19.95 Inside the Amiga with C (Sams) £19.95 Amiga Hardware Reference Manual (Addison-Wesley) £22.95 Amiga Intuition Reference Manual (Addison-Wesley) £22.95 Amiga DOS Manual (Bantam) £22.95 Programming the 68000 (Sybex) £22.95 Programmer S Guide to the Amiga (Sybex) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Vol2 (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £24.95	Amiga BASIC—Inside & Out (Abacus (D)	£16.95
Amiga Machine Language Programming Guide (Compute!—NEW) (D) £17.95 Amiga User's Guide to Graphics, Sound, Telecom (Bantam) £17.95 Becoming an Amiga Artist (Scott-Foresman—NEW) £17.95 Using Deluxe Paint II (Compute!) £17.95 Learning C—Prog. Graphics on Amiga & Atari ST (Compute!) (D) £17.95 Inside the Amiga with C (8am) £19.95 The Amiga Microsoft BASIC Programmer's Guide (Microsoft) £19.95 Inside the Amiga with C (Sams) £19.95 Amiga Hardware Reference Manual (Addison-Wesley) £22.95 Amiga ROM Kernel Reference Manual: Exc (Addison-Wesley) £22.95 Amiga BOOS Manual (Bantam) £22.95 Programming the 68000 (Sybex) £22.95 Amiga System Programmer's Guide (Abacus—NEW!) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Vol2 (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £24.95	Advanced Amiga BASIC (Compute!) (D)	£16.95
Amiga User's Guide to Graphics, Sound, Telecom (Bantam)	Amiga Machine Language Programming Guide (Compute!—NEW) (D)	£17.95
Becoming an Amiga Artist (Scott-Foresman – NEW) £17.95 Using Deluxe Paint! II (Compute!) £17.95 Learning C – Prog. Graphics on Amiga & AtariST (Compute!) (D) £17.95 Inside the Amiga with C (8am) £19.95 The Amiga Microsoft BASIC Programmer's Guide (Microsoft) £19.95 Inside the Amiga with C (Sams) £19.95 Amiga Hardware Reference Manual (Addison-Wesley) £22.95 Amiga Dom Kernel Reference Manual (Addison-Wesley) £22.95 Amiga DOS Manual (Bantam) £22.95 Programming the 68000 (Sybex) £22.95 Amiga System Programmer's Guide (Abacus — NEW!) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £24.95	Amiga User's Guide to Graphics, Sound, Telecom (Bantam)	£17.95
Using Deluxe Paint II (Compute!)	Becoming an Amiga Artist (Scott-Foresman – NEW)	£17.95
Learning C-Prog. Graphics on Amiga & Atari ST (Compute!) (D) £17.95 Inside the Amiga with C (8am) £19.95 The Amiga Microsoft BASIC Programmer's Guide (Microsoft) £19.95 Inside the Amiga with C (Sams) £19.95 Amiga Hardware Reference Manual (Addison-Wesley) £22.95 Amiga ROM Kernel Reference Manual (Exc (Addison-Wesley) £22.95 Amiga DOS Manual (Bantam) £22.95 Programming the 68000 (Sybex) £22.95 Amiga System Programmer's Guide (Abacus—NEW!) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Sybex) £24.95 Amiga Programmers Handbook Vol 2 (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £32.95	Using Deluxe Paint II (Compute!)	£17.95
Inside the Amiga with C (8am) £19.95 The Amiga Microsoft BASIC Programmer's Guide (Microsoft) £19.95 Inside the Amiga with C (Sams) £19.95 Inside the Amiga with C (Sams) £19.95 Amiga Hardware Reference Manual (Addison-Wesley) £22.95 Amiga ROM Kernel Reference Manual (Sadison-Wesley) £22.95 Amiga ROM Kernel Reference Manual: Exc (Addison-Wesley) £22.95 Amiga DOS Manual (Bantam) £22.95 Programming the 68000 (Sybex) £22.95 Amiga System Programmer's Guide (Abacus — NEW!) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Sybex) £24.95 Amiga Programmers Handbook Vol 2 (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £23.95	Learning C-Prog. Graphics on Amiga & Atari ST (Compute!) (D)	£17.95
The Amiga Microsoft BASIC Programmer's Guide (Microsoft). £19.95 Inside the Amiga with C (Sams). £19.95 Amiga Hardware Reference Manual (Addison-Wesley). £22.95 Amiga Intuition Reference Manual (Addison-Wesley). £22.95 Amiga ROM Kernel Reference Manual: Exc (Addison-Wesley). £22.95 Amiga DOS Manual (Bantam). £22.95 Programming the 68000 (Sybex). £22.95 Amiga System Programmer's Guide (Abacus—NEW!). £24.95 Programmers Guide to the Amiga (Sybex). £24.95 Amiga Programmers Handbook (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley). £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley). £23.95	Inside the Amiga with C (8am)	£19.95
Inside the Amiga with C (Sams) £19.95 Amiga Hardware Reference Manual (Addison-Wesley) £22.95 Amiga Insuition Reference Manual (Addison-Wesley) £22.95 Amiga ROM Kernel Reference Manual: Exc (Addison-Wesley) £22.95 Amiga DOS Manual (Bantam) £22.95 Programming the 68000 (Sybex) £22.95 Amiga System Programmer's Guide (Abacus — NEW!) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Sybex) £24.95 Amiga Programmers Handbook Vol 2 (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £23.95	The Amiga Microsoft BASIC Programmer's Guide (Microsoft)	£19.95
Amiga Hardware Reference Manual (Addison-Wesley) £22.95 Amiga RoM Kernel Reference Manual (Addison-Wesley) £22.95 Amiga ROM Kernel Reference Manual: Exc (Addison-Wesley) £22.95 Amiga DOS Manual (Bantam) £22.95 Programming the 68000 (Sybex) £22.95 Amiga System Programmer's Guide (Abacus — NEW!) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Sybex) £24.95 Amiga Programmers Handbook Vol 2 (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £23.95	Inside the Amiga with C (Sams)	£19.95
Amiga Intuition Reference Manual (Addison-Wesley) £22.95 Amiga ROM Kernel Reference Manual: Exc (Addison-Wesley) £22.95 Amiga DOS Manual (Bantam) £22.95 Programmer He 68000 (Sybex) £22.95 Amiga System Programmer's Guide (Abacus—NEW!) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Sybex) £24.95 Amiga Programmers Handbook Vol 2 (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £23.95	Amiga Hardware Reference Manual (Addison-Wesley)	£22.95
Amiga ROM Kernel Reference Manual: Exc (Addison-Wesley). £22.95 Amiga DOS Manual (Bantam). £22.95 Programming the 68000 (Sybex). £22.95 Amiga System Programmer's Guide (Abacus—NEW!). £24.95 Programmers Guide to the Amiga (Sybex). £24.95 Amiga Programmers Handbook (Sybex). £24.95 Amiga Programmers Handbook Vol 2 (Sybex). £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley). £32.95	Amiga Intuition Reference Manual (Addison-Wesley)	£22.95
Amiga DOS Manual (Bantam) £22.95 Programming the 68000 (Sybex) £22.95 Amiga System Programmer's Guide (Abacus — NEW!) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Sybex) £24.95 Amiga Programmers Handbook Vol 2 (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £32.95	Amiga ROM Kernel Reference Manual: Exc (Addison-Wesley)	£22.95
Programming the 68000 (Sybex) £22.95 Amiga System Programmer's Guide (Abacus—NEW!) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Sybex) £24.95 Amiga Programmers Handbook (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £23.95	Amiga DOS Manual (Bantam)	£22.95
Amiga System Programmer's Guide (Abacus—NEW!) £24.95 Programmers Guide to the Amiga (Sybex) £24.95 Amiga Programmers Handbook (Sybex) £24.95 Amiga Programmers Handbook Vol 2 (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £32.95	Programming the 68000 (Sybex)	£22.95
Programmers Guide to the Amiga (Sybex)	Amiga System Programmer's Guide (Abacus—NEW!)	£24.95
Amiga Programmers Handbook (Sybex) £24.95 Amiga Programmers Handbook Vol 2 (Sybex) £24.95 Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley) £32.95	Programmers Guide to the Amiga (Sybex)	£24.95
Amiga Programmers Handbook Vol 2 (Sybex)	Amiga Programmers Handbook (Sybex)	£24.95
Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley)	Amiga Programmers Handbook Vol 2 (Sybex)	£24.95
Book Programs On Disk—Available for all titles marked (D)	Amiga ROM Kernal Ref Manual: Libs & Devices (Addison-Wesley)	£32.95
	Book Programs On Disk—Available for all titles marked (D)	£9.95

ANNOUNCING 16-BIT SOFTWARE'S PUBLIC DOMAIN SOFTWARE CLUB SEND JUST £1.50 FOR OUR SPECIAL INTRO DISK & PRINTED CATALOGUE AND BE AMAZED AT THE ULTRA-LOW PRICES ON ALL ANIGA SOFTWARE!

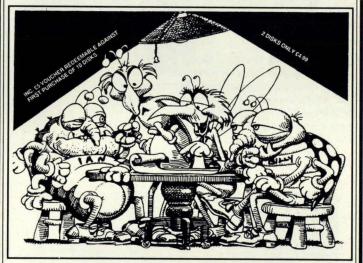
SPECIAL OFFER! CUMANA I MEG EXTERNAL DRIVE NOW ONLY 197.50

FREE AMIGA CATALOGUE OUT NOW! Contains detailed descriptions of books, pheripherals and utilities, at low, low prices! Send an s.a.e.

CALL OUR CREDIT CARD HOTLINE TEL 0706 43519

All offers are subject to availability and may change at any time. E & O E.
All prices include P&P in UK. Otherwise add £2 per item abroad.
Access/Visa/Mastercard Hotline/Enquiries Tel: (0706) 43519
Send cheque/PO/Mostercard/Access or Viso details to: 16-Bit Software
Dept AUI, 24 Bankfield Lane, Norden, Rochdale, Lancashire OLI 15RJ

MEGA PUBLIC DOMAIN PACK



"Friends. I've called this meeting to discuss what we can do about GEORGE THOMPSON SERVICES. First they bring out a P.D. STARTER PACK (8 disks) then follow it up with a MEGA DEMO PACK (7 disks). Each for only £19.99. Not content with this they put us out of b usiness by including in the September issue of **JUMPDISK** a Boot Block transfer program and the very latest Virus checker, all for £8.50. Now over 300 quality **PUBLIC DOMAIN** disks at their fingertips they release the MEGA P.D. LIBRARY PACK! Two disks packed full of detailed P.D. listings plus tutorials, hints and tips and a complete JUMPDISK MAGSCAN. There's a pair of 3D glasses for a great new 3D Space Game they've included that even I can't stop playing. I dread to think what they've planned for the Commodore show! Let's take a vote on it. OK we agree! We order the Mega PD Library Pack at £4.99. After all if we can't beat them we might as well join them and enjoy it in the process"

We are GEORGE THOMPSON SERVICES. Dippen, Brodick, Arran, Scotland KA27 8RN. Telephone: (077 082) 234.

Please send a cheque/P.O. for the appropriate amount and we will do the rest.

