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December 90

Issue 31

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12

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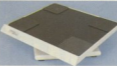
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COVER STORY

The quality that separates man from animals is his flexibility. What separates the Amiga from other machines is its ability to beat them at their own game. We thoroughly test the latest in state-of-the-art Amiga camouflage as we mimic an Atari ST, a PC – and even a Mac...32

LET'S EMULATE



ST applications running on an Amiga but why?

ST applications running on an Amiga but why?

PORTFOLIO

Stunning work from the Amiga Centre Scotland animation festival...Page 88



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THE DISK

Other mags are green with envy about our disk. And our run of success continues this month with more of the best: There's a music composer that lets you create your own tune from a simple sampled sounds – and then hear what it would sound like when played by an entire symphony orchestra. A Disk Optimiser that dramatically speeds up your disk access speed. An incredibly useful Desktop Diary, Calendar and Organiser. Plus TWO great games!



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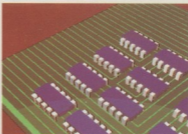
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The section of the magazine that has something for everyone – from music to comms, DTP to graphics, AMOS to machine code. The top experts in their field bring you all the latest news, plus hints and tips that will help you expand your use of the Amiga in ways you may have never thought possible.

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SEBARN

AMIGA people

A NEW face has just appeared on the Amiga scene. Steve White joins Commodore after seven years with Acorn.

From his position as schools business development manager, he will have the job of developing Commodore's support for both primary and secondary education - a daunting task which takes in 144 local education authorities and 33,000 schools and colleges.

"Commodore's approach to this market is what impressed me most", said Steve. "Its route to become an established educational supplier has been to listen to what the market needs and respond quickly to those needs."

"This teacher-orientated support is exactly the right way to succeed in education, as demonstrated by the Commodore



Steve White...import from Acorn

Business/ Education challenge which is open to all schools and will result in original and creative classroom work that is linked to industry".

BEWITCHED, BOTHERED AND BEWILDERED?

WITH the best will in the world, the well-meaning people who set out to prepare instructional leaflets, training aids and manuals for computers assume that new users have more knowledge than is often the case.

For many, the exciting purchase of a computer soon turns into a mind-blowing worry of confusing switches, ports and leads. They're under pressure from the kids to get the thing up and running.

They grab for the manual and soon after, they grab for the aspirin bottle.

Enter the saviour of the great bewildered. Graham Kelly is one of the few who has managed to set aside his encyclopaedic

knowledge of the Amiga and cater for those who can just about manage to undo the box.

In fact he goes even further than that and actually shows new owners how to unpack their Amiga in the 30 minute instructional video he has produced on the A500.

Head of the long-established Commodore dealership Trilogic, Graham told Amiga Computing: "We know from answering customers' anxious telephone calls that first time buyers find connecting up and switching on the Amiga for the first time a bit bewildering."

"In this video, we have intentionally assumed that the viewer is a complete newcomer to computers and has no knowledge of the Amiga". To ensure that it

WHAT'S new

DRIVE FOR THE 500

LEADING American manufacturer of hard disc systems for Amigas, Supra Corporation, have announced the new SupraDrive 500XP for the Amiga 500.

Using micro-power drive mechanisms which consume less than 4 watts of power, the 500XP combines a complete hard disc system, up to 8Mb of ram and many configuration options.

Its autobooting SCSI interface uses technology similar to Supra's WordSync interface for the Amiga 2000, bringing advanced performance to the 500. It costs \$679 for the 20Mb version.



Supra Drive 500XP ...low power consumption

TOASTY SNACK

A TASTY offering aimed at satisfying Amiga owners' appetites for low-cost 3D animation and paint facilities is on the way from a new company in Kansas.

NewTek has received wide American acclaim for its Video Toaster product which includes 3D animation package LightWave 3D and 24-bit paint system Toaster-Point. Replacing expensive components normally found in broadcast studios, Toaster teams up with the Amiga 2000 to reduce the cost of network-quality television and graphics production. LightWave 3D

AMIGA people

► Included exactly the information he wanted, Graham made the video himself using a Ferguson S-VHS camera, Panasonic S-VHS VCR, G2 Video Centre and an Amiga 500.

In minute detail, it starts with unpacking the Amiga including a rundown on what should be supplied with it and continues through connecting up, tuning in the TV and loading the demo disc to a brief guide on the Amiga window system.

"We originally produced the video to include with Amigas we sell but it has proved so popular that it is now in demand in its own right", added Graham.

"We intend to bring out a second video covering more advanced topics which should be available sometime after Christmas".

Called An Introduction To The Amiga 500, the tape is free with Amigas bought from Trilogic (0274 684289) and if sold alone costs \$14.99 plus 75p postage and packing.

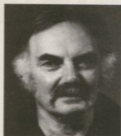
CAT'S CREATOR GOES INTERNATIONAL

AMONG the ranks of avid Amiga People, one of the most interesting, successful and downright friendly members is Stan Hayward, the creator of that internationally loved cartoon character Henry's Cat.

He doesn't make money out of the machine. He doesn't even own one. But he is a staunch ambassador of the Amiga both in this country and abroad.

Stan's support for the Amiga comes from his unstinting work with children. He teams the 2000 with a Chromacolor system and his own talents to bring the joy of animation to thousands of youngsters.

Through workshops, Stan uses the computer to open up new areas of learning development for children as young as four and especially for youngsters with learning difficulties. If it were not for the Amiga, they would be denied the pleasure and stimulation of seeing their drawings come



Stan Hayward

to life - a skill from which Stan has made his living for 30 years.

"I work totally with the Amiga. I suppose you could say I'm its biggest salesman", he told Amiga Computing. "I do Henry's Cat to earn my living but I do the computer animation with children for satisfaction".

When interviewed for Amiga People, Stan had just stepped off a plane from Canada where he had been sponsored by Commodore to run workshops of a huge animation festival. While in Canada he made many contacts, particularly among the

American Artists in Therapy movement. Undaunted, he is soon to run a teachers workshop in Lewisham and has plans to extend his animation therapy into hospitals and prisons, intending to attract more commercial animation companies to lend their support.

"I am currently working on a new Henry's Cat series for America and there are plans for a new Chromacolor animation package featuring the character", he said. "It will include a scaled-down version of the Chromacolor system specially designed for use in schools, will use Deluxe Paint 3 and will come with a whole range of Henry's Cat movements on disc. Of course, it will be based around the Amiga".

AMIGA, THE GREAT LEVELLER

It isn't often that a lowly body can get the drop on his Chief Super or a traffic warden can tell the CID a thing or two.

The police force is not a body

WHAT'S
new

includes modeling, animation and rendering, all integrated into one point and click interface.

ToasterPaint brings broadcast resolution and a full palette within the reach of graphic artists.

Through the built-in frame grabber, users can point on still video frames or create original art in more than 16 million colours.

Video Toaster is a card which fits into the video slot of the Amiga 2000. As Amiga Computing went to press, it was undergoing final tests and should be available soon.

For more details, NewTek are at 215 East 8th Street, Topoka, Kansas 66063 - ring 0101 913 354 1146.



Video Toaster graphics in action

PRO APPROACH

CANADIAN firm Eschalon Development have produced a set of professional video utilities for use with the Amiga. Programs include Subtitled, Creditor, Prompter, Image Presenter and Ascension.

Subtitled allows users to import text from a wordprocessor and set font sizes at the click of the mouse to produce subtitles for films and videos.

Creditor scrolls text at any speed with a variety of font sizes and styles. Users simply type in text, change the setting and start the VTR.

Prompter is a complete

teleprompting package. With various fonts, styles and video modes, it easily controls speed, cue marker and position.

Image Presenter is an image display program totally controlled through AREXX. Its built-in script language also allows fancy wipes and transitions.

A powerful multi-media presentation tool, Ascension offers an easy-to-use point and click interface and a scripting language. It fully supports sound, samples, speech, animation and stills.

Also included in the package are a side text scroller, video pattern, colourbar, safe area and background generators and video slate plus nine fonts, four

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metres.
formation
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a right to
relative to y
places your
a wedge

AMIGA >> people

which easily adapts to role reversal but the Amiga is currently changing all that.

One night a month, that world-renowned centre of crime detection Scotland Yard hosts a unique band of Amiga people - The Metropolitan Police Amateur Computing Club.

When the traffic men turn off their blue lights, the detectives forsake their latest stakeout and the wardens put away their notebooks, computing comes to the fore for the 600 club members. Treasurer of the club and leading light of its popular Amiga section is PC Stuart Fairclough, a member of the Bow Traffic Division which covers the whole of East London.

Open to all 27,000 police officers of the Met, to specials and to some civilians working for the force, the club has a growing membership.

"Whenever you get a group together, there is always a copper who is an expert on something from plumbing to carpentry", said Stuart. "It's the same with computers. We have a lot of people who

are starting out and haven't got a clue and we have members who can pass on their knowledge on anything from wordprocessing and DTP to viruses and databases.

"On the Amiga front, I decided to arrange a monthly series of informal talks covering a whole range of Amiga topics and I also edit a lively Amiga section in our quarterly newsletter.

"The meetings are a good laugh, more like a social club, but instead of talking about golf or some other topic, we play with computers. I'm just a police constable but I can see someone at the club, chat to him about the Amiga then realise he is a Chief Super".

The club includes many champions of the Amiga. Stuart started his computing on a C64 but soon became a convert.

"Once I had the pennies it was straight down to the shop to buy an Amiga 1000", he said. "Now more and more members are going for the Amiga with young club members starting to upgrade to the 2000".

Although the club is purely a

social organisation and nothing to do with the official police computer system, members do pick up useful ideas which help them in the increasingly computerised world of crime fighting. One member has developed a computerised key-holder database to replace the manual card files previously used to keep records of official key holders.

"I'm no expert, but I get a lot of club members ring me up with questions about their Amigas", added Stuart. "The only thing I draw the line at is calls after 10pm. When I'm on the early shift starting at 4am, that's just not on".

FEELING GOOD AND DRY

EXETER'S licensees are rumoured to be weeping over a dramatic drop in bar takings. The beer's not off, so what can be the cause of this worrying phenomenon? The blame can be laid squarely at the door of Commodore's CDTV.

That chirpy Amiga person Jeremy Rhill and his cohorts of Digita International (0395 270273)

have been up to their eyes in Dr. Feelgood, their massive health education program aimed at CDTV and backed by Commodore.

"It got so bad that we've been practically chained to the office", reported a jaded Jeremy. "We've even had to do our drinking at our desks".

On the more serious side, Dr. Feelgood was first mooted in a conversation between Jeremy and Commodore's David Pleasance at this year's Spring European Computer Trade Show.

Meetings with Commodore's top American lady Gail Wellington followed and the project landed Digita with three months of hard graft.

Not surprising when you look at the content which takes full advantage of the huge scope of CD.

"It has turned out to be like a home health encyclopaedia", said Jeremy. "It covers First Aid, what to eat, what to drink, how to exercise, what not to touch, what vaccinations you need for which countries and facts as diverse as

WHAT'S
NEW

colour fonts and a variety of brushes.

In Canada, the package costs C\$299.95. For details of UK availability, Eschalon Development can be contacted on 0101 604 520 1543. They are based at Renaissance Square, New Westminster, British Columbia, Canada. V3M 6K3.

MAKING MUSIC

PROMISING that they will bring "professional quality Midi sequencing within the reach of thousands of Amiga owners", Gajits Music Software (061-434

Amiga goes back to school



2768) have announced a new music program Sequencer One.

It features 32 tracks, real and step-time music entry, high resolution recording, graphic displays and editing facilities and comes with helpline support.

EARLY START

CONTINUING their assault on the education market, Commodore have launched a follow-up to their successful Class of the 90's package. Called First Steps. It is

designed to meet the needs of a wider range of users, including youngsters from five upwards and first-time Amiga people.

Based around the Amiga 500, it has been officially endorsed by NAPE, the National Association for Primary Education and costs \$599.95. It includes the upgraded 1Mb Amiga and eight software packages which would cost more than \$1,000 if bought individually.

"With First Steps, Commodore has a really strong educational package that will meet the needs of teachers, parents and pupils, particularly in primary schools", said Commodore's national busi-

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CPU: 16.67 MHz Asynchronous MC68020/PC16 2.3 MIPS (8 MIPS peak)
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HARDWARE: 100% compatible with Amiga 500/2000 and add-on cards
INTERFACE: Plugs into 68000 processor socket inside your Amiga

68881 - £99 1 Mb RAM - £69

£399

(INC VAT & DELIVERY)

BASIC MODEL - 68020 (16 MHz) + 1 Mb RAM



SOLID STATE LEISURE LIMITED

AMIGA >>> people

how to ring for an ambulance in Mozambique".

Covering 186 countries, it also includes an obstetric section from planning a family through pregnancy and childbirth to baby care, childhood ailments and adolescent problems. Dr. Feelgood includes nearly one million words of information complete with graphics, music and sound effects.

A portable studio was moved to Digita's Exeter headquarters where commentary was added by former STV presenter Kenneth Mcleod and tape editing of both voice and music kept the oil burning through many a midnight.

The result promises to be one of the stars of the CDTV revolution and the never-daunted Jeremy is also working on modular floppy disc versions for traditional computer plus a book.

"It has demanded my entire involvement over the past three months", he said. "It turned into such a huge project that I don't know if I would ever undertake

such a thing again".

There's hope yet for Devon's ailing licensed trade.

WIDER AUDIENCE FOR AMIGA ART

CHESHIRE photographer Richard Tucker has come up with a useful service for Amiga owners who want a wider circulation for the pictures they create on their screens.

He converts picture files into slides from all formats including overscan and HAM. Richard also digitises slides using an RGB grabber and high quality RGB camera. These pictures can be saved either as IFF or IFF24.

"I had been doing this for my own use on another computer for some time when a number of people asked me if I could do it for the Amiga", he told Amiga Computing. "I discovered that the system would work well with the Amiga and it has proved to be very popular."

"Some Amiga owners want slides of what they have pro-

duced just for their own interest but the service is particularly useful for those who want to show their pictures to magazines with a view to them being published".

The one-off cost of a slide is \$4 but lower prices are available with larger orders. Ring Richard at RTP on 0270 764705.

ADVENTURE WRITING MADE EASY

TONY Heap is a man with a mission. Having specialised in writing text adventures through his company Heyley Software, he now aims to encourage other Amiga people to write their own adventures.

To do this he has produced Hattrack II, an interactive adventure generator which allows even the novice computer buff to write text adventures without the hassle of programming.

A fully interactive package, Hattrack II allows adventurers to play-test their creations then cut down development time by interrupting, examining and altering

the state of play. Features include built-in multiple sentence parser; mouse-driven graphical compass/control panel designer; total control over screen layout and the facility to generate your own adventure game disc.

A special program produces standalone adventures which can then be freely distributed without permission. Hattrack II costs \$29.95 and Tony has plans to produce a graphics version.

He can be contacted at 27 Winton Road, Marple, Stockport SK6 6PD.

DISCORD DELUXE

RUMOURS are going the rounds that Electronic Arts are to produce a new version of their popular Amiga melody package Deluxe Music. But they're ugly ones, according to EA spokesman Simon Jeffery.

"There's nothing solid happening on that front at the moment", said Simon. "It could be a possibility for the very far and distant future but not at present".

WHAT'S
NEW

ness development manager for government and education, Peter Talbot.

SEE IT NOW!

VISITORS to December's Computer Shopper Show will have a unique chance to see Commodore's innovative CDTV in action months before it goes on the market.

CDTV will be used to show off Dr. Feelgood, the massive health education program written specially for it by Digita International and backed by Commodore.

Since its launch at the Consumer Electronics Show in



Chicago earlier this year, CDTV (Commodore Dynamic Total Vision) has only made UK exhibition appearances behind glass.

DOUBLE ACT

COMMODORE'S A3000 and design software X-CAD have proved to be a winning combina-

tion by fighting off strong competition for a huge order from Hamworthy Engineering, one of Britain's largest engineering companies.

UK systems house Applied Vector Technologies (071-603 3313) have just completed installation of more than \$190,000 worth of Amiga 3000s and peripheral equipment.

THINKING BIG

AMIGA owners can now explore mainframe-compatible software through a new version of the APL language launched by Britain's leading specialist supplier

MicroAPL (071-922 8866).

The interpreter APL68000 Level II is designed for maximum compatibility with IBM's mainframe APL2 product.

It runs on multi-user Unix machines such as the NCR Tower plus single user micros including the Amiga.

Nested arrays, selective assignment and user-defined operators are among the many features of the language specification and Level II also includes windowing interfaces.

The Amiga version, including coprocessor support, costs \$299 with an upgrade price for existing users of \$184.

Merry Christmas

from HiSoft

HiSoft

HiSoft Devpac 2 Assembler/Debugger

"Devpac has it all plus a lot more" - ST Format, Dec 88

Consistently acclaimed as the best assembler development system for the Amiga, Devpac Version 2 is a complete package including:

- ✓ Powerful, extremely fast assembler with macros, conditional assembly, include, optimisations, local labels, multiple hunks, producing executable or linkable oip.
- ✓ Advanced, multi-window symbolic debugger with single-step, dynamic conditional breakpoints, full expression evaluator, disassembly to disk etc.
- ✓ Integrated, fast and easy-to-use editor so that you can create, assemble, debug, edit, assemble etc. all without leaving the editor. CLI versions are also included for those who have strong editor preferences.
- ✓ Fast Linker, standard 1.3 include files and full documentation.

With full technical support and constant improvement, Devpac has no rivals - most of the top software houses who develop on the Amiga use Devpac - why don't you?

SAS/Lattice C ver 5.10 New!

"... a very professional package" - Transactor May 89

Quite simply, SAS/Lattice C 5 is the best C system you can buy for your Amiga. Having sold more than 12,000 copies worldwide, the package is used by professionals & hackers alike. Upgrades from version 5.0x cost £34.95 - send your master disks back.

- ✓ Powerful, enhanced C compiler with full 68020/68030/68881/68882 support plus screen editor, faster linker, assembler, librarian, code profiler, disassembler & more.
 - ✓ Advanced global optimiser which gives your programs performance improvements of up to 40%. You can optimise for execution speed or program size.
 - ✓ The CodeProbe source level debugger with 4 separate windows, allowing you to single-step through source code, set source line breakpoints, examine, modify and continuously monitor your C variables and much more - invaluable.
 - ✓ Workbench 2.0 support and environment, AREXX support, C++ style comments.
- SAS/Lattice C 5 has improved ANSI compliance, function prototyping, is multi-tasking & re-entrant, has nearly 300 library functions and comes complete with full technical support.

HiSoft BASIC Version 1.05 with Extend

"HiSoft BASIC is an excellent choice" - ST/Amiga Format March 89

HiSoft BASIC is the answer to your programming prayers, an extremely fast, interactive, standard and easy-to-use system, used by many top software houses all over the world.

- ✓ Modern, structured programming with long IFs, multi-line functions, sub-programs, REPEAT, DO, CASE, full recursion, local & global variables etc.
- ✓ No limits to your program size and no limits on the size of any variable, memory permitting, plus the ability to link easily with C and assembler programs.
- ✓ Totally interactive system with easy-to-use intuition editor allowing mistakes to be corrected simply and quickly, substantially reducing development time.
- ✓ Extremely close compatibility with AmigaBASIC and Microsoft PC QuickBASIC 3.

Complementing HiSoft BASIC, **HiSoft Extend** is a comprehensive set of library routines for IF, files, gadgets, menus, sub-menus, sound, HAM mode and more. Normally costing £19.95, we are including this package, **for only £3 extra** until 1 January 1991, if you use the order form below.

Special Christmas Offer to Amiga Computing Readers

Use the order form below to order any HiSoft products and we will send you, totally free of charge, an Amiga Starter Pack consisting of: a mouse mat with the Amiga ASCII character set, a stylish disk wallet holding up to 8 disks and 4 quality double-sided diskettes; a package worth over £14 if bought elsewhere!

Please rush me the following software together with my free starter pack:
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Shopper Show

More space, more stands and more bargains
at computing's annual Christmas extravaganza

CHRISTMAS bargains are the name of the game of The Computer Shopper Show. The 26,658 visitors to last year's inaugural show at Alexandra Palace saved around \$1 million on special offers.

An exit poll of attendees revealed that in excess of 95 per cent considered purchases there had resulted in "substantial savings" with reported figures ranging from \$50 to \$1,000.

This year the larger venue of Wembley Conference Centre will accommodate many more stands and with an extra day added, Shopper '90 is tipped to double that record.

Making its exhibitions debut at Shopper will be the Amiga version of K-Spread 4, the latest accounts package from Kuma. Also there will be Adimens 3.0, an advanced relational database produced in association with ADI of Germany. Kuma will be offering special show prices on K-Roget, their computerised Thesaurus.

New at Shopper will be an improved version of Micro English, the educational package from LCL. It has been specially designed to

cover the new oral communication section of the 1991 National Curriculum syllabus and will be seen along with a wide range of other LCL education packages covering Maths, English and French.

AMOS: The Creator from Database Software already has a huge following and fans of this creation package will have their first chance to see the next in the series, AMOS 3D, demonstrated.

In a big screen presentation, traditional to Database Software's exhibition appearances, AMOS 3D will be put through its paces along with the latest in the successful Fun School educational series, Fun School 3.

The Amiga Light Phaser Gun, the centrepiece of the US Action stand, will be bundled with a new hunting

game. Also featured will be ram expansions and a tutorial disc for Deluxe Paint.

Shareware for the Amiga will have its spot at Shopper on the Advantage stand, which will also include many useful peripherals, while Andrews & Cowen will be selling Amigas together with external drives and a range of leisure software.

Those who want the new Version 5 of word processing package Protext, will find it on the Amor stand along with their database program Prodata. Good deals on Amigas, plus a wide range of peripherals, will be an offer from Brighton Computer Supplies and many visitors will have their first chance to see the Amiga version of the popular Flexidump package from Core Electronics.

Expandable upgrades for the Amiga, Kick Start cards and virus protectors will be the offerings from new company European Peripheral Distribution, making their Shopper debut, while Evesham Micros will be selling external drives, printers, ram upgrade boards and a variety of software at attractive prices.

G&S Computers will be giving demonstrations of energy management systems while offering good deals on Amigas. GPS will be unveiling a number of new Amiga software titles from the USA. Among the offerings from Gasteiner Technologies will be the Amiga-compatible Gasteiner Mouse.

Shareware discs including games, utilities and business packages will be featured on the Gemini Software stand, and Harpers will feature Amiga hardware and a variety of interesting accessories.

Amiga machines, software and peripherals will be on sale by Micro Anvika while Microtext will be featuring their teletext adaptors with supporting software.

In addition to seeking customers for their Amigas and software, Miles Better Software will also be using the Shopper Show to seek out a suitable distributor for their Amiga tracker ball.

As well as running the Computer Football Association finals at Shopper, Mutant Software will have a range of games on sale and public domain buyers will be catered for by Public Dominator.