The Amiga A Moving (TV)

C Commodore

technologies: computing and television.
The computer area is represented by 17 micros, nine of which are Commodore AT

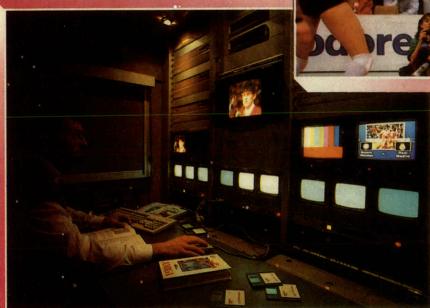
The computer area is represented by 17 micros, nine of which are Commodore AT 40/40 computers built around the 80286 processor. To save space these are vertically mounted into tables in groups of three. Additionally, there are eight full-configuration Amiga 2000 computer systems. Of these, three systems have genlock capabilities, and two systems are equipped with video digitisers.

BM's Tele Vision provided facilities for the European Volleyball Championship in Belgium.

ommodore has a more garage Tele Vision service that has been operating at major European sporting events since the beginning of this year. It is now available to production companies and TV stations in the UK for outside broadcasts.

C: Commodore

Amiga Tele Vision is packed within a 13 ton Mercedes truck and combines two



All the computers are interconnected on three network levels. The SK network links each of the 17 systems. There is a hardware-addressable V24 network offering the benefit of assigning a unique numerical designation to each device allowing it to be directly addressed.

Interfaces are a key factor for communication between systems. Each AT has 10 built-in serial interfaces. A special interface plug-board has been designed for Amiga Tele Vision allowing each device to be connected as required.

There are 210 serial interfaces on-board the "Mediamobile" these are linked to the television level through serial interfaces on the TV systems. This allows for computer controlled television.

The television level of Amiga Tele Vision's truck comprises two U-matic high band recorders and a C-Tape-Machine plus a video mixer and a 10-channel sound mixer.

Technologically, the cutting edge of Amiga Tele Vision is represented by five combined character and graphics generators which can be interlinked freely using a customised digital effects system.

Running under the name of Pinnacle this effects unit is based on an ordinary 80286 computer which has been programmed with an Amiga-style open system architecture.

Using bridge cards, the MS-DOS computer controls certain applications on the video bus, including a range of digital effects from enlarging or reducing images using digital storage of stills filed away on the hard disk. This system can also perform a number of "Paint-box" style utilities to the creation of full frames and more specialised applications such as computer animation and 3-D trick effects.

Commodore's Mediamobile allows three text and graphic generators to be combined, using the Pinnacle system, creating one signal. Up to 200 video stills can be stored in the system at any one time. These can be grabbed from existing taped material to be stored and then superimposed over existing full frames.

Computer Equipment: 9 Commodore AT 40/40s. 8 Commodore Amiga 200s, fully equipped. SK network under Novell. V24 Network. Link to television environment via V24.

Television Equipment Magnetic tape machine. 2 U-matic high band video recorders. Connections for three cameras. Video mixer. 10 channel sound mixer. 5 combined text and graphics generators (Aston 4 and Aston 3). Pinnacle digital effects system with a storage capacity of up to 200 video images. Video plugboard with 7 x 30 serial interfaces for linking the built-in devices. Wiring through a common cable duct with separate video, network and data sections.

The AT computer side of the Mediamobile is used for video control, the eight Amiga 2000 systems belong to the "presentation sector". Images resident in the Amigas—such as logos and captions—can be easily retrieved. The Amigas are not handled manually but are under full control by the other computers.

The plug-board is at the heart of the Mediamobile. Each monitor in the vehicle is completely allocatable, allowing the system to be rigged to cope with any situation.

It is in this that the Mediamobile has broken away from standard TV operating practices. Old principles of TV work have been changed to achieve a new level of system flexibility by maximising the use of computers.

Mediamobile is fitted with two modems. If problems emerge during operation there is a direct link, through the telephone network, to Commodore's Innsbruck programming centre.

On a less hi-tech note there are two air conditioning systems within the truck to take care of all the heat generated by Mediamobile's equipment. Heat, when it is needed, comes from a diesel heat generator and special underfloor heating.

The importance of all this climate control equipment is that it eiliminates problems associated with many mobile transmission units: such as water condensation causing plug connections to oxidise.

For further information on the Mediamobile, contact: Rob Wait, Spire Communications, Hazlitt Mews, London W14 OJZ. Tel: (01) 6023 0806.

The U.K. Amiga User Group

Are you new to the Amiga, finding it difficult to harness the power of this amazing computer?, then what you need is help from the largest group of Amiga enthusiasts in the world outside of the United States.

Members receive:

- Excellent discounts on software
- Technical support and on line help
- Superb hardware reductions
- A bi-monthly newsletter of over 60 pages!
- Access to a PD library of over 250 disks
- Use of an Amiga only bulletin board

DON'T HESITATE - **JOIN NOW** and start to appreciate what Amiga computing is all about......

For further details write, enclosing a stamped addressed envelope to:

The U.K. Amiga User Group, 66, London Road, Leicester. LE2 0QD.

Or Telephone - Leicester (0533) 550993

HOME & BUSINESS COMPUTERS

HARDWARE Citizen 120D Printer £139.00 The Works £69.00 Sophus S5 Sound Digitizer £179.00 Amiga A500 Pack c/w Photon Paint, 3 Games + Modulator £399.00 1084 Colour High Res Monitor inc Lead £229.00 Amiga Business Park, A500, 1084 Monitor, THE WORKS, PC Transformer, MPS 1200 Printer £775.00 IMB Cumana Drive Enable/Disable £99.00 DigiView V3 Pal £114.00 DigiView Adaptor £18.50 Genlock £260.00 Philips Tuner AV7300 £65.00 IDERSOFT 5 Optic Keyboard c/w interface and software £99.00 16 Bit Centre Business Pack (Phone for details) £449.00 Rank Zerox 4020 Colour Ink Printer £1250

SOFTWAI	RE
Synthia	£69.00
DRTKCS 1.6	£225
Aegis Sonix	£39.50
Studio Magic	£65.00
The Director	£45.50
Deluxe Paint II	£48.50
Deluxe Videop Pal	£48.50
Photon Paint	£50.50
Lattice Cv4.0	£122.50
Disk Master	£39.00
Sculpt 3D	£59.00
Softwood Write+File	£69.00
Airt V2	£45.00
Kind Words	£39.00
Turbo Silver	£115.00

16 BIT CENTRE
48 Bachelor Gardens, Harrogate,
North Yorkshire. HG1 3EE
Tel. (0423) 526322
All Prices include VAT & Postage

All prices are subject to change without notice.

AMIGA DISPLAY STRUCTURES

Part Two:

The Amiga is a powerful machine, capable of some amazing feats. This power, however, comes at a price – its advanced features require advanced programming techniques that can often be difficult to grasp. Betty Clay has taken it upon herself to learn all there is to know about the Amiga and to impart some of that knowledge to others.

VIEWS AND VIEWPORTS

he set of instructions needed to produce a display is called a View. You might want to think of a View as being one video frame, the information that is being displayed on a monitor at a particular time. Each different frame to be displayed must have its own View structure defined. These are managed by the graphics library routines InitView (which sets up the structure with default values or zeros) and LoadView (which loads the completed frame so that it is displayed on the monitor. A point of confusion is that the term "View" has two meanings in the system software. In the one case, it is a major structure (View.h). View.h is a major structure in the graphics library and it is made up of substructures for a ColorTable, View, ViewPort and RasInfo. In the second case, a View is the smaller structure "View" within the major "View.h".

In the graphics library, you will find the necessary structure under "graphics/view.h." Here is what you will find there:

struct ColorMap

UBYTE Flags; UBYTE Type;

UWORD Count; number of colours to be defined

APTR ColorTable; points to the address of the actual table of colours.

This table is loaded with the command SetRGB4(rp,n,r,g,b), which means that it points to the RastPort for this View, tells which register is being loaded and then gives the amount of red, green and blue needed to make this colour.

The command is used repeatedly until all registers are loaded.

Struct ViewPort

ViewPort *Next; – ties this ViewPort to the system list struct ColorMap *ColorMap; – points to the ColorMap for this ViewPort. If this value is null, a table of default values will be used.

struct CopList *Deplns; – causes the intermediate list of Copper instructions to be made. This is later merged with:

merged with:

struct CopList; *SprIns; the set of Copper instructions for sprites and: struct UCopList *UCopIns; the set of user-defined Copper instructions, frequently null but used for special effects.

The three Copper lists are combined by the command to MrgCop (merge Copper lists) and the merged list is the final one that is actually used.

SHORT Dwidth, DHeight; The size of this ViewPort

SHORT DxOffset, DyOffset; the location of the upper left corner UWORD Modes; is it Med-Res, Interlace, HAM, etc.

UWORD Reserved;

struct RasInfo *RasInfor; This holds a pointer to the bitmap and the coordinates for locating the ViewPort within that bitmap.

struct View

struct ViewPort *ViewPort; a pointer to the first ViewPort for this frame of the display. It links the ViewPorts into the system's lists.



struct coprlist *LOFCprList; pointer to the Long Frame Copperlist used in all modes

struct coprlist *SHFCprList; a pointer to the Short Frame Copperlist used only for interlace mode

SHORT DxOffset, DyOffset; coordinates for positioning the View. UWORD Modes; HAM, Interlace, etc.

The modes for a View can be of many types: DUALPF (dual playfield, so two bitmaps needed); PFBA (if set, this causes the second playfield to have priority over the first one); HIRES, LACE, HAM, SPRITES AND VP_HIDE (tells the system that this ViewPort is hidden by other ViewPorts, so no display instructions would be generated for it.) There can also be an EXTRA HALF_Brite mode.

struct RasInfor

struct RasInfo *Next; used only for dualplayfields, points to the second playfield

struct ColorMap; needed for the second playfield

SHORT RxOffset, RyOffset; the offset into this bitmap to determine the placement of the second playfield.

Notice that the first thing in a View structure is a pointer to the first ViewPort. These viewports will be linked using the system's normal linked-list method and a View can have many ViewPorts. Each ViewPort is a rectangular area on the screen. It need not be as wide as the view but usually is, because no two ViewPorts can share the same scanlines. In fact, there must be at least one full line between any two ViewPorts. That scan line gives the

OFTWARE

NEW

*** AMIGA SOUNDBLASTER ***

The AMIGA SOUNDBLASTER is a small stereo amplifier that comes complete with 2 high quality 20 WATT 3 way speakers. It is easily connected to your Amiga 500/1000 and adds a new dimension to all games.

Everyone knows that the Amiga has the best sound facilities available on any popular computer today. Unfortunately until now, unless you could connect your Amiga to your stereo system you could not appreciate the quality of the sound.

- ★ Comes complete with 2 high quality stereo speakers
- ★ Twin volume/balance controls
- ★ Headphone socket
- ★ Very easy to connect
- ★ Compatible with all software/hardware

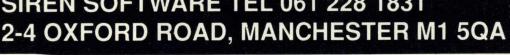
** Free stereo headphones with all orders for a limited period ★★

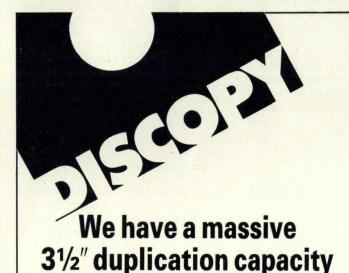
Amiga Soundblaster is just £39.99 including VAT and P&P

SIREN SOFTWARE TEL 061 228 1831









'Phone us now to hear the most competitive deal on **Amiga and ST Duplication and** on Body Printing!

■ DisCopy Labs plc

□ 20 Osyth Close, Brackmills, Northampton, NN4 0DY.

Tel: 0604 760261 Fax: 0604 766260

NEW! — **BEGINNERS GUIDE** TO AMIGADOS — NEW!

This is a new and effective way to take you from a beginner to an expert on AmigaDOS. The package consists of a guidebook, a tutorial DISC, a crib card and FREE additional software which could cost you over £20 to buy elsewhere.

This is a clear and well thought out guide to AmigaDOS. It is the easy way to learn about the power of AmigaDOS. It takes you by simple steps, with many examples through the AmigaDOS commands. The emphasis is on learning through experience and doing not just reading like most other books. It shows you how to set up a simple boot disc with your own customized messages that will boot in seconds (very much faster than workbench!). It will show you how to make your Amiga independent of the workbench disc - no more "Please insert workbench disc". It shows you how to include your own pictures (e.g. from DPaint) on your boot up sequence and MUCH MUCH more. The disc includes a password system which will prevent unwanted users from using your Amiga! The disc also includes a gallery of pictures.

Guidebook, Disc and Crib card only £12.95.

U.K. P&P FREE and by FIRST CLASS post. Overseas orders welcome -Payment in pounds sterling please. Europeans please add 50p. Outside Europe please add £1.50 for airmail.

Cheques/P.O.s to:

WIZARD SOFTWARE (Dept A3)

20 Hadrian Drive, Redhills, Exeter, Devon EX4 1SR

AMIGA DISPLAY STRUCTURES

continued from page 100

Copper time to make the changes needed if the upcoming view is to have different colours, resolution, etc., from the preceding one. A viewport may be as tall as the entire display, or may be only one screen line tall.

Many library routines are available to help the programmer manage the display of the ViewPorts. There are the macros that manage the Copperlist, the various routines that initiate the BitMap, ColorMap, etc. and those that initialize, manipulate and then remove the ViewPort when it is no longer needed.

A ViewPort is similar in many ways to a window but it is not a window. The Window is a far more sophisticated structure. Windows can be palced side by side horizontally; ViewPorts can only be stacked one above the other. Windows can overlap on the screen; ViewPorts cannot overlap either horizontally or vertically. Windows can be placed exactly touching each other; ViewPorts must be separated by at least one scan line. A Window is usually opened inside a ViewPort and most often that ViewPort is as large as the

THE RASTPORT

One of the most important of all structures for Amiga graphics is the Rast-Port. A RastPort structure is worthy of close scrutiny, because every screen, window and border must have at least one RasPort to manage the display. The RastPorts control almost every element that is displayed on the screen.

Struct RastPort

struct Layer *Layer; this points to a Layer structure, necessary for windows and Intuition's rendering routines but null if those are not used. Without a Layer structure, the windows could not be moved.

struct Bitmap *Bitmap; This pointer locates the Bitmap structure, and the Bitmap structure then points to the actual bitmap to be rendered.

USHORT Area Ptrn; points to the place where the area fill pattern is stored in memory.

struct TmpRas *TmpRas; points to the structure which is used to control an auxiliary buffer. This buffer holds small, temporary areas of a large bitmap during area fills, etc.

struct Arealnfo *Arealnfo; - a pointer to an Arealnfo structure. This is a structure that stores the endpoints of an area to be filled.

struct GelsInfo *Gelsinfo; - a pointer to a structure used to link any sprites or Bobs into the current bitmap definition.

BYTE Mask; The mask determines which bitplanes will be written to during a specific drawing operation.

BYTE FgPen; This sets the colour of the foreground pen, the one that is drawing the details.

BYTE BgPen; The one sets the colour of the background pen, which is the colour behind the drawing.

BYTE AOIPen; holds the value of the Area Outline pen, which determines the colour of lines drawn in the bitmap.

BYTE DrawMode; There are four modes: JAM1, put in foreground only JAM2, use foreground and background. COMPLEMENT - xor, chang all zero bits to ones and all to zeros. INVERSEVID — used mostly for text. It reverses the effect of the background and foreground pen colours. In practice, Complement and Inversid are almost always used in conjuction with JAM1 or JAM2.

BYTE AreaPTSz; This defines the size (in words) of the area pattern definition.

BYTE linptcnt; Linptcnt, controlled by the system, holds the current value of the line pattern count used by the Draw and PolyDraw functions.

BYTE dummy; a byte inserted to keep the RastPort properly aligned, probably made necessary by a software update.

USHORT Flags; bits are set to indicate the way to draw lines and to indicate double buffering.

USHORT LinePtrn; The bits in this twobyte pattern are used to determine which pixels are off or on in a line.

SHORT cp x, cp y; the coordinates of the current pen within the bitmpa; determines where the next item will be drawn. These values change as drawing or rendering takes place.

UBYTE minterms (8); a set of eight bytes that are used to control the logic of the blitter.

SHORT PenWidth; width and height in pixels of current.

SHORT PenHeight; drawing pen.

struct TextFont *Font; pointer to the font to be used for rendering text in the current bitmap. This structure contains all the information needed for accessing and using the font.

UBYTE AlgoType; controls bold, underline, italics, etc.

UBYTE TxFlags; sets flags needed for the font.

UWORD TxHeight; pixel height (point size) of the font.

UWORD TxWidth; pixel width of the font.

UWORD TxBaseline; sets line upon which text sits, usually the pixel below the capital letters, though most authorities on fonts recommend the pixel below the descenders.

WORD TxSpacing; number of pixels between letters.

APTR *RP User; a pointer to an Exec reply port of the task that is using this RastPort structure.

There are several reserved bytes at the end, to allow for future enhancements to the RastPort structure.

It is possible for a View of a ViewPort to have more than one RastPort. Some can be active and other inactive. Each RastPort can be set up with different text, colours and other parameters and they can be called as needed. As an example, consider that when we have version 1.4 of the Workbench, users will be allowed to change system fonts easily. The fonts will not be restricted, as currently, to eight pixel, non-proportional fonts. Programmers will need a way to determine the attributes of the font chosen by the user and their softwate must adapt to the size of that foint, making sure it will fit into requesters, menus, title bars and the like. One way to do this is to set up a RastPort and have it rear the characteristics of the user-selected font before proceeding to set up the remainder of the screen or window. For another example, suppose you wanted four colours for your title bar and the standard gadets but needed only two colours for the remainder of the display. In this case, you might choose to use one RastPort to control the title bar and a different one for the remainder of the display.

These then, are the basic structures with which graphics work. These are controlled by the graphics-library. They work at the lowest level and are called by the higher-level processes as needed. There are many other graphics objects available but at a higher level than the ones discussed.

B.C.

Next month — A quick glance at animation routines

See us

Novote London W6

Nov 18-20

The Kickstart Guide to the AMIGA.

still the recommended introduction to the Amiga for all serious programmers.

still available by mail order, and in bookshops.

still only £12.95 (+p&p) from Ariadne.

if you want to programme the Amiga ... START HERE !

KICKSTART II - More About the AMIGA.

Coming soon - (advance orders being taken).

Includes: 'Going in low, without breaking everything.'
plus: lots on assembler, a bit more C,
and: loads of other new things.

ARIADNE SOFTWARE LTD

273 Kensal Road, London W10 5DB Tel: 01-960 0203



ORDER FORM

tick
[] The 'Kickstart' Guide to the AMIGA. £12.95 + p&p

| KICKSTART II - More About the AMIGA. £13.95 + pap

P&P: £1.35 UK, £1.65 airmail Europe, surface outside Europe.
[] Cheque enclosed (£ sterling) to Ariadne Software Ltd.
[] VISA,[] ACCESS,[] AMERICAN EXPRESS, accepted.

CARD NUMBER Expiry Date

NAME. ADDRESS.

COUNTRY. Signature.

POSTCODE. Total Amount = £



BUSINESS & LEISURE

Aargh	£15.95	Aegis Animator Images	£79.50
Annals of Rome	£19.50	Aegis Audiomaster Sampler Ed	£33.65
Art of Chess	£18.95	Aegis Sonix	£38.95
Backlash	£13.50	Aegis Videotitler	£77.25
Bad Cat	£20.79	Amiga Prosound Designer	£59.95
Balance of Power	€22.97	Amiga Synthia	£69.95
Battleships	£14.44	Award Maker	£28.95
Brattaccus & Arena	€21.27	Beckertext	£87.73
Casino Roulette	£14.49	Butcher	£20.95
Dejavu	£20.95	Calligrapher Colorfonts	£59.95
Ebonstar	£19.50	City Desk Desktop Publishing	£79.95
E.C.O.	£17.95	Deluxe Paint 2	£50.95
Flight Simulator 2	£34.19	Descartes Graphing Tool	£22.37
Flintstones	£14.44	Digidroid	£52.48
Football Manager 2	£15.95	Digiview 3	£124.95
Galactic Invasion	£17.95	Expert Systems Kit	£51.15
Garrison	€20.85	Forms in Flight	£52.95
Hardball	£21.88	Galileo	£42.95
Indoor Sports	£18.82	K-Seka 68000 Assembler V1.5	£36.95
Tet	£28.95	K-Spread 2	£56.86
Lancelot	£14.25	Karafonts	£42.95
Leaderboard	£18.43	Mathamation	£51.22
Mercenary Compendium	£18.06	Page Flipper	£26.95
Pink Panther	£16.45	Pagesetter (Gold)	£69.95
Police Quest	£15.95	Perfect Sound	£69.50
Rolling Thunder	£19.75	Photon Paint	£52.95
Silent Service	£17.95	Pro Write 2	£64.95
Space Quest 2	£15.95	Ouizmaster	£56.95
Stellar Conflicts	£21.95	Sculpt 3-D	£55.95
Tetra Quest	£14.25	Sculpt 3-D Animate	£93.98
Three Stooges	£23.95	Silver Ray Tracing Animation	£87.73
Time & Magik	£14.17	Soundscape Promidi Studio	£125.95
Uninvited	£21.68	Soundscape Sound Ditigizer	€92.95
Vampires Empire	£15.94	Studio Magic	£51.95
Winter Olympiad 88	£14.16	Turbo Silver 3-D	£104.95
Zenon	£18.95	TV Show & TV Text (each)	£69.95

All prices include VAT and delivery (within UK) Please make cheques or postal orders payable to:

"COTTAGE SOFTWARE"

Please endorse cheques with bankers card number and send to: PO Box No 8, Shaw, Oldham OL2 8QN Tel: 0706 845365

For more details send large stamped addressed envelope



Tremendous news for all AMIGA users: Britain's leading technical innovators now offer their superb range direct to you at prices that make peripherals affordable NOW.

AM35S: 3.5" 1 megabyte external disk drive: With the best NEC 1036A high technology mechanism in a neat slimline casing, with thru-port this drive is suitable for all models. Total power consumption is less than 0.50 watts. Your amiga power supply won't even notice the extra drive, but you will wonder how you ever managed without it!!!

Price only £86.50.