Rombo will feature their Vidi-Amiga frame grabbing package and more public domain packages will be on offer from both Senlec PD Library and Softville.

When Silica Shop go to a show they usually pack nearly all their stock on to the stand. This year's Shopper Show will be no exception. Among their bonanza of Amiga buys will be Afonce, the world's first 80286 PC AT emulator, Vortex hard

Major Promotion

As part of its promotions for The Computer Shopper Show, Benheim Database Exhibitions have launched the largest ever leaflet distribution for a show of this kind. One million

leaflets have gone out to potential visitors with 19 issues of the UK's top computer magazines.

They are also being mailed directly to the 26,658 people who attended last year's

show at Alexandra Palace.

Underlining the scope of this exercise, the leaflets weigh in at five tons and if laid end to end would stretch from Bristol to Leeds.



6th to 9th December
Wembley
Conference
Centre



The shop for Santas

THE Computer Shopper Show is going for a record. In line with its Yuletide atmosphere, it aims to pack in the largest number of Father Christmases ever collected under one roof.

Stands will be seasonally decorated for an exhibitors' competition and staff manning

them have been asked to turn up in Santa garb.

With 280 stands and co-operation from exhibitors, visitors young and old could be faced with the unique spectacle of between 600 and 1,000 bearded gents.

The only request is that they leave their reindeer at home!

Helping hand for charity

THE Computer Shopper Show 1990 will be used as a vehicle to raise money for The Starlight Foundation, a charity set up by Dynasty actress Emma Samms to grant the wishes of seriously ill children.

Starlight has been operating in America since 1982 and now has thriving outposts in Britain, Canada and Australia. Through its work, wishes as diverse as flying in a jet

fighter, meeting Santa Claus in Lapland, owning a puppy and marching with the Scots Guards have been arranged for critically ill and handicapped youngsters.

"We are delighted to work with Blenheim Database, organisers of the Computer Shopper Show, who are pulling out all the stops to help us during the event", said Starlight's Iva Sheinbart.

It's so easy to get there

With such a wealth of products on offer – and much more besides – Amiga owners will be thankful that the new Wembley show venue is easily accessible.

By Underground, the Jubilee or Metropolitan (Stanmore) lines take you to Wembley Park, and at peak times Bakerloo can be taken to Wembley Central.

Regular trains run to Wembley Central from Euston or Broad Street and to Wembley Stadium from Marylebone. Wembley is easily reached by car from the M25, M40, M4 or M1.

The show runs from Thursday

December 6 to Sunday December 9 at Wembley Conference Centre and will be open from 10am to 6pm on the Thursday and Friday, 9am to 6pm on Saturday and 10am to 5pm on Sunday.

Admission is £5 for adults, £3.50 for children under 16 with £1 off for tickets booked in advance. Also available is a pre-paid family ticket covering two adults and two children for £12.

For fast and easy credit card bookings, the 24 hour hotline number is 051-357 1736.

● There is a voucher for reduced priced tickets on Page 43.

discs, text editor Cygnus Editor II plus the file converter and image manipulator The Art Department.

Amiga specialists Third Coast Technologies will be offering disc drives, printers, monitors, memory expansion boards and video genlock systems, while WTS Electronics will give good deals on hardware for the Amiga 500.

This will include Mammoth Memory 512k ram expansion, external disc drives and a power supply unit. WTS will also be pleased to tell visitors about their repair and upgrading services.

They're on their way to Wembley

Thousands of computer football players have their sights firmly set on the game's traditional home as they vie for a place in the Computer Football Association Challenge Cup finals to be played at The Computer Shopper Show in December.

And as well as chasing national

honours, they could face the best that Europe has to offer when the Shopper becomes the venue for the first European Cup of the computer world.

Formed by Steve Anderson of Mutant Software, The Computer Football Association is dedicated to promote excellence in soccer simulation on home computers. For its first ever Challenge Cup competition, it has chosen Anco's Kick Off and Kick Off 2 played on Amiga machines. It will hold the quarter finals, semi finals and final at Wembley Conference Centre on the Sunday of Shopper, December 9.

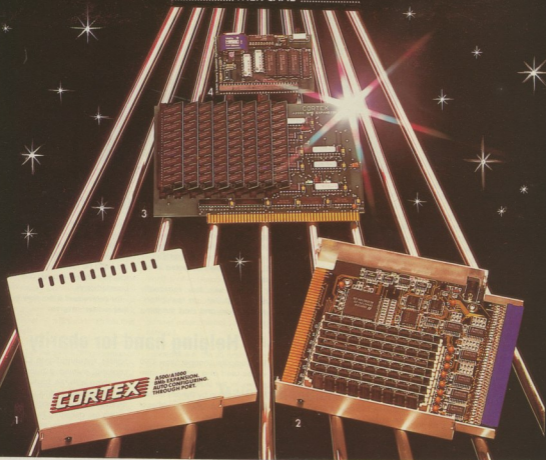
Already more than 5,000 players have signed up for the preliminary rounds to be played throughout the country. The eventual winner will scoop the 1990 Challenge Cup and a prize of \$1,000. A trophy and \$500 will go to the runner-up while the last 16 will each receive a medal and \$100.

The Italian champion has been lined up to take on the eventual UK champion at Shopper. Organised by the Milan-based K Magazine, the CFA championship has taken Italy by storm with 15,000 entrants. There are also moves to attract the soccer simulation champions from France and Germany to test their skills at Shopper.

"Support for the competition is amazing", said Steve Anderson. "At the moment entries are rolling in at 20 a day. We hope to get a big screen put in at The Computer Shopper Show so that supporters and spectators will get a better view of the excellent computer football in store. With such a big entry, the players who win their way through to the final rounds will really be worth watching".



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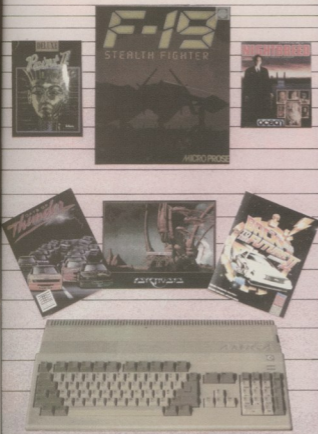
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Cartoon Capers: Hilarious paw to claw fighting game with attention-grabbing digitised sound effects [Available soon]



AMOS Paint: A feature-packed art program with fast zoom function and amazing flexibility [Available soon]



Mouthtrap: Super-fast and super-playable arcade-style game with cleverly animated cute graphics [Available soon]



Reversi: A stunningly presented Public Domain version of the classic Othello game with smoothly rotating counters.



Jukebox: Plays a selection of music files with colourful, animated VU-meters and spiralling logo [Public Domain]



Treasure Search: A Public Domain educational coordinates game for over 5s with amusing digitised speech.



SkateTribes: Super-fast vertically scrolling skate game with bags of playability and captivating music [Available soon]



Arcadia: Breakout at its best - with a colourful copper list backdrop and a built-in level designer [Public Domain]



Xerxes' Revenge: Adrenalin-pounding, fast-action horizontally scrolling shoot 'em up game [Now free with AMOS]



Pukadu: Cute arcade-style strategy game with that professional touch to keep you playing [Shareware]



Rainbow Warrior: A very impressive editor which enables you to create copper list backdrops [Public Domain]



Fun School 3: Beautifully animated follow-up to the number one best-selling Fun School 2 [Out now: £24.99]

With UK sales racing past the 25,000 mark since its launch in June, **AMOS - The Creator** has to be the biggest-selling home game package ever for the Amiga.

Every day new programs flood into Mandarin's office: Games, educational programs, musical jukeboxes, scrolling demos, font definers - and all are a tribute to the sheer power and ease of use of AMOS. Its graphical power brings an unprecedented level of professionalism to even the most elementary programs.

With AMOS it is simply itself to display pictures in any graphics mode (including HAM and overscan); add copper list rainbows; write text using any Deluxe Paint font; overlay windows; add pull-down menus; send software and hardware sprites spiralling round the screen; and add atmospheric music created in Soundtracker, Noise-tracker, Sonix or GMC.

But AMOS also has a more serious side too: Amiga owners are creating icon-driven databases, in-company training programs, home finance packages, CDTV applications and so on.

AMOS is so successful that the independent AMOS

Club already has more than 1,000 members (contact: *The AMOS Club, 1 Lower Moor, Whiddon Valley, Barnstaple, Devon EX32 8NW*).

There's also a rapidly expanding Public Domain library with more than 50 discs available (contact: *Sandra Sharkey, 25 Park Road, Wigan, Lancashire WN6 7AA. Telephone: 0942 485261*).

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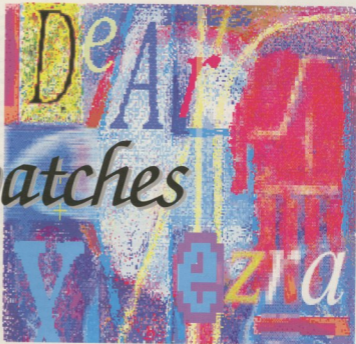
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Despatches

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Code in the head

I AM well into assembly language, in that now I have started to learn how to program in it. I won't be giving it up until I'm coding "scrolls" with the best of them.

Somehow it agrees with me, whereas C did just the opposite. I'm even enjoying it in a rather masochistic way.

I would be grateful if you would answer these queries (even though you shouldn't talk to queries):

1. Can you recommend a book which will go through the fundamentals of the language again to refresh my memory, but then go on to handling the screen quickly? If this is not possible with one book, how about recommending a couple of good ones then?

2. Has AmC ever printed an assembly tutorial in its hallowed pages? (I owned one of those nasty ST things until recently, so I've not been buying AmC for very long.)

3. Which assembler do you advise me to spend my pennies on?

Thank you for reading, and I hope in answering these questions for me. Other would-be coders will benefit too.

P.S. I whole-heartedly agree with Duncan about KO11 and Damocles. At last the truth is told...

William Roe Ashington, Northumberland.

Well now, if you check out the machine code piece in the Almanac section this month you

will see that Jolyon, our resident guru on matters code-like, has in fact reviewed such a book.

Jolyon also tapped out a large number of features in the past and will be continuing to do so in the Almanac section.

As to assemblers, well basically there are three contenders, Argasm (which is fast), Devpac (which is good) and A68k (which is free).

All major stockists should have Argasm and Devpac - take a look through the ads. A68k is the official standard for the Amiga, it should be available from all worthwhile Pd libraries and BBSs.

Organised chaos

IN the past I have been able to gain a great deal of help from this section of the magazine, so I am hoping you can help me now with a specific problem.

I purchased my Amiga because, as I am sure you will agree, it is the best computer. It has now grown to 1 meg plus a second drive and all is great, except that I also have a Psion organiser and the 128k data pack is getting full and needs tidying. I understand that the K Comms communications pack will allow my Psion and the Amiga to talk, but I can't find anywhere to buy the lead to connect the two.

The official Psion/IBM lead is available but it comes complete with software for the IBM,

which I don't need, and is naturally expensive.

Will the K Comms pack be suitable? And where can I get a lead to connect between the Amiga and the Psion?

P. Neal, South Woodford, London.

Hmmm. I see your grief. Well, absolutely any comms package will work - the lead is the only problem. It may be easier to make your own.

A serial link will normally only use two lines, so it's really just a question of finding the pin-out details for the Psion.

Are any details included with the Psion? Does anyone out there know off-hand what they are?

Makin' tracks

I AM considering a business in the computer vinyl cutting field, and as far as I can see I have three options.

1. To use the Amiga as it is with the appropriate hardware and software. The trouble is finding the software and hardware that is specifically designed for the purpose of vinyl cutting.

2. To buy the necessary equipment so that my Amiga can emulate an IBM compatible. I know there is existing available software and hardware for the IBM.

3. To buy the A-Max 2 to emulate the Apple



Despatches

Macintosh, but I have no idea about the software and hardware options available for the Mac.

As the situation stands I would prefer either options 1 or 2, as I know both these systems very well.

Also, if you could help me, could you please tell where I could buy all this equipment whichever system you decide to recommend.

J.Gregson, Hockering, Norwich.

Hmmm. I don't know of any software/hardware for either the Mac or the PC that would do this (although if someone wants to write in and surprise me, go ahead). So maybe PCs are useful for something.

In that case you are in luck. In this very issue is a review of a cheap and friendly PC emulator from KCS. I'd give them a ring first to check compatibility with the software that you are considering.

If they can't help you another PC emulator is to be launched real soon - the AT Once. If you read next month's mag you should get a full review.

Font fault

WITH reference to page 59 of the October 1990 issue and the section "How to make it work", having made room on my working disc as suggested, I then copied over the fonts from my Workbench 1.3 in order to use them to give myself a change.

Not finding a fonts directory, I tried placing it in the following places: As located in the Workbench and Dpoint 2, in the Pagesetter drawer, in the CGFonts drawer but the demo would not show them in the typeface menu. Is it possible for them to be used with this demo? If so, can you tell me how, in easy steps, as I am still learning how to use the Amiga.

I almost forgot to say what a great demo Pagesetter is. I am really tempted to buy the real thing.

R. E. Golding, Werrington, Peterborough, Cambs

Oops. If booting off the Pagesetter disk (which you should be) the fonts should be located in a directory called "fonts". In fact, there isn't one on the disk so you'll have to make one. From the CLI just type "makedir

cd013-fonts". Now you can copy across all the fonts you want.

I should hope you do want to buy Pagesetter II - it's jolly good and I'm not just saying that. You might like to know that you can now get it for just \$52.95 from Silica Shop (071-580 4000).

Mobile printouts

TO take better advantage of the excellent output of Compugraphic fonts used with Pagesetter II I have recently upgraded my 24 pin Panasonic to a Hewlett Packard Deskjet Plus, which means I can print the Compugraphic fonts to a resolution of 300 dpi instead of 180 dpi.

This is the real reason for my letter. Using the HP Deskjet driver in Preferences I soon discovered that although the first graphic dump after switch-on was correctly positioned at the top of the page, all subsequent printouts were 1/2in lower, as the printer fed this amount of paper just before printing.

After many phone calls to Hewlett Packard and Hi-Voltage, from whom I purchased the printer (none of whom could offer any help or did not want to know mainly because they had no knowledge of the Amiga) I eventually realised that the problem lay with the perforation skip commands embedded in the Preferences driver. Using Filezap I managed to edit the driver so that the driver turns off the perforation skip so that every graphic printout starts in the same place on the page.

If any of your readers has an Amiga driving a HP Deskjet Plus and would like a copy of the modified driver, I would be pleased to send them a copy on receipt of a disk and return postage etc.

John Farrar, Elm Cottage, 2 Marsh Lane, Hayle, Cornwall TR27 4PS.

Great, thanks a lot for that tip. There are a few happier Deskjet owners out there now.

While we're on the subject of Gold Disk, I'd just like to take this opportunity to say that the editor got it wrong.

The price of Pro Page 2.0 will actually be 395 dollars and so will be around \$250 in this country.

The distribution of Gold Disk software is now spread among Gem, S&L and Precision Software as well as HB, with more to follow in the future.

Disk disaster!

ABOUT six months ago I bought an A590 hard drive. It worked perfectly, so after three months of untroubled use I decided to add 2 meg of fast ram to the drive.

The installation process looked easy (I had already fitted a 1.3 ram successfully), so I decided to do the job myself. I reckoned that if anything was going to go wrong with the drive it would have done so within the first few months, so I took the chance and voided the warranty.

Everything was great, there I was with a perfectly working A590 and 3 Mb of ram the envy of all my friends. That is until a month ago, when the drive started misbehaving.

I decided to give Commodore a ring and ask their advice. They told me that they no longer ran a technical service for users and that I should contact my dealer.

It was then that I discovered that the dealer had gone out of business. Being a member of ICPUG I wrote to their chairman for help. He kindly gave me the address of Commodore's accredited repair company.

Meanwhile I faxed Commodore hoping they would help (that was four weeks ago and I'm still waiting after three further phone calls).

I was informed by the repair company that the standard cost of A590 repairs was £109.25. The problem is that if I go ahead and send the drive for repairs, I may find that the fault lies with my computer and waste money and time. So what do I do?

In the hope that you may be able to help, the fault is as follows: On power up the drive fan works OK, but the drive itself doesn't spin. Instead it makes an awful clicking noise which varies between 2 - 15 minutes. Obviously, it doesn't auto-boot either. When the drive does eventually 'fire up' I usually find that a number of blocks have errors, specifically on the cylinder the heads are parked.

I hope you are able to help as I'm getting very frustrated. The moral of this story is: Don't buy from small dealers, and don't play with things that are under warranty.

Jim Campey, Brentford, Middlesex.

It does sound a bit like there's a problem with the drive. Did you try removing the ram again? Have you tested any other drive or peripheral on the expansion port? Don't worry about further damage to the drive, it looks like it's going away for repairs anyway.

It seems odd that the drive should start misbehaving in this way suddenly. On bootup does the screen stay white while the drive is being accessed? This would seem to indicate that auto-configure was not taking place (remember that the ram must auto-configure as well).

Part of the problem could be down to power supplies. I know that the A590 has its own, but when ram is added - especially that much - there is a further drain on the supply. It depends what type of chips you use.

Demo trouble II

I HAVE just spent a very frustrating hour and a half attempting to get the Pagesetter II demo to work.

First, the readme.pp file does not open and disgorgs its contents when clicking the icon in Workbench. I attempted to read it by using the TYPE and ED commands in CLI, but was told it contained binary code and couldn't be read.

Clearly it is not written in Ascii code and is not a .DOC type which can normally be read using those commands. So what am I doing

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Second, when clicking the PS 2 demo icon, after a period of disc drive activity, I get a requester to Please insert volume CGFonts: in any drive.

Choosing the IGNORE option, I get a second requester stating No fonts available on directories FONTS or CGFonts. I Choosing the RESUME option merely returns me to the WB screen.

Incidentally, a tip for your other readers. You can delete a directory in one go even if it contains other files. Simply enter the command DELETE DIRNAME ? ALL where DIRNAME is the name of the directory you wish to delete.

Finally, there's an error in your article on DPaint on page 94. The 3rd column, 2nd full paragraph states "For nearly all occasions it will be a 256 by 320 screen display". Unfortunately, there is no option for a 256 x 320 screen, only a 320 x 300 as shown on the print of the format: screen at the bottom of page 95. (I assume you were referring to Lo - Res).

K.L.Richards, Tockington, Bristol.

Right. Firstly your problem with the doc file is due to it not being an Ascii text file. It was once, but then to save space it was crunched using Powerpacker. Clicking on the icon will activate Ppmore, a file reader that will read the text while it is still packed.

The reason this wouldn't work for you is because you have to boot up on the demo disk. Otherwise AmigaDOS will look in the C: directory on your Workbench disk and so will be unable to find Ppmore.

Secondly, Boot up on the demo disk! The startup-sequence contains the assigns required to tell PSII where to find the scalable font. So there you go. It is always worthwhile looking through the C: directory on the coverdisk to find all sorts of goodies that Jeff has left there.

Lastly, OK, gullity. It should have read 320 x 256, which is the size of a PAL to-tes screen.

Doubtful disks

SORRY to have to complain, but I feel I must take you to task. I do like the magazine, it is informative, well produced and gives up-to-the-minute information, and is reasonably well balanced (though I would like to see a little more serious computing information, especially for the less experienced "computer maniacs").

But I have a gripe - yes, you guessed it! THE COVER DISC!!

Now I do think it is a good idea, but if it is going to be produced, why, oh why isn't it done properly? We have had an Amiga for nearly two years and it started out as a games machine for my two lads.

But we discovered Amiga Computing and gradually I got interested in it, and now we are getting to see how useful all those nice utilities you put on the disk could be. Problem is, very few of them work!

The kids copied the games from the discs (and usually they were OK) and the cover disc was stowed away in the disc box. I now am trying to use such gems as PPSHOW or Powerpacker, only to find on loading, that

"Error occurred on loading Error code 212" comes up more often than not.

It even happened on this month's cover disc on the two Amos programs II (Wacky Wabbits worked OK though!)

The last straw was when I looked back to August 89 disc to use diskdrive and diskchecker. The programs did not even appear to be on the disc.

I followed instructions from the magazine on using the utilities but diskchecker or diskdrive are unknown commands as far as our Amiga is concerned. When I look at the Workbench icons only the Docs seem to be there.

I know we could return the discs to the suppliers but why should we be without them for a couple of months (or lose them altogether if some of your other correspondents' experiences are anything to go by)?

Might I suggest a little more quality control on the production of the master discs would be in order. If this is not economic then I suggest that either the idea be shelved and we go back to paying \$1.90 or whatever for the magazine, or you charge us a little more and we have something that we can use.

Sorry to be critical, but long-suffering consumers often have to put up with second class devices and non-responsible goods in the name of the great god economy.

Mr Upset, Southcote, Reading

Well, first off, the Amos programs are to be used in conjunction with Amos, so they won't actually run from Workbench just by clicking the icons. The icons are there just to make it easier to copy the files off to a working disk.

We go to quite unbelievable lengths to make sure that the disks we send out do work. We test the actual programs to make sure they work on all the machines in the office with all sorts of combinations of memory and Workbench versions.

Some of the programs that require extra files and a bit of setting up (like the PagesetterII demo for example) have a lot of files in the C: directory of the disk and perhaps some extra lines in the startup-sequence to make them work.

Normally there is extensive documentation to allow you to set up the system the way you like, but this may require some understanding at your end.

That's why it is a good idea to make backup copies of the disk and delete unwanted files to make room rather than trying to copy everything onto another disk. Because of this you may experience problems if you don't boot off the cover disk.

The case of the missing files is down to you. Either the disk was faulty (which is quite unlikely) or you have accidentally deleted them. They were definitely on the disk, as tens of thousands of other users can testify.

Doing a deal

I LIVE in the Netherlands and I have something to say. First I want to excuse myself for my bad English, I hope you can read it.



Despatches

I want to say that you guys are making a really good magazine. In the Netherlands we have only one Dutch magazine and it comes out six times a year.

I want to ask you a question. How can I order something in the UK? They say with a money order, postal order or a sterling cheque. But I don't know what all of that is. Can you explain to me how I can do it?

I went to London (nice city), to buy my copy of AMOS. I write AMOS with capitals because it is a super great program. It was not yet for sale in the Netherlands. The Netherlands is always a step behind.

M.Haveman, Ardennenlaan 23, 1966 RS Heemsckerk, Nederland.

Thanks for the nice comments. If you want to order something from a company here (and it depends on the company) you have quite a few choices.

To start with, you can get a Eurocheque book from your bank. This means you can write a cheque valid for any currency in Europe. The bank will also be able to help you with an International Money Order, which basically means they will convert your money into a cheque in the currency of your choice.

The easiest way is to use a credit card - either yours or someone else's (though it might be nice if you asked them first). Access, Visa, Barclaycard, American Express - they're all good for most places, but give them a ring first.