AM5A: 5.25" 1 megabyte 40/80 track switchable disk drive using the power from the amiga socket via the single connecting lead. A very compact stylish metal casing ensures a robust trouble free life.

AM5S: 5.25" 1 megabyte 40/80 track switchable disk drive: High performance drive unit with integral power supply. An essential addition for PC emulation programs in 40 track mode or as a direct second drive using much lower priced 5.25" diskettes.

Unbeatably priced at only £115.00.

AMMD+: Power computing innovation has produced the incredible multi-drive. A superb combination 3.5" AMD

Disk drive unit with integral high capacity low noise toroidal Disk drive unit with integral right capacity low holse to load a power supply. This new very compact unit plugs directly into your Amiga. Each drive has an unformatted capacity of 1 megabyte and uses double sided double density diskettes. The 5.25" drive is switchable 40/80 tracks — ideal for PC emulation programs, drive settings can be changed for A5000 models. A thrusport is provided for additional capacity in the provided for additional capacity in the provided for additional capacity. A1000 or A2000 models. A thru-port is provided for additional drives to be added.

Fantastic value for this outstanding unit at £199.00 (please state A500; A1000 or A2000 version).

Bare disk drives: Nec 3.5" 1036A £74.00 *** NEC 3.5" 1037 £75.00. Mitsubishi 5.25" 40/80 track I mbyte £89.00.

AMSC1: Super hand held scanner complete with interface and software - instant graphic capture from illustrations, drawings, text, logos on any paper.

Amazing price at only £320.00.

Monitors: Philips 12" mono green screen	£85.00
Philips 14" colour CM8833 with lead NEC multisynch 14" colour high res	£220.00
Printers:	
Start C10	6190.00

Star LC10 CL colour printer......£220.00

AMR5: 512K RAM expansion with built in real time clock and rechargeable on board battery. This high speed no-wait-state extra RAM card just plugs into your Amiga expansion port and gives your system that essential super working capacity. Don't delay!! RAM chip prices are going up every day so grab this bargain while you can at just £110.00

AMR5U: RAM card as above, but with all the components in place and empty sockets ready for you to plug in your own 4256 or 41256 RAM chips.

Limited number available at £28.50. Leads/cables/adaptors for all applications.



POWER COMPUTING 44a STANLEY STREET, BEDFORD MK41 7RW
TEL: (0234) 273000. FAX: (0234) 270133
EXPORT WELCOME
PRICES INCLUDE V.A.T. AND DELIVERY

VISA

Free, Gratis and Practically for nothing

change from the Fish disks this month, as I look at PD Utilities #2, one of a series of PD compilations put together by Capricorn Computers.

What distinguishes this disk from other compilations available is the sheer number of DOS and other utilities on one disk, forty two in all! While many of them are rather esoteric for the average amiga user, the regular inhabitant of the CLI will find this disk a boon. Since we only have limited space in which to parade the delights of the Public Domain, I have chosen four of the more outstanding programs from this disk to cover here.

MyCLI MODEM

The return of one of my old favourites, with a rather startling difference - it now has communications facilities added! As you may recall, the original MyCLI was an alternative to the standard Amiga Command Line Interface with flexible command line of the memory and most commands you need to use while working in the CLI built-in instead of being stuck on the Workbench disk! What this means is freedom endless disk-swapping, which is the bane of the single disk drive user. It also largely enables the twin drive user to do away with the Workbench disk and return the use of his internal drive to him. All commands are listed upon hitting the HELP key; as you will see, they are comprehensive and include new dumb terminal functions:

DEF, DEFINE, DEL, DELETE, DIR, ENDCLI, HELP, LIST, LS, MAKEDIR, MD, MORE, MV, NEWCLI, ONLINE, OFFLINE, SET, RENAME, SETCOMMENT, TERMINAL, TIME, TYPE, WHATIS.

Most of these mimic the standard AmigaDOS commands. The more unusual ones have special functions, like so:

DEF and DEFINE — define a function key, ie DEF f1 DIR sets key f1 to produce the string DIR.

TERMINAL and ONLINE enter dumb terminal mode, with a baud rate set in the preferences serial port set-up.

CAPTURE enables text file capture of incoming data via the RS232.

While in terminal mode, you can exit to command mode using CTRL-C to execute a DOS command and then drop back into terminal mode after doing so. MyCLI Modem is in the Public Domain and aboslutely essential if you intend to use the CLI regularly and want to avoid considerable frustration!

DISK/EXPLORER (DISKX)

If you feel like having a poke about in the depths of your disks, you will undoubtedly require a good disk editor. There are many of these available as Shareware or in the Public Domain. Disk eXplorer (aka DiskX) is one of the better and easier to use of these. Written by Canadian Steve Tibbet of VirusX fame, DiskX enables you to run through the data on your disk and modify it at will. Using both

mouse and keyboard, via a number of pull down menus and 'buttons', you are able to move by sector, block and track and display the disk's contents as ASCII, HEX, (or ASCII and HEX together on the editing screen), show details of the file header, file list, root block, data block of user directory block.

The on screen buttons enable the changing of offset, interpretation, finding of a string, writing of the modified sector and modification of the sector being observed. From the menu bar, in addition to various promotional messages from the author, it is possible to select the unit (drive) number, find a particular file, read a header and observe disk information. All in all, a fairly comprehensive setup.

Two points the inexperienced (and the experienced!) user should always observe with disk editors are that (a) you should always operate on a copy of the disk in question, never on the original and that (b) if you do not know what you are editing, it is probably better to leave it alone! For the hacker, though, an indispensable tool.

Disk eXplorer is Shareware, with a suggested contribution of \$15 Canadian.

C-MONITOR

One for the machine code fans here, C-monitor (I do not know what the C stands for!) is by Andreas Hommel and is in the Public Domain. I have limited experience with machine code utilities but this looks like a useful monitor to have if you are getting

together a cheap mahcine code programming kit to learn 68000 assembler on the Amiga. There are several editors and assemblers available on the Fish disks or from Bulletin Boards, so this could be an economic alternative to buying a commercial assembler/editor/ monitor package, giving you the opportunity to try out assembly language before you commit your cash.

The program has numerous facilities, a list of which are available from its '.' prompt; a hex memory dump, ASCII memory dump, dissassembly to screen, program execution, loading and unloading of segments, loading and unloading of files, editing memory, setting of a wildcard, search memory, occupy memory, transfer memory, show segment list, convert hex to decimal, convert decimal to hex, execute CLI command edit C-Monitor! Phew! Certainly enough to keep you going for a while there.

ZOO

A subject close to the hearts of communications enthusiasts who

tread the world's bulletin boards is saving telephone time uploading and downloading software. An essential part of the comms fan's armoury has long been the famous 'ARChive' program, which has appeared in many (mostly compatible) forms on CP/M and MSDOS micros, as well as the Atari ST, Macintosh and Amiga. Basically, ARChive enables you to combine several files into one file, at the same time compressing the files, often enabling a saving of as much as 40% in file size. The idea is that the reduced file size will enable speedier uploading of software to your favourite bulletin board and likewise significant savings in download time can be made if the files are present on the board are ARCed. There are various versions of ARC around, with varying features and degrees of efficiency; ZOO is an 'alternative ARChive', with a very efficient system of compression. Its greatest advantage, though, is that it enables the use of the lengthy description filenames popular on the Amiga — normal ARChive

systems only allow the eight character plus three character suffix type of filename produced under CP/M and MSDOS.

ZOO is invoked under two command structures. abbreviated system and a simpler, more obvious command set, like

ZOO -cmd archive[.zoo] file...

Wh-cmd is the relevant command, -add (add files to archive), extract (extract files), -move files), -test (test file (move integrity), -print (print file), -delete (delete file from archive), -list (list files), -update (update files within archive), -freshen (freshen files), comment (add comment).

Archive[.zoo] is the proposed filename of the completed archive file with the optional .zoo suffix and file...is the multiple file list of files to be worked upon.

Zoo is in the Public Domain and an esential string to the bow of Amiga comms users.

S.W.

Contact: Capricorn Computers. (0533) 550993

THANKS FOR THE MEMORY .

and it has never been cheaper. Prices start at £135 for the SPIRIT internal expansion board to suit either A1000 or the A500 AMIGA. Two types of boards now, the latest one uses the brand new megabyte chips giving up to 3 megs for the A500 and a possible 4 megs for the A1000. You can still expand externally to 10 megs. SPIRIT boards are the Rolls Royce of internal expansion and require no soldering. You get all that fast RAM for the Games/W.P.'s/D.T.P.'s that now require it. These boards also allow you to expand as your need and pocket allow and can have a battery back-up clock/calender. Send a largish stamped and addressed envelope for full technical spec and colour leaflets and enclose a disk for the demo.

BUT WHERE DO I PUT IT ALL . . .

Hard Disks are still expensive compared to IBM drives. NOT ANY LONGER. We now sell a hard disk adaptor that can use ST506 or similar hard drives (Seagate, Western Digital etc.) as Direct Memory Access drives pulling data off at over 300K a second! That's faster than a RAM disk. So what is the catch? There isn't one and at say £350 for a 20meg drive it is far, far cheaper than the standard SCSI drive made for the AMIGA. However, these adaptors can support up to 400 megabyte drives, can boot into the drive and come with the system software to drive and set them up. If you send an SAE as above, we will include the colour leaflet for this. To put cream on it we will give you FREE a hard drive back-up utility program that normally sells for £19.95.

THE ANSWER TO LIFE AND EVERYTHING . . .

Is my A1000 going to be unsupported? If Commodore do not release the 1 megabyte custom chips for the A1000, SPIRIT will make a motherhood for the machine to use these chips. You're investment is safe with us, as agents for SPIRIT TECHNOLOGY in this country.



BYTES & PIECES

37 CECIL STREET, LYTHAM, LANCS, FY8 5NN

Looking for

The Lowest Prices? Then Call Us! Our Price Promise

We will try to better any price on any product found elsewhere in this Magazine.

Phone 0742 588429 for an immediate quote.

Some examples AMIGA A500 - £349.99 AMIGA B2000 - £999.99 1084 Colour 1084 Colour - £250.00

Cumana 3.5" Disk Drive - £89.99 Genlock - £245.00 Digi View 3.0 - £119.99

Monitor - £250.00
Full range of Hardware & Peripherals available. Call now for special deals on bundled packages.

SOFTWARE

We specialise in business and applications Software and have a comprehensive range available. Please phone to discuss your requirements.

Examples Aegis Sonix 2.0 - £39.99

The Works - £69.99 Soundscape Pro Midi - £127.50

Excellence - £140.00 Panmead Business Pack - £129.99

Superbase Personal 2 - £66.00

PRINTERS

VISA

Phone for super offers on Lasers, Dot Matrix and Ink Jet Printers

PUBLIC DOMAIN

PUBLIC DOMAIN
Special 5 Disk Packs. Each Pack just £19.99.
Pack 1 - Sound & Music Demos: Contains the best music Demos many not available elsewhere.
Pack 2 - Graphic Demos: Absolutely eye boggling.
Pack 3 - Sonix Music Scores: You will require sonix

Terms: Please note that all prices quoted INCLUDE VAT. Please add £8.00 delivery for larger hardware items and £3.50 for smaller items. Phone for details of our prompt delivery service.