Basic blues

I AM currently studying A level computer studies and have just started my final year. I will soon have to start my project, but will have to program it on an Educational Standard RM Nimbus. Due to the size of the project and its importance to my final grade I was wanting to find a way to run RM Basic on my Amiga 500. I have written to a few other magazines (all to no avail) requesting information on any emulators capable of running RM Basic.

I do not wish to buy a hardware emulator such as KCS power board because I will probably have no need for PC emulation after my project is complete and secondly I can't afford it.

What I hope to do is load RM Basic at school on the Nimbus and work on my project and then save the program onto an MSDos

Digitally Distinctive

Cleverly written and always favourably reviewed in the press, Digita produces a range of powerful, low cost software for the home and business user.

DGCALC

The fastest and most powerful spreadsheet available in its price bracket, with 655 rows by 32 columns, giving you up to 20983 cells. As well as Digita products, the operation of the program is clearly thought out. Being either menu, mouse or command driven you'll be able to start using it within minutes - even if you've never used a spreadsheet before. Some of the features which make it such good value are the exporting of ASCII files for integration with other programs, adjustable column widths and overviews, programmable function keys (macros), and a unique windowing facility, so that you can look at different parts of a sheet at the same time.

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Do you ever have to print names and addresses at awkward places on envelopes, or do you ever need to fill in tricky forms or envelopes where the text has to be in exactly the right place? Usually you have to do it by hand, or get your trusty old typewriter to do the job and start it all over again. Well not anymore. The Emulated TYPE-writer transforms your computer and printer into a fully fledged typewriter, supporting bold, underline, italic and other type styles. Because it can display and print text RIGHT, if you can line up your form, press Return and Space a few times to move to the correct place, and then start typing. Alternatively you can switch to free-line mode, which offers word wrap, justification and proportional spacing, so that you can edit each line before it's printed.

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STOP PRESS

July 88 - PTP user receives tax refund of over £2,000

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formatted disk. Then load an emulator at home on my Amiga and continue to work on the same program.

I have 1Mb of ram, a second 3.5 drive and a Star LC-10 colour printer. Would the emulator be able to use the second drive and the printer? A person I know (I won't say friend because he owns a ST) has a Transformer, but I don't have any information on it and want to know if it will work before I buy it.

Robert Downs, Blackpool, Lancs.

Not being too familiar with RMBasic I reckon it is pretty much like any other Basic. If you don't want to use cunning graphics and suchlike you may get away with just running the programs from Amiga Basic. In that case all you need to do is get hold of Dos2Dos, CrossDOS or MessyDOS to transfer the files from PC disks.

The Transformer does work some of the time. Try typing to know this bloke better, that's my advice. He can certainly let you know whether your software will run on it.

Remember, remember

I want to reply to Simon Champion's letter in the September issue of Amiga Computing about a recommended ram expansion. First, I wonder why someone who is willing to pay for an A1500 seems unwilling to spend money on an expansion. For me, the expansion is a necessity. The A1500—a luxury.

To answer the real question, Mr. Champion, the best thing you can do is to search the magazine for ads of memory expansions. But to save you the trouble I did just that and came up with the following recommendation: Buy a half mag expansion, which costs \$40 or less, and then, when you find out that it's too little, go to Diamond and use their part exchange scheme to change this into an 8M expansion populated to 2Mb for just \$99. It's cheap and expandable.

To be honest, I recommend that you don't even buy the 512k expansion.

It's too restrictive. Remember, when I bought my A501 two years ago, it cost me \$140, and now for the same price you can get 2Mb.

Eyal, Jerusalem, Israel

Polyglot printers

I HAVE some questions for you:

1. I use a Star LC-10 colour printer. When I print a picture the printouts are almost always striped. Each line seems to be overlapped by one pixel. How do I correct the spacing to solve this problem?

I have read the 1.3 manual, but to no avail. I use the EpsonX printer driver, and I have tried all the Star LC-10 drivers on the August cover disk. The stripes are still there.

2. Your article in the September issue about wordprocessors was very interesting. However, I still have a question: Is there a wordprocessor that will allow me to send escape sequences to the printer? I was thinking about ProWrite or

Pen Pal, because of the possibility to use the Amiga fonts and IFF graphics in a document, but the article said nothing about the possibility of sending escape sequences.

Before I got my Amiga 2000 I used an Amstrad CPC6128, and I used the wordprocessor Tasword. With Tasword, it was easy to send any codes to the printer.

3. Is there a PD program that will convert a IFF HAM picture to a "normal" 32 colour picture (or 64 when using extra Halftone)? If you know about such a program, I would like to know where I could get it.

4. I have recently bought a disc full of fonts from a PD library. The problem is that none of them include international characters.

As I am a Norwegian, the Norwegian characters (°) are especially important. Do you know about such a font disk?

Rolf Nordeide

Ostre Hopsvei, 46 N-5043 HOP, Norway.

The lines may be something to do with the micro-spacing of the carriage. Some printers allow you to adjust this. Look up the manual.

I don't think you are going to have any luck trying to find a wordpro with graphics capability that will allow you to send escape codes (though I'm welcome to be proved wrong). You'd be much better off getting Pagesetter. There are plenty of picture manipulation programs. Pixmate is excellent, as is The Art Director, but neither of those are PD.

A while back George Thompson Services put together a collection of such software on a couple of disks. Give them a ring on 077082-234. They may be able to help with the font problem too.

Oh what a Circus

Recently I bought a copy of Hisoft's Devpac Two from a computer store in Oxford Street, London. I paid \$9.95 for it. When I returned home a few days later, I tried to load the package into my Amiga and found that Disk One did not work.

When I checked the disk I found it to contain no data at all—as if it was an unformatted blank disk. I returned the package to the shop where I bought it by registered post, clearly explaining that I would like my money back, and ordered the piece of software from a (much cheaper) mail order company.

After a telephone call, during which the manager of the store admitted that the software was faulty, they refused to let me have my money back, but in turn offered me a credit note.

I wrote back to him to say this was unacceptable to me, because I could not afford to have nearly \$60 of my money tied up in this way. This was more than four weeks ago and as yet I have heard nothing further from them.

Oliver Stockley, Kingsway, Shipston-on-stour, Warwickshire

If sounds as if you are definitely entitled to your money back. Unfortunately being legally in the right does not always help in these matters

as quite a few shops will try to pull the wool over your eyes.

I'll give 'em a bell and try and get it sorted. If the threat of being no longer on Ezra's Christmas list doesn't stun them into submission then you need help. Pop along to your local Citizens' Advice Bureau. They will be able to provide you with legal aid which may not cost you a penny.

Duncan dares too much

As the developer of the game Last Patrol for Ocean, I read the review of our game in the current issue of Amiga Computing with great interest.

That Duncan Evans thought the game poor is of no consequence. Of course tastes are subjective and his was the first bad review out of 12 European magazines.

But we do object most strongly to his final assertion that any reviewer who said the game was a good one was a liar, lying to maintain Ocean's advertising revenue.

We find this statement unjust, irresponsible and totally unfounded, and now feel that a printed retraction is in order with the reviewer concerned disciplined.

Is Mr. Evans also calling his fellow journalists on your Amiga Action magazine liars for their good review of the game? Perhaps this young man has an axe to grind with Ocean themselves? If this is the case then even his reviews can no longer be held as objective.

I. G. Harting, Envision, Bristol

Well, yes, I'd have to agree with you there. Duncan can get a bit carried away sometimes (though not far enough for most people's liking). I have spoken to Duncan since and he regrets having cast aspersions as to the integrity of the journalistic fraternity.

While it is not our intention here at Amiga Computing to muzzle our reviewers when it comes to giving a game a poor review we regret that Duncan went too far in this case.

Despatches



Emulate

One computer not good enough for you?

Want more?

Jason Holborn and John Kennedy look at the current state-of-the-art
in Amiga fancy dress



Feature

Some people are never satisfied. One computer per family just isn't enough in these decadent times: Not only do they want an Amiga, they want a PC, an Apple and an Atari.

Emulation provides a solution to the problem of becoming buried under a mountain of different makes of hardware. Thanks to a combination of software and hardware, your Amiga can play "Let's pretend" and be any computer you want it to be.

In theory at least, emulating another computer is easy. All you need is the correct processor (a 68000 for the Mac and ST; already present in the Amiga, a 8080-compatible for PCs) and a copy of the operating system.

Then you just tie up a few loose ends, such as input from the keyboard and output to the screen, and any legally written programs will work fine.

The main problem is getting hold of the operating system of the computer to be copied. Since it is usually held in rom, it's normally only a matter of either using the roms themselves, or making a disk image of them and using that.

There is a small snag here: It may be illegal. Whoever wrote the operating system holds the copyright, and they may go so far as to only license you to use it. This means there are only certain circumstances in which you can use it, and copying it on to a floppy for a friend certainly won't be one of them.

This sort of legal bottle has long been assigned to the filing cabinets for the PC's operating system. A solution was reached by getting a third party to re-write the OS and using it. To the user both systems are the same and his IBM clone will run the vast majority of IBM PC based software.

It is hard to imagine a third party company writing a new version of the Mac or Atari ST operating systems.

Kick Start

Being the Amiga's closest cousin, the Atari ST should be the easiest computer to emulate. After all, they both share the same 68000 processor. In fact it would be fair to say that if you took away the Amiga's custom chips, the hardware architecture of the two machines is almost identical, so it shouldn't be too hard to get Atari software running on an Amiga.

When the Amiga first arrived, there was talk of an ST emulator for



The hardware component of Medusa

just \$5, but that (not surprisingly) never arrived. However, a German company called Macro Systems have recently come up with the goods in the shape of their Medusa ST emulator.

The emulator package consists of two disks (one of which is in Atari format) and a tiny PCB containing little more than a couple of chips and a capacitor. The card, which slots internally inside the A2000, is the smallest emulator card I've ever seen - if you're not careful, it would be all too easy to lose it under a pile of disks. It really is seriously small.

Then again, the card itself isn't that important for Medusa claim that the hard work of emulating the Atari is actually handled by the Amiga itself - the card is used for nothing more than I/O.

The card won't multi-task, and this is really a great shame as it would have been a perfect way of

winding up all those ST-owning friends you may have. Seriously though, Macro Systems claim that the next release (version 2) will be fully multi-tasking, so it will be possible to run ST and Amiga packages concurrently.

In use, the Medusa card isn't a simple plug in and go affair. Before you even get the slightest glimpse on anything even remotely ST-like, you'll have to swallow your pride and get your hands on a real ST.

On the Atari format disk that came with the emulator is a rather suspect little utility called GETIOS.PRG. This program, which must be run on a real Atari, dumps the Atari rom to disk as a 200k binary file and copies it on to the Medusa boot disk.

In theory, this should allow Medusa to emulate anything from the very first ST machines (which came with the operating system TOS on disk) to Stacys and STEs.

boasting Rainbow TOS version 1.6. Surprisingly, although you could run Rainbow TOS, you can't get at any of the extra facilities offered by the STE. Why this should be I don't know, as the Amiga hardware could more than adequately handle the task.

Now all you have to do is double click on the Medusa icon and things start to happen. From now on, you've got a machine that is, to all intents and purposes, an Atari ST. It can read and write disks in Atari format and, for hard disk users, you can even set up a partition on your drive for Atari soft-

Unlike a real Atari, it's actually possible to run all three Atari screen modes from a standard Amiga monitor (Atari owners need two monitors!). Both medium and low resolution are virtually identical to a real ST, but the ST high resolution mono mode does tend to suffer from the usual eye-straining qualities associated with interlaced displays.

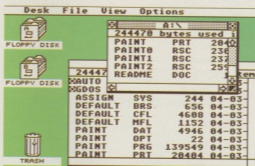
It would have been nice if the emulator supported the non-interlaced screen modes offered by the new enhanced chip set. As it is, you're either going to have to buy yourself a flicker fixer, or cross your fingers and hope that Macro Systems fix this in version 2.

Due to restrictions in the ST's memory management, it is only possible for a real ST to access a total of 4Mb of ram. Atari botched things by only allowing a 22 bit address bus even though the 68000 can actually handle up to 16Mb using a 24 bit bus. This is one area where the emulator actually improves upon the real thing: Medusa can take full advantage of the Amiga's entire memory map. If you've got the memory, you could have a 9Mb ST!

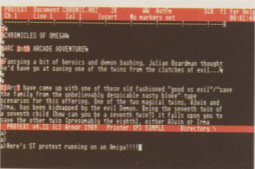
According to Medusa, the emulator runs at about 90-95 percent of the speed of a real Atari, which isn't bad (and is in fact a little impossible) when you consider that the Amiga normally runs 10 percent slower than an Atari.

Surprisingly, Medusa seems to run most application software without a hitch. Even ST MIDI software (which is written to use the Atari's built-in MIDI ports) works fine. The emulation software re-directs all MIDI activity to serial-based Amiga MIDI interfaces, therefore allowing you to run software such as Cubase without a hitch.

If you need to run Atari applications software, then Medusa certainly delivers the goods. It happily



Once all is working fine, you should be greeted by the rather parish ST desktop



The standard of emulation is very high indeed: This is the ST version of Protext

runs programs such as Calamus, Pro-24, Harlekin, GFA BASIC and even the ST version of Protext.

However, that's not to say that the Medusa system will run all Atari software. If you're hoping to run any of your friends' ST games under the emulator, then forget it. Due to disk protection schemes and blatant "metal bashing", the vast majority of Atari games software almost certainly won't work. This isn't a handicap: Any games which come out for the ST and not the Amiga aren't worth playing!

There is only one problem with Macro's emulator – and that's the price. Coming in at \$180, the emulator certainly isn't cheap. For that kind of money, you could quite easily pick up a real ST. However, if you can't afford the desk space taken up by an additional machine, then the Medusa emulator provides a simple (and space saving) solution.

Mac attack

I don't know what it is, but there's something about the Macintosh that makes it highly desirable. Take your average computer buff. Although he may not readily admit it, there's a Mac lover in there somewhere. He may wibble on endlessly about the merits of his chosen computer, but it's a sure bet that he would much rather be sat in front of a Mac.

So why haven't we all got Macs sitting on our desktops next to our Amigas? Well unfortunately, Apple has the habit of pricing products out of the reach of the people that most want them. An averagely well endowed Mac could set you back almost \$3000 – even then, you have to fork out extra for things like high resolution colour cards. This then, is why A-Max is such a good bet.

ReadySoft's A-Max Mac emulator has been around for a fair old time now. Unfortunately, the original release was rather limited – if you wanted to play Mac Tetris (which is about all I used it for) then it was fine. But for serious DTP work, it left a lot to be desired.

Everything seemed fine with A-Max, but for one small detail – hard disk support. If you've ever used a floppy disk-based Mac then you'll already know how frustrating it can be. The Amiga suffers enough with the dreaded disk swapping syndrome, but with the Mac it's an accepted fact of life. Mac users complained of aching wrists after prolonged periods of use, hence the term Macintosh Elbow.



Even the ST version of DPaint ran without problems!

Thankfully, ReadySoft have cured this problem with the release of A-Max II. If you're the lucky owner of a hard disk, you can now use it to store Mac programs and data. Is A-Max now perfect?

If you've bought the basic A-Max II (not the Plus version) then the first thing you'll notice is that the hardware itself hasn't changed from the original A-Max. That same long and rather obtrusive grey box is still as colorful as ever. It protrudes out of the back of the machine a good 6 inches or so, as if trying to compete with Commodore's TV modulator to see which can get in the way the most.

If you haven't had chance to play with A-Max, then it's worth saying a few words about the cartridge itself. Contained within that beautifully moulded case (which, incidentally, has the signatures of the designers etched on the inside)

are two chip holders. These holders seat the two Mac roms that must be installed for A-Max to be able to do its stuff.

Mac roms come in two flavours – 64k and 128k. Roms from the Mac II will not work – these are high capacity 256k Roms. If you can, go for 128k Roms as this will allow your A-Max II system to run a higher percentage of Mac software. After initial problems obtaining these Roms, Ei can now supply them for an additional fee. Actually installing the roms is a simple enough task which is completed in a matter of minutes.

There's also a number of extra connectors. The first is a pass-through connector which will allow you to use your external drives even when A-Max is in use. If your drive has a passthrough connector, it's even possible to plug the A-Max cartridge into that, therefore

saving you the hassle of having to fight through all the spaghetti growing out of the back of your machine every time you wish to unplug A-Max.

For those of you who can afford such a luxury, it's also possible to plug a Macintosh disk drive into your Amiga via the A-Max cartridge. Although these are generally rather more expensive than their Amiga counterparts, such a drive is a worthwhile investment if you intend using A-Max seriously. A good drive to go for is the Amiga-A-Tosh drive which is available from MAST on 077082 212.

It's just not fair. If, like me, you like to dive in and start playing as soon as you get a new piece of kit, then you're in for a big disappointment. Before A-Max II can do its stuff, there's a fair bit of setting up to be carried out.

The first thing to do is to find a Mac and copy the Mac System and Finder files onto a special mini-transfer disk. This A-Max II specific disk can be read by both the Mac and by A-Max. Unfortunately, it's rather limited in size – a mere 272k!

If you're using a Mac that has a large number of fonts and desk accessories installed, you'll probably have to remove a large number of them before both Finder and System will fit onto the mini-transfer disk. Don't worry – as soon as you've got A-Max up and running, you can re-install your favourite fonts and D/As.

To get anything even remotely Mac-like to appear, you need only the System and Finder files mentioned previously. These two files contain the Mac operating system and desktop environment. As soon as these are safely copied, your MacAmiga should spring to life. The next step is to format a disk from A-Max and copy the two Mac OS files on to that so that you can use the transfer disk again.

If you've got a Mac external drive, then bringing Mac software across into A-Max II is a doddle – just plug the drive in, boot up A-Max and copy the programs straight off the Mac disks onto A-Max disks.

On a standard Amiga, A-Max can operate in both medium and high resolution screen modes (although the latter suffers terribly from the problems of interlacing). A-Max II can also take advantage of both the Enhanced Chip Set and big screen monitors such as the Moniferm and A2024 (what ever happened to that?). However, for those of us with nor-

The A-Max Plus Version

A-Max II is available in two different configurations, the second of which is yet to come. A-Max II Plus is a totally new product designed specifically for the professional user. As well as the features sported by the current release, A-Max Plus offers a number of additional extras:

Internal Fitting

A-Max II Plus is a plug-in card which connects internally to the Amiga 1500 upwards. At last it's possible to run Mac, PC and Amiga software from a single, self-contained system box.

Mac Format Disks

With Plus, it's now possible to directly read and write to Macintosh format disks from standard Amiga drives.

MIDI Compatibility

Run such well respected Mac music software titles as Cubase, Performer and Master Tracks Pro on your Amiga (with standard MIDI interface connected to the serial port).

Mac Serial Ports

Taking of serial ports, Plus provides two Mac compatible serial ports, therefore allowing it to take advantage of Mac serial devices which conform to RS422 standards.

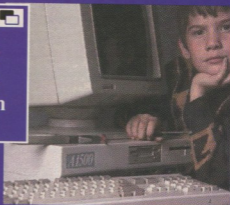
Appletalk Compatibility

Plus is fully compatible with Mac Appletalk networks and peripherals. It is now possible to directly connect the Amiga to devices such as Mac laser printers.

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Feature

mal Amigas, you'll probably prefer to run A-Max in medium resolution (do your eyes a favour).

A-Max now supports Mac digitised sounds. These range from the simple SysBeep tone to complex Mac samples. Most samples play OK, but problems do arise that can often result in the dreaded System Error requestor (the Mac version of the Amiga GURU) popping up onscreen.

Mac digitised sound can be a lot of fun. Using a control panel utility called Sound Master, it's actually possible to assign samples to different aspects of Mac operation. For example, your Mac can be set up to play a sample when a disk is ejected, another when a disk is inserted, another when you make a mistake etc.

Probably the most major new feature offered by A-Max II is the ability to use hard drives during Mac emulation. A-Max II allows you to access hard drives in two different ways. If you're the owner of a hard drive that offers a SCSI connector (such as the A590), you can access stand alone Mac-formatted drives by connecting them directly to your Amiga via SCSI (the Small Computer Systems Interface: a standard for data and control lines which actually works). This has the advantage of allowing you to access data on a drive set up for use on the Mac.

SCSI support also extends to allow Mac SCSI peripherals to be used directly from within A-Max. These include such wondrous devices as laser printers, scanners, optical drives and so on.

Secondly, A-Max II will let you set up a Macintosh format partition on your Amiga drive. A-Max uses custom controller card drivers that are written specifically for particular makes of controller. Although not all cards are supported in the current release, ReadySoft claim that all Amiga hard drive manufacturers have been contacted and asked to produce drivers for their drives. The current release supports a number of controller cards including the Commodore 2090A, 2091, A590 and even the GVP range of controllers.

You can access up to eight A-Max compatible partitions spread across several hard drives, as long as all the drives are connected to the same controller. Although the Amiga can use any number of controller cards, A-Max II is somewhat less flexible. It's also worth mentioning that if you do intend creating an A-Max partition on

File Dump, ©1989 ReadySoft Inc.

Output to ☐ Port A (Modem) ☒ Port B (Printer)

Baud rate ☐ 1200 ☐ 2400 ☒ 9600 ☐ 19200

Character bits ☐ 7 Bits ☒ 8 Bits

Parity ☒ None ☐ Odd ☐ Even

Handshake ☐ H0N/H0FF ☒ Hardware

One of the utilities supplied

your hard drive, this will require you to reformat the entire drive.

Using a hard drive with a Mac is more than just a luxury - it can often be a necessity. For example, the latest release of the Mac's premier DTP system, Quark XPress, barely fits on a high density disk, let alone a standard 800k Mac disk. Amounting to almost 1.4 Mb of data, it's almost impossible to use XPress without a hard disk. Even users of real Macs can't really use XPress unless they're lucky enough to own a Mac equipped with a high density drive (Mac SE/30 upwards). Even then, XPress has a habit of producing files that often amount to megabytes in size...

Lastly we come to the all-important subject of software compati-

bility. Thankfully, A-Max certainly doesn't seem to be let down in this department. Just about any Mac software that uses the Mac operating system should work fine under A-Max - I was able to run a large number of different programs including such well known files as Quark XPress, PageMaker 4, MacWrite, MacPaint and even a number of Mac games such as Crystal Quest, MacPlayMate (ahem) and Tetris (ylppiel). Just don't expect more hardware dependant programs (such as MIDI sequencers) to run properly.

On a standard Amiga, emulation runs at about the same speed (if not slightly quicker) as a Mac Plus computer. If you're lucky enough to have a processor

accelerator, A-Max will even take full advantage of this, allowing emulation to be speeded up by as much five times that of a real Mac.

With the release of A-Max version 2, ReadySoft have answered all the criticisms levelled at the original. Now that it fully supports Amiga hard drives, A-Max has risen from the lowly ranks of being nothing more than a curiosity to become a truly useful tool. With A-Max connected to your Amiga, it's finally possible to run quality Mac software without having to pay the kind of extortionate prices that Macs command.