KINGSWAY COMPUTER SERVICES 140 Rushdale Road, Sheffield, S. Yorks, S89QE Tel: 0742 588429

COMPILING A 'C' PROGRAM

Learning C on the Amiga is not just a case of understanding the language. You also need to know how to compile and link a C program before you can run it. Paul Andreas Overaa sets out to solve some of the mystery.

hen we print a C program we print a listing of the source code. To create this source, which is simply a text file, you have to use a text editor. It does not matter what type of editor you use . . . it could be AmigaDOS's ED program, a utility like the Lattice Screen Editor, or a fully fledged word processor. If you go for the last option, though, you must be careful to check that your word processor allows you to create text files WITHOUT EMBEDDED CONTROL CHARACTERS otherwise you will get all sorts of weirdo error messages from the compiler.

Having created the source program the next stop is to compile it. With Lattice C you first use a program called LC1 to turn the source code into an intermediate form known as a 'quad' file and then you use a second program, called LC2 (surprise, surprise), to turn the quad file into a linkable object code module.

People often complain that even after painstakingly typing in the source code and checking it carefully the first use of LC1 throws up literally hundreds of error messages. This usually has a very simple explanation . . . C allows you to 'include' additional source files, such as Amiga 'header' files which contain vast amounts of ESSENTIAL information . . . constant definitions structure templates, macros, etc. These header files can themselves include other files and so a simple C source line, such as . . .

include <intuition/intuition.h>

because it causes the compiler to read in the complete set of Intuition related header files, actually results in an enormous amount of information being included in your source . . . just as if you had typed it in yourself. If the compiler cannot find these files then none of the definitions, etc., will appear to exist and the compiler will throw up error messages for every reference in your program that it does not understand.

You will usually find the include files in the include directory of the compiler's system disk (but do check the manual if you are in any doubt!). The exact procedure to follow when compiling the source program varies according to whether you have one or two drives (and how much RAM you have to spare) but since the single drive technique is probably the most awkward we will deal with the approach needed for that.

Firstly copy your source program into RAM together with the system commands Copy, Dir and CD and then make the compiler's include file directory the 'current directory'. If you are using Lattice C you have to type the following command:

CD Lattice_C: include

Lattice will now know where to find the include files but you are left with the job of telling the compiler that your source program is in the RAM: disk and then telling AmigaDOS where the LC1 program is. LC1 is usually in the compiler's system disk 'c' directory and so to get LC1 to compile a source program called 'MyProgram.c' you would type this:

Lattice_C:c/LC1 RAM:MyProgram

Your source must have an .c name extension but you do not need to type this on the command line. If all goes as expected, i.e. you do not get any error messages, the compiler will have created

an intermediate file, called 'MyProgram.q', in your RAM disk. You can use LC2 on this quad file straightaway by typing:

Lattice_C:c/LC2 RAM:MyProgram

The compiler will produce an object code module called 'MyProgram.o' but. IT HAS NOT PRODUCED A PROGRAM THAT YOU CAN RUN, at least not yet anyway. The object code has to be linked with the standard start-up sequence code, which is an object code module called 'c.o'. This is done using a 'linker' program. The original Lattice linker was called ALINK, nowadays a faster program called BLINK (actually a public domain program) is often used. At the time you link the start up code you must also specify any libraries that contain routines which you may have used. If you have used any standard C functions in the Lattice Library then you must let the linker know. The same applies if you have used any routines in the AMIGA.LIB library. If you forget to do this, or if you have set the wrong current directory, you will get 'unresolved reference in file XXXX' errors) or some similar

With Lattice the libraries are NOT in the include directory, they are in the 'LIB' directory so...you will have to make this the current directory by typing:

RAM:CD Lattice_C:LIB

(remember the RAM: prefix or the CD command will not be found).

Having done that you can link the start up module with your program AND tell the linker which libraries it must look at by typing the following single command line:

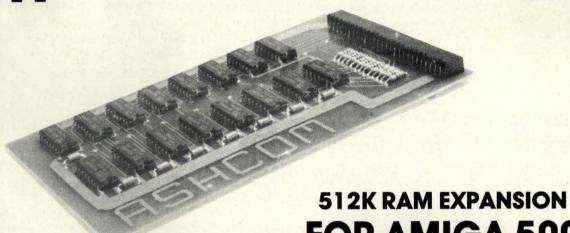
Lattice_C:c/ALINK FROM c.o, ram:MyTest .o TO Ram:TestProgram LIBRARY 1c.lib, amiga.lib

The linker will have created an executable program called TestProgram and placed it in the RAM disk for you. It is only at this stage will you actually be able to type the command MyProgram at the CLI and see the program run!

P.A.O.

ASHCOM

VISA (0530) 411485



FOR AMIGA 500 ONLY £99.95 INC VAT

ONLY FROM ASHCOM, 10 THE GREEN, ASBY-DE-LA-ZOUCH, LEICESTERSHIRE, LE6 5JU. TELEPHONE (0530) 41 1485

COMPUTER-WIZE

Commodore Amiga A500. Various packs from £370.00 Ring for details

All our computers are supplied with free mains plug

WANT A SURPRISE? RING FOR DETAILS OF OUR EXCITING SPECIAL WINTER OFFER ON ALL GAMES SOFTWARE

We are now appointed Citizen Super Dealer and stock their full range

COMMODORE PC's NOW AVAILABLE

We stock 31/2" Branded DS/DD With Labels £10 for ten.

Contact our 24 Hour HOTLINE On: 021-377 6698

ALL OUR PRICES INCLUDE VAT & DELIVERY IN UK. OVERSEAS AT COST. SATISFACTION GUARANTEED We also stock printers, monitors, Dust Covers, Joysticks and all other

computer requirements. PHONE FOR FREE CATALOGUE



Computer-Wize No. 10 Wiseman Grove New Oscott, Sutton Coldfield **BIRMINGHAM B23 5YG**

Ask The Amiga **Experts**



We keep a wide selection of Commodore permanent hardware & software on demonstration. Whatever your requirements are we can offer you some excellent package deals.

Call in and see us for :-

Amiga 500/200 External disk drives Printers

Monitors

Business Software

Midi Software

Graphics Software Modems Magazines & Books Digitisers

And many more accessories for your Amiga.

Y2 Computing Limited Telephone 0923-50161 111 St. Albans Road, Watford, Herts. WD1-1RD

HUMGOLD COMPUTERS LTD.

for your AMIGA requirements

		10	510.00	£16.19
	Our Price	* 11-011		
	00111100	Zork I/II/III each	£29.99	£24.13
		Commodore Amiga Soft		
3.33	L10.00	The second second second		Our Price
C14 OF	£11.06			£33.81
0.000				£50.70
				£98.96
		0011110 001101	£69.95	£56.84
		Comic Setter Clip Art		
		Library Desk	£24.94	£20.27
		DeLuxe Video (PAL)	£69.95	£56.66
		Facc II	£24.00	£19.32
100000000000000000000000000000000000000	21000	K-Gadget	£29.95	£23.95
2000		K-Roget	£49.94	£39.95
	100000000000000000000000000000000000000	Kindwords	£49.00	£40.43
24.94	£19.96	MaxiPlan Plus	£149.95	£123.71
£24.94	£19.96	Reason	£304.75	£251.42
19.95	£15.96	The Director	£47.00	£37.84
29.95	£23.95	Public Domain Disks		£2.75 each
19.95	££15.96			
24.94	£19.96	Commodore Amiga Hard	ware	
24.94	£20.59		RRP	Our Price
24.94	£19.96	DigiView 3.0 (PAL)	£149.95	£127.45
14.94	£11.96		COLUMN TO THE PARTY OF THE PART	£365.02
19.95	£15.96	TV Modulator	£24.99	£22.49
	RRP E19.95 E24.94 9.95 E14.95 E24.94	RRP Our Price 19-95	RRP	RRP

Orders (Cash/cheque only) to:

HUMGOLD COMPUTERS LTD

(Mail order dept.) 85 Longhurst Road, Lewisham, London SE13 5NA

01-852 3992

(ansafone) for full price list
All prices are subject to change without notice.

A R B

Computers

A500 Games Pack
Workbench, Extras, Tutorial Disk
Handbook, Basic Manual,TV Modulator
Karate Kid II, Goldrunner, Skyfighter,
Demolition, Gridstart, 4 PD Disk's
Quickshot Joystick
ONLY!! £399.00

A500 + A1084 Colour Monitor As Above Only !!£649.00

Surrey AMIGA Owners

A Full Range of Software and Hardware Always in Stock.

Please feel free to drop in for a chat ,and to see what is
happening in the exiting world of the AMIGA.

6, The Broadway
Kingston Road
Staines
Middlesex
TW18 4LG
Telephone 0784 60679

THE AMIGA STARTER PACK

- 17 BIT SOFTWARE are proud to present the ULTIMATE public domain starter pack for the amazing Commodore Amiga. Ideal for both the seasoned user and the newcomer our pack of five discs consits of:
- DISC 1: Invaluable utilities to make life much easier, master those CLI blues with Cliwizard, kill all forms of virus with the latest virus killers plus much more...
- DISC 2: The probe animation: Currently our top selling disc! Take a trip with a space probe to an unknown planet searching for signs of alien life!
- DISC 3: Music disc: A disc full of amazing Amiga music that will impress both you & your friends! All music in stereo and much better through a HI-FI really shows off your Amiga's Sonic capabilities to the full.
- DISC 4: GRAVATTACK: Superb game in the mould of "THRUST". Very playable with great graphics and good sound. Smooth scrolling too!
- DISC 5: DISC MAGAZINE: The latest issue of our own disc-magazine which people already love the world over! Contains news/views/articles/art/music utilities & a great demo!
- PLUS: FREE membership to our club, which enables you to receive all future issues of our disc magazine FREE of charge! Many, many other services and offers to 17 BIT MEMBERS Full details will be sent with the disc!
- ALL our discs are made as user-friendly and easy to use as possible, this enables everyone to use them and they will work on ANY system no workbench/1 Meg/external disc/degree needed!

The starter pack is just £10 including 1st class return postage and FREE membership to our club, to take advantage of this very special offer just end a cheque/postal order or your Access/Visa card number to . . .



SEVENTEEN BIT SOFTWARE PO BOX 97 WAKEFIELD WF1 1XX Tel: (0924) 366982



Please Note: Membership to our club puts you under NO obligation to buy anything whatsoever, it is your choics: Access/Visa order welcome over the phone Mon-Sat 9am-5.30pm. Membership plus your first Disc-Magazine just £5.

Come and see us at the next Commodore Show in November in NOVOTEL!!

SOUND SAMPLER

NEW BREAKTHROUGH!

New breakthrough brings to you an Amiga sound Sampler at an affordable price. Directly digitizes sound signals, allowing them to be stored and modified inside the computer. Can digitize sounds at up to 100,000 samples per second. 3.5mm socket for audio input at line levels. No external power supply necessary, draws power directly from the computer. Very small unit does not take up any desk space. Plugs directly into Parallel Printer port. Please state when ordering whether you require the A1000 or the A500/A2000 version.

Public Domain software provided free of charge, also compatible with most commercial software.

Priced at ONLY £39.95.