PCs in our time

On the face of it, it should be impossible. Even Commodore were sceptical. OK, so emulating a PC in software is no problem - after all, the much-maligned package "Transformer" has been doing it (albeit badly) for years. Equally, emulating a PC in hardware has also been done, with the likes of the Bridgeboard systems for the A2000.

But emulating a PC using an A500 ram expansion and some extra chips? Impossible. Yet somehow it works. By slotting a card the size of a ram expansion into your Amiga 500, it suddenly becomes a PC.

To be honest, I didn't believe it possible. Even though I'd seen it demonstrated at the 16 Bit Show, I would only really believe it if I could do it myself.

So I did it. And it worked. My multitasking, 68000 based, WIMP environment Amiga had been "upgraded" to be a PC compatible. Amazing. Installation took less than an hour. Although packaging for the latest glamo usually says "fitted in moments", to be honest I usually spend over an hour plugging-in, testing and getting software organised.

This time all I had to do was duplicate some disks, plug in the card and re-boot. My Amiga was a PC.

As I normally make it a rule not to use a PC, I didn't have much in the way of suitable software. So I walked all the way across the office and asked the editor of the magazine, PC Today.

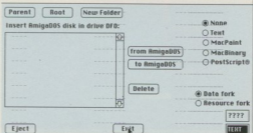
"Here", he shouted, "try this." And he gave me some diagnostic software.

"It's very surprised if it works!" he yelled (this is not unusual). It worked.

All the tests with the exception of the DMA tests (which were irrelevant) were passed with flying



MacPaint runs without difficulty



A transfer utility somewhat similar to Mac2Dos

colours. Even keyboard mapping, which had me worried, was no problem. Just as a matter of interest, it turns out that using function keys greater than F10 actually works, so don't fear commands that say "Press F12 to continue".

The software also provided a useful benchmarking system which I promptly tried on the other office PCs. I'll tell you what they came out like later. Don't want to spoil the surprise.

Once the board is fitted, you have a choice of two possible computers under your creamy beige plastic keyboard.

The first (and more technically advanced) is your Amiga, although now it has one or two extras. For starters, you have an extra half meg of memory just like an A501 ram expansion. You also have a battery-backed real time clock, just like the official A501 memory expansion and the unofficial ones which cost a tenner extra.

As an extra bonus, you even get an additional 512k ram disk, although I have to admit I had problems getting this to work. KCS say that if you have an A590 or any other hard drive which uses DMA (Direct Memory Access - a way of speeding up drives by allowing them to read/write directly to/from memory independently of the main CPU) then don't bother trying, as version 1 of the system software doesn't like it.

As far as the Amiga side of things go, that's about it. Once the ram disk problems are sorted out, you'll have everything you could want from something plugged into your trapdoor, and a little bit extra besides.

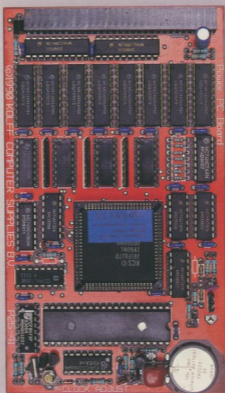
If you want to defect and use your Amiga as a PC, you have to perform the following steps.

Step 1: Remove any hard disks you may have attached and throw them away. You won't need them for a bit.

Step 2: Boot from floppy disk "A"

Step 3: Load MSDOS v4 from floppy disk "B"

And that's it. If this seems a bit complicated for you, there is a complete, totally user-friendly front end program to help you configure your new PC to get the most from it in the way of graphics modes, serial ports, external disk drives and mouse interfaces. If a particular PC package you are



Microsoft Works does - works that is

using has some strange screen colours, you can hit the "help" key at any time and redesign them.

It's been some time since I used PC software, and things have certainly changed. You would be amazed at the lengths PC programmers go have to go to to ensure "user friendliness".

Most modern programs use pull down menus, hot keys and drop shadow windows. It all looks very out of place on something which to me has always said "boring".

There would be little point in me telling you how high the standard of emulation is, if I were to say it will work on all PC programs, someone somewhere would buy it to run a particular program and it would fall down.

All I will say is that I tested a fair number of programs, including games, word processors, databases and spreadsheets. They all worked fine. The only drawback was the need to use floppy disks all the time. KCS say that if you have a particular program in mind, check with them first to see if it runs. Seems fair to me.

The speed of the KCS Power board is not particularly stunning. In fact, according to the well-respected benchmarking programs I ran, it even runs slower than an Amstrad PPC. It was completely blown away by a 80286 based PC.

Why buy an ST emulator?

I know what you're asking yourselves. What's the point in emulating on Atari anyway? Surely there's not a great deal that an Atari could do that the Amiga couldn't do better? After all, isn't that the reason why you bought an Amiga in the first place? Well, to a greater extent, you'd be right: the Amiga does have a habit of doing things just that bit better than all the rest.

There are exceptions to this - and it's MIDI software. Although the Amiga is finally starting to get its fair share of decent MIDI software (Pro-24, Master Tracks Pro and MusicX are fine examples), the standard of ST MIDI software stands miles above the rest - even Mac and PC MIDI software can't touch it.

Pro-24 may have just arrived on the Amiga, but it's positively prehistoric on the Atari. Steinberg have since upgraded it to a considerably better program called Cubase, which is already in its second revision. Then there's the C-Lab range of software, Virtuosa and Realtime.

Why buy a Mac emulator?

The obvious reason is to get a Mac on the cheap.

Apple computers are, shall we say, a bit on the costly side. Even buying an Amiga and emulator from scratch will save you money. Of course, if you already own an Amiga you'll have to splash out even less.

The Mac is the favourite machine when it comes to Desktop Publishing. Rightly or wrongly, talk to someone about DTP and you'll always end up talking about Macintosh computers.

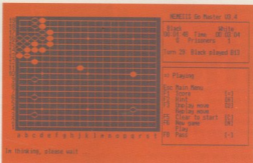
Although the Amiga now supports wonderful packages like Professional Page 2 which in many aspects can out-perform the Mac standards, there is still a lot to be said for emulating one.

For example, in a situation where Macs have already been installed, it would be financial madness to chuck them all away and start again with Amigas. However, when it comes to expanding the system, an A2000 with A-max 2 Plus could be plugged into the network like any other Mac with a considerable saving. Plus you have all the benefits of the graphically and sonically superior machine, as standard.

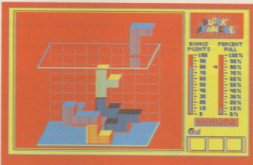
Why buy a PC emulator?

The PC has never been renowned for excelling in a specialised field. Graphics, sound, DTP and MIDI are all better left to other machines.

Nevertheless, the PC has been around for a long time. Almost since the very beginning it appears. As a result, it has earned itself a remarkable collection of



The game of GO is easily emulated



This is taking it a bit far perhaps. Future Classics will run on this emulator



A useful help utility is included

The board will boot from PC floppies

software. Forget up-to-the-minute animation packages, we're talking productivity here.

Word processors, spreadsheets, databases: The PC has a greater choice in these fields than any other machine in existence.

What's more, most of the PC software around is free: It's public domain. There is still more PC PD than Amiga PD, and you know how much Amiga PD there is out there!

Another reason to invest in a PC compatible is that old clichéd situation the "PC at work, home computer at home". If you really need to take work home from the office PC and continue at it home on the family Amiga, here's the solution.

The final scenario is one which appears in our mailbox several times a week. A lot of colleges and universities use PCs as course machines. The poor students are forced to learn programming languages and how to use spreadsheets on the out-of-date campus equipment.

Most students find that they need to use the machines out of normal daytime hours, but also find that due to lack of funds their numbers are limited and competition for access is fierce. Adapting the ever present Amiga could be the ideal solution.

Mac, ST emulators:

Jason Holborn

PC emulator:

John Kennedy

Tech Spec

Medusa ST Emulator

Supplier: Medusa Macro Systems 010 49 2330 801132

Emulates:

Atari ST - several TOS versions

Price:

\$180

Software supplied:

Utility and "rom grabbing" software

Amiga required:

A2000 up, A500/A1000 versions "coming soon"

Floppy disk support:

Yes, using standard Amiga drive

Hard disk support:

Yes

Multitasking:

No - "coming soon"

Compatibility:

Good

A-max 2

Supplier: Readysoft/Entertainment International

Emulates:

Apple Macintosh

Price:

around \$250 (including roms)

Software supplied:

Set-up utilities

Amiga required:

A500, A2000 Plus version "coming soon"

Floppy disk support:

Needs Mac drive.

Plus version will use standard Amiga drive

Hard disk support:

Yes

Multitasking:

No

Compatibility:

Good

KCS Power Board for A500

Supplier:

BitCon Devices, 091 4901919

Emulates:

PC (CGA and Hercules graphics modes)

Price:

\$320

Software supplied:

MSDOS v4, Shell, Utilities

Floppy disk support:

Using Amiga drive and supports 5.25 inch systems as well

Hard disk support:

No - "coming soon"

Multitasking:

No

Compatibility:

Good

Special:

Acts as memory expansion with clock when running AmigaDOS. Extra RAM disk possible.

Presenting

PROTEXT 5.0

Five years to the month after Protext version 1 was launched Arnor are pleased to present version 5, an enormous leap forward in both ease of use and performance.

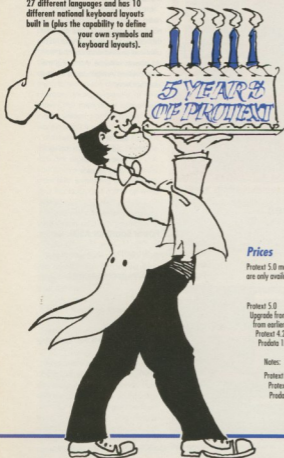
Protext 5.0 introduces a completely integrated system of pull down menus and dialogue boxes. The menus are among the many operations that may now be carried out with either the mouse or the keyboard. Protext really does give you the best of both worlds.

Protext 5.0 handles printer fonts flexibly and accurately. You can make full use of any number of proportional printer fonts, mix them freely within any line, centre them in headers, use automatically formatted footnotes. And Protext correctly formats your text as you type it, no matter how many font changes you use, showing you line and page breaks exactly as they will be printed.

Protext 5.0 is still the fastest word processor around. Even though we have made all these major improvements we have taken great care to ensure that text editing is as fast as ever. The menus work smoothly and quickly even with high resolution displays. But of course, you can use Protext's efficient set of commands and keys just as before and 5.0 remains compatible with all earlier versions from 1.0 onwards.

Protext 5.0 is a worthy successor to version 4, which was described as "the best word processor at any price", "the best text processor on the Amiga" and "the most powerful word processor on the Atari ST" (AUI, ST/Amiga Format, ST User).

Protext 5.0 heralds a new era of multi-lingual European software, in time for 1992 and the opening up of Eastern Europe. Protext may be used in at least 27 different languages and has 10 different national keyboard layouts built in (plus the capability to define your own symbols and keyboard layouts).