AMUGA OWNERS. Connect your MPS803 DIRECTLY to your AMIGA. All the facilities of Printkit IV on your AMIGA. Don't buy an expensive new printer just send for the AMIGA version of Printkit IV at just £39.95 plus £14.95 for the lead (you'll need a new lead anyway). [£15 discount to Printkit IV owners].

We also stock top quality tractor feeds for the MPS803 with acoustic hoods, available now £33.45.

AVON PRINTER TECHNOLOGY

SWINDON HOUSE; 4 HOWARD ROAD; SOUTHVILLE; BRISTOL BS3 1QH. Telephone BRISTOL (0272) 354116 (enquiries from non-UK Distributors welcome)* add £2.00 P&P for overseas orders 7 days delivery. Full guarantee.

NARNIN READ THIS ADVERT ONLY WHEN SITT-ING DOWN AS READING THIS ADVERT MAY CAUSE HALLUCINATION AND FAINTING. BECAUSE AT COVCOM WE

SELL ONLY THE BEST AMIGA SOFT-WARE/HARDWARE AT THE LOWEST PRICES.

THIS IS JUST A SAMPLE FROM OUR **EVER EXPANDING AMIGA CATALOGUE.** BUSINESS

	SSP	OUR PRICE
Pronet	£475.00	£369.95
Proboard	£475.00	£369.95
Sculpt 3D	£85.00	£62.50
Animate	£129.95	£97.95
Provideo	£159.95	£124.45
Prixmate	£49.95	£38.95
Turbo Silver	£139.95	£108.95
Microfiche Filer	£79.95	£62.00
Adrum	£39.95	£31.00
Digiview	£149.95	£105.00
Digiview adaptor	£77.95	£19.50

GAMES

	IVILO	
Interceptor	£24.99	£17.50
Virus	£19.99	£13.50
Ferrari Formula One	£24.99	£17.50
Streetfighter	£24.99	£19.50

For your copy of our AMIGA catalogue send SAE, catalogue free with orders, or if you cannot wait. Simply deduct 20% from any. AMIGA business/leisure software and send cheque or PO with order to:

COVCOM P.O. BOX 252, NORTHAMPTON NN3 1WE All prices include VAT & P&P. UK only

★ GRAPHICS-PALETTE ★ GRAPHICS DISK-ZINE FOR THE AMIGA THREE DISK SET

Dedicated to people who are interested in DeskTop Video. Fully compatible with the PAL television standard.

ISSUE 2 NOW AVAILABLE

REVIEWS: PHOTOLAB and FANTAVISION with demonstration

graphics

ARTICLES: ANIMATING SPEECH — mouth movements for voice NEW STUFF — What's new in software and hardware COMPARING COSTS — The price of going professional SET UP FOR PAL — How to set up your system correctly

HINTS AND TIPS: DPAINT'S AMAZING FILL COMMAND — animated tutorial

PLUS -- Tricks of the graphics/DeskTop Video trade

AMIMATION: Two original demos complete with sound effects

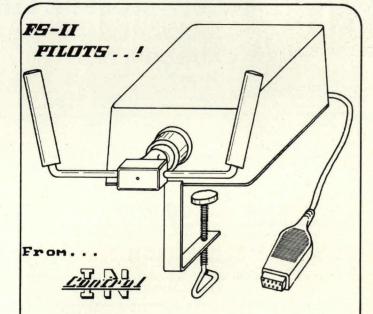
PLUS a collection of High, Low and HAM images PLUS part-two of our computer video serial MISSION MICROBE. Five pictures and nineteen brushes for you to put together and continue the outer space adventure

Available now for only £12.50 plus £2.00 air postage (Receive issue 1 for only £8.00 when ordered with issue 2)

ONE YEAR SUBSCRIPTION (6 ISSUES - each 3 disk set) (£70.00 Includes postage (Please specify starting issue)

FROMTE PTY. LTD. 66 PARER STREET., BURWOOD. 3125. VIC AUSTRALIA.

All funds in AUSTRALIAN DOLLARS only and payable to FROMATE PTY. LTD. (Dealer rates upon request)



PROPOTIONAL CONTROL JOYSTICK-YOKE FOR FLIGHT SIMULATOR II

Fly FS-II as it should be flown, controlled in the same way as a REAL CESSNA propeller driven plane or LEAR JET, the alleron and elevator control surfaces move proportionally to the amount of stick movement that you introduce, INSTANTLY! Making aerobatics more FUN! — take off and landing more REALISTIC! — improved bad weather CONTROL!

Constructed of nylon and stainless steel in a strong black tured ABS plastic box complete with red handles and integral m black steel clamp.

THE PRICE? JUST £29.95 inc. p/p.(+ £1.50 outside U.K.)

Cheques/P.O.s to: INCONTROL

post to: INCONTROL P.O. BOX 183 CAMBRIDGE CB4 2XQ

Please allow 28 days for delivery. Tel. 0223-313749 (Trade enquiries welcome.)

Programming

This is the first article in a series that describes a number of basic program building blocks. Each article will include a BASIC program which will have the necessary scaffolding to make the function run. John Gardener starts us off with record sorting.

he first few articles will deal with sorting records in storage. By having records sorted into strict ascending

or descending order means that fast access

to that data can be achieved (yes, there are better ways of searching for a datastring than reading all the data sequentially).

The Bubble Sort

The simplest method of sorting within storage is known as the BUBBLE SORT. The principle behind this sort is to read each record in turn and compare it with its neighbour. If the records are in the wrong order then they are swapped around. This process keeps looping until all records are in the correct sequence.

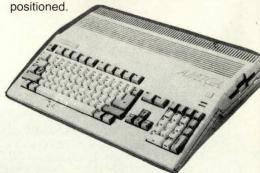
Although this method is simple, it is also slow. In the worst case the number of records read is the square of the number of records to be sorted.

The Delayed Replacement Sort

This method will do a similar number of reads of the records as the bubble sort but

will not do anywhere near as many swaps, therefore making it more efficient than the bubble sort.

The principle of this sort is to read all the records to be sorted and get the position of the highest one. Assuming this one is not on the top of the list then the highest record is swapped with the one at the top of the list. As we know that the highest record is now at the top of the list then there is no need to read that record again so the search list is reduced by one. The process is then repeated until the last record is positioned.



ROBSON ELECTRONICS

TOP QUALITY AMIGA ACCESSORIES

AMIGA CATALOGUE DISK

Issue 2

The second issue of our Amiga catalogue disk is now available, and it's getting better by the month! It contains full details of our fast growing range of top quality accessories for the amazing Amiga, and much more. It's not just a catalogue, more of a magazine on a disk. Each month we intend to include letters, contacts, PD music, games and demos, hints and tips on the latest games and even a free to enter competition!

There are no strings attached, and no ST version!! It only costs £2.95, and remember, you can return the disk for subsequent issues FREE OF CHARGE!! (This disk sent FREE with any order.)

SEND FOR YOURS NOW! - Only £2.95

AMIGA ACCESSORIES TOP QUALITY GOLDSTAR BRANDED BLANK DISK

Why trust your important data to cheap unreliable disks, when we can supply you with these top quality branded disks. They are 3 ½" double sided double density, 135 TPI, 100% certified error free. You get what you pay for, why spend a few pounds less on cheap rubbish.

Only £14.95 for 10 POST FREE!

AMIGA STEREO HEADPHONE ADAPTOR

Do people complain about the noise when you play games? Then perhaps you should buy our headphone adaptor! It will connect stereo headphones to your Amiga, and is suitable for use with any headphones with a — inch plug. An extra adaptor is available for "Walkman" type headphones at \$1.50.

Only £5.95 POST FREE

OTHER PRODUCTS

AMIGA 500 DUST COVER
AMIGA 1000 DUST COVER
AMIGA 2000 DUST COVER
KONIXSPEEDKING JOYSTICK
KONIXSPEEDKING JOYSTICK AUTOFIRE

ONLY £4.95 POST FREE!
ONLY £7.95 POST FREE!
ONLY £9.95 POST FREE!
ONLY £9.95 POST FREE!
Only £10.95 POST FREE!

AMIGA STEREOSOUND KIT

Do you want to get the best from your Amiga's amazing stereo sound? Are games and music spoilt by the feeble speaker in your monitor or TV?

Perhaps we can help. We can supply you with a product called the Amiga Stereosound Kit. Now you can connect your Amiga 500 to virtually any Hi-Fi or stereo system for incredible true stereo sound. It's simple really. Your Hi-Fi or stereo will amplify the sound and play it through its own stereo speakers. Our complete package includes special connection leads and interchangeable adaptors that simply plug into your amiga and Hi-Fi.

Also includes adaptors to connect any stereo headphones, so you don't HAVE to blast everyone's eardrums when you're blasting aliens. Perfect for games and music packages, unleash the stereo music power of your Amiga! The ultimate accessory for perfect sound quality!

Only £9.95 POST FREE!

AMIGA EXTERNAL DRIVE SWITCHER

A switched connector for external disk drive, simply flick the switch and reset to disable your extra drive. Some programs will not work with extra drives connected, this useful product will save you the hassle unplugging, and prevent damaging the connectors on your system. No soldering required, simply plug in between external drive and computer. Essential for trouble free computing.

Only £9.95 POST FREE!

AMIGA JOYSTICK/MOUSE PORT EXTENDER

Sick and tired of fumbling around behind your Amiga to plug in your joystick? Then you need the Joystick/Mouse Port Extender? It extends the mouse/joystick ports to the front of the computer for easier access, and includes bracket for mounting the extended sockets at a more convenient location.

Only £14.95 POST FREE!

To order send a cheque or postal order (payable to 'Robson Electronics') to:

ROBSON ELECTRONICS

DEPT. AUI 4, NEWCASTLE HOUSE, ROWLANDS GILL, TYNE & WEAR, NE39 1 DQ.
Telephone: (0207) 543053 (ask for Robson Electronics)
We are open for enquiries 10- 5 Mon-Fri (closed Sat/Sun).

Postage is FREE on all UK orders, but please enclose an SAE with any enquiry. We welcome orders from overseas, and have many customers outside the UK. Overseas orders please add £2.00 for postage (except for disk, add 50p).

"CHRISTMAS PRESENTS FOR YOUR AMIGA"

```
'* Bubble Sort Program
'* by John Gardener
INPUT "Key the maximum number of items to be keyed ", items
DIM array$(items)
a$ = "*"
'*** Get data to be sorted ***
PRINT "Key each item, null will start sort"
FOR i=1 TO items
  INPUT a$
  IF a$="" THEN GOTO leave
  array$(i) = a$
 NEXT i
leave:
i = i - 1
  sort array now contains the data to
 be sorted and i contains the number
 of elements in the array
```

cont. on next page

THE COMPUTER TRADING COMPANY

FIRST FLOOR, 62 WESTOW HILL, **CRYSTAL PALACE, SE19** TELEPHONE 01-761 4687

A500 LOW, LOW PRICE £329 + VAT WITH 4 SOFTWARE ALSO INCLUDING MODULATOR A500 + 1084 COLOUR MONITOR — **£539** + **VAT** HARDWARE SPECIAL OFFERS 1084 COLOUR MONITOR, MEDIUM RES £209 + VAT£19.95 A520 MODULATOR AMIGA SOFTWARE CLEARANCE SALE — PHONE FOR PRICE SOFTWARE RELEASES ROCKETRANGER..... £19.95 STARGLIDER2....... £17.95 NEBULIAS........... £15.95

COMPUTER TRADING COMPANY



The First Floor 62 Westow Hill Crystal Palace London SE19 Tel: 01-761 4687/0860 225058





```
continued from page 111
RecordsSorted = 0
'*** Do bubble sort ***
changed = 1 'allow first pass at sort
WHILE(changed<>0)
  changed = 0 'no swaps done yet
  RecordsSorted = RecordsSorted + i
  FOR j=1 TO i-1
    IF array$(j) > array$(j+1) THEN
      'the pair of elements are in the
      'wrong order, swap them over
      a$ = array$(j)
      array$(j) = array$(j+1)
      array$(j+1) = a$
      changed = 1
      END IF
    NEXT j
  WEND
'*** sort complete, print results ****
FOR j=1 TO i
  PRINT array$(j)
  NEXT j
PRINT "It took "; RecordsSorted;" reads of the record array to
sort it"
END
To try out the Replacement Sort Program replace the Bubble Sort
Routine in the above program by the following routine.
***********
'* Delayed Replacement Sort Routine
'* by John Gardener
************
'*** Do delayed replacement sort ***
j = i
           'get size of array
WHILE (j>1)
  largest = 1
  RecordsSorted = RecordsSorted + j
  FOR k=2 TO j
    IF array$(k)>array$(largest) THEN
      largest = k
      END IF
    IF largest <> j THEN
      'put the largest record at the top of the array
      a$ = array$(j)
      array$(j) = array$(largest)
      array$(largest) = a$
      END IF
    NEXT k
  'that record is now in the correct position so
  there is no need to look at it again
                                               In the next article I will be dealing with
                                              Shell-Metzner sort and the Quicksort.
  j = j-1
```

Syntax

3 Ripley Close, Langley, Slough, Berkshire SL3 7QH. Telephone: (0753) 41187

LEISURE	Insanity Flight	£16.20	Digi Paint	£42.00
Aaargh £13.50	Jet	£25.50	Digi View	£102.50
Annals of Rome £16.20	Mikethe Magic Dragon	£10.00	Director	£44.50
Arcade Classics £13.20	Obliterator		DiskMaster	£29.50
Arena£22.50	Peter Beardsley F'ball		Excellence	£170.00
Amegas	Pink Panther		Express Paint	£50.00
Arkanoids£16.20	Ports of call		IntroCad	£42.00
Balance of Power £19.40	Rolling Thunder	£16.20	K-seka 68000 Assem. 1.5	£37.30
Barbarian (Palace)	Sentinel	£13.50	Lattice C 4.0	£132.50
Barbarian (Psygnosys) £16.20	Silent Service	£16.20	Lattice Prof	
Better Dead Than Alien £13.50	Terramex		Lisp	£101.50
Beyond The Ice Palace £17.20	Ultima III	£16.20	Macro Assembler	£53.50
Carrier Command £16.20	Xennon		Maxiplan A500	£72.50
Championship Golf £22.50	Blank Disks 31/2 DS/DD(10)		Maxiplan Plus	
City Defence£10.00	51/4DS/DD(10)		Music Studio	
Crazy Cars	All with labels		Page Flipper	
Defender of the Crown£19.40	UTILITIES		Page Plus	£93.50
Elf£12.50	Access 64 for A500	£46.50	Page Setter	£89.50
Empire Strikes Back*£12.50	Access 64 for A1000		Pascal 2.0	
Flight SIM.II	AC/Basic Compiler		PixMate	
	AC/Fortran		Pro-Sound Designer	
Scenery Disk7 £16.00	Analize	£125.00	Pro-Sound Software	£25.50
Scenery Disk 11	Analize II	£58 50	Publisher 1000	
Scenery Disk Europe			Scrible	
Scenery Disk Japan £13.50	Azetec C Comp. Devlp	£235.00	Shell	
Football Manager II	Azetec C Commercial	£387 50	Superbase Pesonal	
Garrison II	Calligrapher V1.05		Superbase Prof	£184.50
Gauntlet* £16.20	City Desk 1.1		TextPro	£42.80
Guild of Thieves £16.20	CIIMate		ToolKit	
Gunship			TVShow	
HuntforRed October £16.20	Data Retrieve	£44.50	Word Perfect	
			Words essect	2171.50

Ring NOW for more details. We stock a vast collection of utilities.

All prices include P&P in the UK. For Europe add £2 for P&P. Titles with asterisc not available at time of going to press.

A world of information at your fingertips



The Microtext Adaptor turns your Amiga into an advanced Teletext TV giving you fast access to any of the free pages from Ceefax or Oracle. Hundreds of pages constantly updated to give you the very latest information, at the touch of a button.

The mouse may be used to select any page then print it or save it to disc. Saves may be compact or IFF, it can read out the news and is easily programmed to do all these things automatically. With true 'FastText', the system knows what pages are likely to be selected next and gets them in advance making them available instantly. Many more facilities are also provided. The Adaptor connects to the Paralell port, your printer is then reconnected to a socket on the Adaptor and when the computer is not in use you can watch TV on the monitor!

A review in the June '88 AUI concluded: "The hardware is well built, it has excellent software and is well documented."

At only £124.80 + VAT for an advanced Teletext TV, its excellent value for money. VHF/UHF International version: £169.50.

Dept. AM, 7 Birdlip Close, Horndean, Hants PO8 9PW Telephone: (0705) 595694

AMIGA CENTRE SCOTLAND

4 HART STREET LANE, EDINBURGH EHI 3RN · Tel: 031 557 4242



NEW PRODUCTS IN STOCK NOW!

SCULPT 4D

Fabulous New Features, Truly Professional Software

FORMS IN FLIGHT 2 Surface Mapping. Surface Patches and more

ANIMATION MULTIPLANE

The Ultimate Digital Composition

Critics Choice

Superb Integrated WP/Spreadsheet/Database System

20.80 Mb Hard Disk Cards

The very latest cards attractive prices

TwinX

General Purpose I/O Board

CMI Accelerator Board

Double Speed 68000 Plus Co Processor Slot

High Res. Colour Scanners 300 DPI Flatbed Scanners

Amiga Prototyping Board Build you own Amiga boards with this great new product

MAIL ORDER DEPARTMENT OPEN TUES-SAT 10-6 pm. Trade Enquiries Welcome

OFFICIAL COMMODORE/AMIGA DEALER Amiga 2000 only Amiga 2000 + 1084 Colour Monitor Amiga 2088 PC/XT Bridgeboard + 5.25" Drive Amiga 500 inc TV Modulator 1229.35 Amiga 500 SUPERPACK — Games/Joystick/PD Disks Amiga 500 + Commodore 1084S Colour Mon...... Amiga 500 + Philips 8833 Stereo Colour Mon..... 399.00 609.00 129.95 219.00 All Oki 20 consumables normally in stock PHONE Commodore 1084S Colour Monitor inclead. Philips 8833 Stereo Colour Monitor inclead. Philips 7502 Green Screen Monitor..... 259.00 MODEMS Pace Modem + S/ware for Amiga V21/23 Prestel, BBS etc 239.00 MISCELLANEOUS Amiga 2092 PC 20Mb Hard Disk Drive Amiga 501 512K RAM/Clock Expansion... Cumana CAX354 Disk Drive... Cumana CAS354 Mains Pwrd Disk Drive 139.00 .95.00 124.95 Surge Protector 13A Plug...... Surge Protector 3-Way Adaptor...... Amiga DOS Reference Manual Addison Wesley Amiga Ref Manuals. 12.95 22 95 259.00 Superbase Personal Aegis Video Titler 86.50 119.95 Digiview3PAL..... Scribble 2 with Spell Check ... 45 00 VizaWrite. Word Perfect ALL PRICES ARE INCLUSIVE OF VAT AT 15% CARRIAGE £5 (EXPRESS £10). SOFTWARE AND SMALL ITEMS FREE Delta Pi Software Ltd arp Lane, WHITEY, N. Yorks. YO2 1ND. Tel: 0947 600065 (9am-7pm)

COMING SOON...

High performance Video Camera for use with Digitizers.

A new cost effective alternative at £190.

PLUS

IFF picture file to 35mm slide sequence brilliant colour with no scan lines!

Please send for information:

TVS MARKETING
19 Stratford Place
London
W1N 9AF

"Beat This" prices are inclusive of membership and UK post & packing.

Chrono Quest 29.95 Jewels of Darkness 19.95 Mortville Manor 24.95

Save HALF the price!

Pack 3 ST or AMIGA

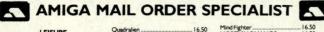
Dfndr of the Crown29.99 Menace 19.95 Fed of Free Traders 29.95

Beat This

Black Lamp 19.95 Captain Blood 24.95 Starglider 2 24.95 Star Wars 19.95

Pack 1 ST or AMIGA Pack 2 ST or AMIGA

HAMMERSOFT



LEISURE		R
Aaargh!	13.50	R
Alien Syndrome	16.50	R
Arkanoid	16.50	R
Backlash	13.50	S
Barbarian (Palace)	13.50	5
Battlechess	17.90	S
Better Dead Than Alien	13.50	5
Beyond The Ice Palace	16.50	
Bionic Commandos	18.50	S
Black Tiger	*18.90	S
Buggy Boy	16.50	
CAPONÉ	20.50	S
Chubby Gristle	13.50	S
Crash Garrett	16.50	
Daley Thompson Challenge	16.50	Si
Desolator	*18.90	S
Destroyer	16.50	
Dungeon Master	*16.50	T
Eagles Nest	13.50	
ECO	16.50	V
Eliminator	*13.50	
ELITE	16.50	V
Empire Strikes Back	13.50	×
Ferrari Formula I	18.00	
Fire & Forget	*16.50	Z
Fusion	17.90	2
Future Tank	12.50	
Garrison I or II	18.90	B
Great Giana Sisters	18.90	B
Hard Ball	16.50	C
Ikari Warriors	16.50	č
INTERCEPTOR	17.90	C
Katakis	*18.90	D
Leatherneck	13.50	D
MachIII	13.50	F
Major Motion	13.50	F
Mansell's Grand Prix	17.90	FI
Mars Cops	*13.50	FI
MENACE	13.50	-
Mercenary Compendium		1
Nebulus	15.50	1
NETHERWORLD	15.50	H
Night Raider	*15.50	In
Obliterator		IE
Overlander		lir
Pacmania		K
Pandora	13.50	V

IAIL ONDE	.,,
Quadralien	16.50
Road Blasters	*18.9
Road Wars	13.50
Rocket Ranger	20.50
Rolling Thunder	18.90
SENTINEL	13.50
Side-Arms	18.90
Sidewinder	7.50
Sky Chase	13.50
Space Harrier	*16.50
STARGLIDER II	16.50
Star Goose	13.50
Star Ray	16.50
Star Wars.	13.50
Stir Crazy with BOBO	13.50
Street Fighter	18.50
Strike Force Harrier	16.50
Terropods	16.50
Test Drive	17.90
VIRUS	13.50
Where Time Stood Still	16.50
Whirligig Wizard Wars	13.50
Wizard Wars	18.90
Wizball	16.50
Xenon	13.50
Zoom	13.50
Zynaps	15.50
ADVENTURE & SIMUL	
Bard's Tale for II	1750
Burmuda Project	14 50
CARRIED COMMAND	16.50
CARRIER COMMAND	20.50
Corruption	14 50
Defender of the Crown	20.50
Detender of the Crown	14.50
DUNGEON MASTER (Oct/Nov) Faery Tale Adventure Federation of Free Traders	21.00
Federation of Free Tender	*22.00
FISH	1650
Flight Sim. II	20.00
riight Sim. II	14.50

Mind Fighter	16.50
MORTVILLE MANOR	16.50
Police Ouest	*13.50
POOL OF RADIANCE	18.90
PowerPlay	13.50
Scrabble Deluxe	13.50
Shadowgate	16.50
SSI etratem titler available	
Star Fleet	1950
Superstarke Hockey	16 50
Tanglawood	13.50
Time 9 Marie	13.25
I rivial Pursuit	17.50
Ultima III or IV	17.50
GRAPHICS & MUSIC	AMIGA
Animator/Images	75.00
Videoscape 3D 2.0 (PAL) I	
MB	107.50
Animator Apprentice	155.00
Deluxe Paint II (PAL)	49.90
Deluxe Video (PAL)	60.00
Deluxe Productions I MB	100.00
Diginaint (PAL)	44.00
Digiview 3.0 (PAL)	125.00
Digiview Adaptor	20.00
PHOTON PAINT (PAL)	49.90
Sculpt 3D (PAL)	59.00
Sculpt 3D Animate (PAL)	
(LMB)	100.00
TVShow (PAL)	55.00
TV/Tevt/PAI)	55.00
Video Titler (PAL)	89.00
ADD-m	29.00
Assir Audismeter	34.00
A agis Coniu	45.00
Delan Marie	49.90
Deluxe Flusk	CVC
QUALITY JOYSTE	1200
Cheetah Mach I +	13.90
Comp Pro 5000	13.90
Comp Pro Extra (clear)	14.90
Quickshot II Turbo	
	Mind Fighter MORTVILLE MANOR Police Quest. Power Play Scrabble Deluxe. Sex Vixens from Space. Sex Vixens from Space. Standown Sex Vixens from Space. St. Istrategy titles available St. Istrategy titles available Star Fleet Superstar Ice Hockey Tanglewood. Three Stooges. Time & Magic. Trivial Pursuit. Ultimal Illor IV. Ultimal Illor IV. Ultimal GRAPHICS & MUSIC Animator/Images. Videoscape 3D 20 (PAL) I MB. Animator Apprentice. Deluxe Faint II (PAL). Deluxe Faint II (PAL). Deluxe Productions I I IIB. Digipaine (PAL). Sulpt 3D (PAL). Sculpt 3D Animator (PAL). (I MB). TV Show (PAL). TV Show (PAL). Video Title IP. Video Title IV. Aegis Audiomaster Aegis Sonix. Deluxe Music QUALITY JOYSTIC Cheetah Mach I + Comp Pro Stora (clear).

Special Reserve 4.00 Special Reserve 4.00 Special Reserve 4.00 Total 93.80 Total 78.85 Total83.89 Beat This Beat This Beat This 46.90 39.42 41.94 Pack 4 ST or AMIGA Pack 5 ST or AMIGA Pack 6 AMIGA Lancelot 19.95 Jewels of Darkness 19.95 Chrono Quest 29.95 Dfndr of the Crown 29.99 Captain Blood 24.95 Golden Path 24.95 Special Reserve 4.00 Special Reserve 4.00 Special Reserve 4.00 Total 43.90 **Beat This** Total 63.94 Beat This Total 53.90 21.95 29.99 25.99 Pack 7 AMIGA Pack 8 AMIGA Pack 9 AMIGA Black Lamp 19.95 Menace 19.95 Rocket Ranger 29.99 Dfndr of the Crown 29.99 Starglider 2 24.95 Star Wars 19.95 Special Reserve 4.00 Special Reserve 4.00 Special Reserve 4.00 Beat This Total 63.98 Beat This Total 43.90 Beat This Total 48.90 28.99 21.95 24.45 All packs include membership to Special Reserve, that's our amazing club, it normally costs £4.00 to join. Membership includes 3 issues of our Buyers Guide (written by experts), a folder and membership card, and, of course, our catalogue of over 600 products, most at half price plus post and packing. That's right, we even sell the latest and the best games intimidually at half price plus a standard charge of £1.50 postage and packing (£2.00 if you phone your order in). We're miles cheaper than elsewhere. If you don't believe us (many don't) please phone 0279 600204 or send a stamped addressed envelope for details. Special Reserve Dept AUB, P.O. Box 847, Harlow, CM21 9PH.

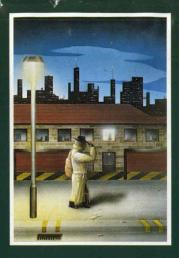
Send cheques/postal orders to:

HAMMERSOFT
Dept A, 33 Mill Road
Hethersett, Norwich
Norfolk NR9 3DS
Prices are all inclusive with Ist class post in the UK
EEC Please add £2.00 per item
ENQUIRIES: TEL: (0603)812416

RETURN OF POST SERVICE ON STOCK ITEMS

apan EROESO(The LANCE

Send in your order or phone us. There are no extra charges to add to our "Beat This" prices. Existing members please deduct £4.00 from the prices shown. Please make Cheques or Postal Orders payable to Special Reserve, or pay by Access, Visa or American Express. Please write clearly your name, address, post code, type of computer and pack number required. Orders from EEC countries accepted, please add £3.00 surcharge and make payment by credit card. All offers subject to availability, all games chosen for quality, all products individually boxed and new.



ROBBEARY

Bertie, an agile and clever bear has targeted a famous 24 floors store for his last and most daring ROBBERY. With no alarms or visible guards and fabulous treasures, yet it has been avoided like the plague by the criminal fraternity. Bertie soon discovers why?
AMIGA £19.95



HIGHWAY HAWKS

Grand Prix driving skills is essential to negotiate the crowded highway at speed. Obliterate the assassins cars and the ones that get in your way but keep the tiger in your tank fed, the engine cool and the tyres and steering intact. Acquisition of faster cars and lethal weaponary depends on your driving and trading skills. AMIGA £19.95 (2 DISCS)





EMERALD MINE

A giant arcade adventure which has received rave reviews. Each level has its own unique solution and requires ingenuity and dexterity to complete. One player or two players TEAM action for added enjoyment. AMIGA £14.95

CBM64-PLUS 4 £7.95 (D) £9.95





MANIAX

Maniax relentlessly pursued by the creature undertakes to clear the thick fog engulfing the world capitals. An addictive game requiring quick thinking and

AMIGA-ST-IBM £19.95 CBM64-PLUS 4 £7.95 (D) £9.95





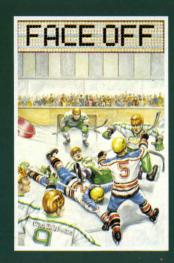
QUANTOX

Progress through 24 levels of this fast and furious action. Lightning responses are secondary to the strategic choices between better weaponry or better defence. **AMIGA £14.95**



FACE OFF

Experience the sheer pace and exhilaration of ICE HOCKEY. Be prepared for the body checks, fouls and rough play. League competition, 1 or 2 player option. AMIGA-ST-IBM £14.95



STRIP POKER II PLUS DATA DISCS

Requires Strip Poker II Plus disc to load

Disc 1 Beverly & Dawn Disc 2 Lee & Roy

Disc 3 Suzanne & Bianca

Disc 4 Rachel & Kim

AMIGA-ST £9.95



STRIP POKER II PLUS

A sizzling evening with

AMIGA-ST-IBM-ARCH, £14.95 SP-AMS-MSX-BBC-ELECTRON CBM64-PLUS 4 £7.95

Sam & Donna

Ideal for home and business use. Menu driven to enable a novice to use powerful capabilities with minimal reference to the tutorial manual. Micro base - a powerful data base with fast SEARCH and SORT facilities includes a very flexible label printer. Sorted files can be used by the Micro Text word Processor to send personalised letters. A boon to any Club Secretary. AMIGA £19.95 EACH



BEVERLEY



ANCO SOFTWARE LTD, UNIT 9-10 BURNHAM TRADING ESTATE OFF LAWSON ROAD, DARTFORD, KENT DA1 5BH TEL: 0322 92513 MAIL ORDER HOTLINE: 0322 522631 FAX NO: 0322 93422 PAYMENT BY CHEQUE, P.O., VISA OR ACCESS

MICRO BASE

Amiga Hard Disks

See us at Stand 52



computer show

Compatible with Amiga 500, 1000 and 2000

[All boxed with power supply and relavent SCSI interface]

Novotel London W6 Nov 18-20

1988

20 Mb 65ms Hard Drive

40 Mb 40ms Hard Drive

60 Mb 40ms Hard Drive

inc. VAT

80 Mb 28ms Hard Drive

inc. VAT

THE VD3+ REAL TIME COLOUR DIGITIZER

The VD3+ allows the user to take an input from any video source, including tape, and digitize it in full 4096 colour in Amiga format.

THE AMIGA CRP GRAPHICS TABL

A4 - £360 +VAT

Resolution: Absolute Accuracy: 0.1 m.m. or 10 point/m.m., or 250 points/inch

+/-0.5m.m. (0.020")

Compatable: Dpaint II, Graphicraft, Digipaint.

DESKTOP PUBLISHING

(Suggested total solution)

Amiga 2000 3.5 49Mb 35ms Hard Disk 4Mb RAM

Flicker Fixer

* Multisync II Monitor

A4 Scanner + OCR Software

* LaserXpress Laser Printer

Omnicrom Colour Transfer system

New Virtual Page

WordPerfect 4.2

Page Stream (DTP software)

GRAPHICS SYSTEM

(Suggested total solution)

STARTER KIT

Amiga 500 + 1084 Monitor Aegis Draw + Software **A4 CRP Graphics Tablet** 512 Upgrade 20Mb Hard Disk

£1495 +VAT

£ 6500 +VAT

DTP UPGRADED SYSTEM (* without these items)

20" Monitor

Postscript Printer

Bernoulli 20Mb removable Hard Disk

£ 9995 +VAT

ARTISAN

Amiga 2000 - 8Mb RAM Populated 80Mb 28ms Hard Disk Dual Bernoulli 20Mb Removable Flicker Fixer - Multisync Monitor **Internal Genlock** VD3+ Colour Frame Grabber Polaroid Palette - FreezeFrame **Hewlett Packard Paintjet** A3 CRP Graphics Tablet Pen + Puck

£12500 +VAT

POLAROID PALETT

The system allows the user to take full colour pictures of the computer screen and produce 35mm

Polaroid dedicated 35mm autowind camera back Polaroid Palette Image Recorder **Amiga Interface** Polaroid 3 1/4" X 4 1/4 print and overhead projection transparency camera lluminated slide cutter/mounter 35 mm Power Proccessor Software and Manual

£1495 + VAT

Burocare Graphic Design Ltd. 211 Kenton Road, Harrow, Middx., HA3 OHD

BESPOKE AND TRAINING SERVICE AVAILABLE

Tel. (01) 907 3636 Fax. (01) 907 0027