The Features



- ★ **New fast & easy to use pull down menu system** with dialogue boxes and alerts; file selector; mouse dragging to set blocks. Menus complement existing commands and keyboard shortcuts, do not replace them. Menus may be used with mouse or keyboard. Amiga version follows intuition guidelines.
- ★ **Enhanced printing capabilities** supports multiple proportional fonts; mixing of different font sizes on the same line; proportional formatting whilst editing; side margin, headers and footers independent of main text font. Tabs, decimal tabs and centre tabs. Extensive range of printer drivers supplied.
- ★ **Multiple file editing** - up to 36 files may be open; split screen editing.
- ★ **Graphics mode support** on PC allows use in virtually any text or graphics mode including 132 column or 75 line VGA modes; user defined characters and on-screen bold, italics and underlining now on all versions; use of 13 different accents on any character.
- ★ **Language support includes** Albanian, Basque, Czech, Danish, Dutch, English, Esperanto, Estonian, Flemish, Finnish, French, German, Hungarian, Irish, Italian, Latin, Lithuanian, Norwegian, Polish, Portuguese, Rumanian, Serbocroatian, Slovak, Spanish, Slovene, Swedish, Welsh. (Note: some printers do not support all languages).
- ★ **Index and contents** generation. Indexer takes marked words or phrases; contents entries automatically taken from titles wrapped in control codes; many options for style of contents output.
- ★ **Spelling checker** features completely new 110,000+ word Collins dictionary with very fast phonetic lookup. Anagrams and find word pattern. Foreign language dictionaries (German, Swedish available now, others to follow).
- ★ **Many other enhancements** including multi-line footnotes and endnotes; automatic timed save; add column or row of figures; indent tabs; find word at cursor; 40 column mode support; sentence operations; inter-paragraph space; much improved expression evaluator; self incrementing variables; Roman numerals; newspaper-style column printing; file sorting utility with special options for names and addresses; revised manual plus new tutorial guide.
- ★ **And don't forget Protext still includes** background printing; box manipulation; macro recording; exec files; headers and footers; find and replace; mail merging; undelete; file conversion utility; configuration program; auto reformatting; on screen help; time and date; typewriter mode; line drawing; disc utilities.

Prices

Protext 5.0 may be purchased from any good computer shop or directly from Arnor. Upgrades from earlier versions are only available from Arnor and the original discs should be returned with your order.

	PC	Amiga	ST/TT	Archimedes
Protext 5.0	£149.95	£149.95	£149.95	£149.95
Upgrade from v4.2	£60	£60	£60	N/A
from earlier versions	£75	£75	£75	N/A
Protext 4.2	£99.95	£99.95	£99.95	N/A
Prodato 1.1	£79.95	£79.95	£79.95	due 1991 Q1

Notes:

Protext 5.0 requires at least 640K of memory on all machines
Protext 4.2 requires at least 512K of memory on all machines
Prodato requires 1MB of memory on the Amiga

ARNOR

Arnor Ltd (AMC), 611 Lincoln Road, Peterborough, PE1 3HA. Tel: 0733 68909 (24 hr), Fax: 0733 67299

Hi Density Driving

When the Amiga was launched way back in 1985, one of its revolutionary features was its double sided 880k 3.5inch disk drive. At that time, everyone in the IBM world was still using 5.25in disks, and the Apple Mac and Atari ST had single sided 3.5in drives as standard.

Even when the ST and Mac got external double sided disk drives, they could only manage 720k and 800k on a disk respectively.

However, the Amiga's has since been overtaken by newer machines from IBM and Apple. IBM released their PS/2 range using hi-density 1.44Mb disk drives, and Apple soon followed with high density drives in their top-of-the-range Mac II's. Even the lowly Atari ST has now got external high density drives.

Now, Applied Engineering from the States have released a drive that brings the Amiga back into the lead.

Their AEHD external disk drive can format disks to 1.52Mb, beating both IBM and Apple.

The drive comes in a very nicely produced external case, and the first thing that strikes you is that it looks like an external Macintosh drive.

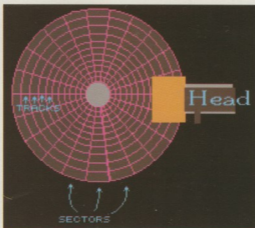
This is no surprise, as Applied Engineering make external drives for the Macintosh as well.

The AEHD drive can also be used as a straight-forward 880k external drive, and has some quite neat features. It uses the same Sony disk mechanism that is found in the Apple Macs. This has automatic disk ejection.

Auto Eject

On the Mac, if you drag a disk into the wastebasket it will eject the disk for you. The Amiga's operating system doesn't (yet) support this (come on CBM, rol! on Workbench 3.0), but there is a small button on the front of the disk drive that will eject a disk. This may seem to

Why do we still have to put up with 880k of disk space in the 90's?
We don't, as Jolyon Ralph shows us with some hi-tech equipment fresh in from the U.S.



The block arrangement of a standard floppy

defeat the whole object of automatic disk ejection, but it allows the drive to only eject disks when it is safe (when the disk drive is not reading or writing).

One nice feature of this is if you do a disk to disk copy and press the eject button, it will wait until the disk has copied and then eject the disk.

Not really that useful, but it's a great way to show off and it's a much better way of attracting your attention than the customary beep or the rather annoying screen-flash.

Another nice touch is the dual colour LED. This is yellow when the drive is reading, and red when the drive is writing - an easy way to tell

if something nasty is trying to write to your disks without warning you.

Double Device

When plugged in, the drive behaves just as if it was a fancy 880k drive. To get it to use high density disks there is a special driver file that patches the Amiga's Trackdisk device. It makes the drive behave as if it were two drives, DF1: for 880k disks and DF5: for 1.52Mb disks.

Only four lines need to be added to your startup sequence file for the changes to be made permanent.

Once the changes have been made and the machine re-booted, any high density disk will come

up as df5: and a low density disk will be df2:

The drive detects whether a disk is high density or standard double density by checking for the special hole on the left side of high density disks. While it is possible to drill holes in the normal 1Mb disks, the coatings on the disks are different, and disks converted this way are not reliable.

The drive works fine with all the hard disk backup programs I tried it with, but I could not persuade either dos-2-dos, Crossdos or the public domain MissyDOS to read 1.44Mb IBM disks on it however much I fiddled with mountlists and other such things.

This is not a fault of the drive, as the software was written long before it became available. It should also be possible to read Apple disks on this drive, with the right software.

The Meg War

Now the Amiga is ahead again, however, it will not hold the lead in floppy storage for long. The recently announced PS/2 Model 90 from IBM will have a 2.88Mb floppy drive.

Citizen have announced a 20Mb floppy drive with SCSI interface will be available soon. Up to 7 of these could be linked to an A590-equipped Amiga.

With the current exchange rate, the drive works out quite cheap. It's excellent for showing off, and the high density disks are a vast improvement for hard disk backups.

A great piece of hardware, excellently made, a good price, and works well.

When it can read high density IBM disks and Apple disks it will be perfect.

AEHD High density Amiga disk drive

Applied Engineering

010 1 214 241 6060

\$189+cartage

(about \$140 of current exchange rates)

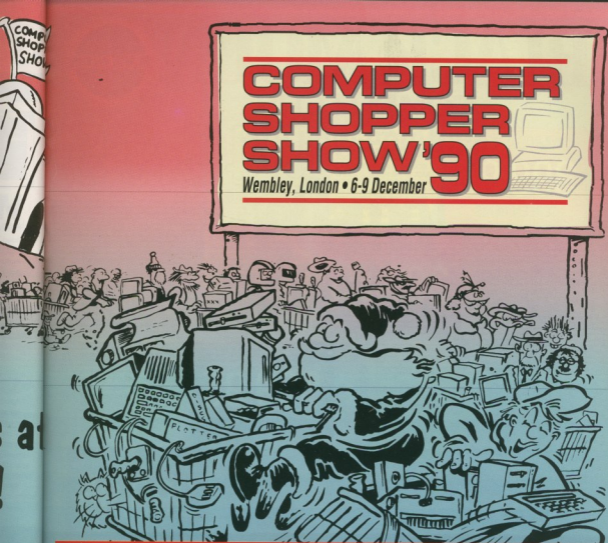


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WAY back in the mists of time, so far ago that even the so called good old days of home computing were but a distant memory, and so long ago that even this hallowed organ was but a twinkling in the eye of the powers that be... Er where was I?

Oh yes, it was 1985 in fact, and it was just about the last year it was worth owning a Commodore 64 because Andrew Braybrook's Graffiti released *Paradroid*, and followed it up the next year with the wonderful *Uridium*.

Surprisingly our Andy has rehased his original game to give us *Paradroid 90*. What next, *Uridium 91*?

The reason *Paradroid* was a resounding success was that it was a jolly good 8-bit game. However, expectations, game design and the standard of software has advanced since then (though it might not seem like it at times). So does the old dog still have a few tricks left or is *Paradroid 90* only a series of toothless woots?

To find out you first have to digest the plot. Easy enough. Out there in space is a place called Basmith. The neighbouring Trimarg Empire wants to annex it Iraq style. Our forces send out a fleet of freighters to counter the threat. From out of nowhere comes a Flash Gordon Death Ray which turns all the droids onboard into metallic communists.

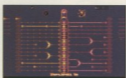
They round up all the capitalist, land owning, fascist pig, police state, running dog lackies, otherwise known as the human crew, and put them up against a wall. You are also a droid, which makes the whole exercise one of droidicide.

To facilitate the droidicide you are armed with a feeble laser, a small energy supply, and poor armour. You only get one life, and the droids on the ships are bigger, faster and meaner than a rattlesnake in your codpiece. Viewpoint is top down, with fairly



PARADROID 90

Publisher: Hewson Price: £24.99



anaemic ship graphics and droids. The screen scrolls up and down if you progress in those directions, which is in fact, fewer directions than on the Commodore 64.

You can access desk consoles and call up data on the function of the deck you are on (they are linked by lifts), the number and type of droid inhabiting it, and correspondingly, hints on the best

way to proceed.

Now you can run around and just blast every card carrying can you see, which is fine. You might just make it off this deck in one piece. But you won't get any further I assure you.

The crux of the game is in fact a sub-game. You have the ability to lock onto another droid and play out a transference game for possession of its metallic hide. This involves shooting pulses of energy at a central bar, and hoping that when the timer runs out you have more receptors in your colour than the opponent. The trouble is that you only get a limited number of shots, and the bigger the opposition, the more shots they have.

There are numerous fiddly bits which gives you unchangeable receptors, two shots for the price of one etc., and you can swap sides before you start, so a small dollop of strategy and tactics comes into play.

Indeed, unless you tackle some of the droids on the lower decks in a certain order, transferring as you go, then you won't be able to finish the game. It'll take you a long time to get that far though.

Paradroid 90 is tough work make

no mistake. It's also incredibly irritating to lose your very first transference game and thus get blown to bits and have to go back through the title page and credits.

Paradroid 90 is a fair game, enjoyable at times, frustrating at others, but it does show its age. Roll on *Uridium 91* is what I say.

Graphics

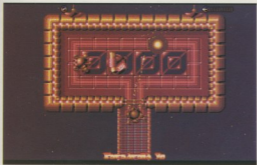
Graphically *Paradroid 90* is unimpressive, but this is partly due to the game design. If it had been rendered in 3-D with exactly the same objectives it would have looked far better, but then it might not have played the same.

Sound

Suitably weird effects which have undergone much the same sort of update as the graphics.

Gameplay

Slightly tougher than the original and unbearably frustrating at times. Considering that this is an update for 16-bit owners I don't really think dogged adherence to an 8-bit design from five years ago was that important.



I DON'T wear these sunglasses just to look cool, ya' know. I don't wear them just to make me look like Tom Cruz - no way man. Although I have to admit there is a likeness. Especially when I have my crash helmet on and no one can see my face. I mean, if I was a bit shorter and a bit more handsome and spoke with an American accent no one could tell us apart. If I had my sunglasses on and my helmet.

Anyway, the real reason I wear my glasses is to protect my eyes, man. You gotta be careful these days, ever since the Disaster. The Nuclear Disaster that is. The Big One. The Numero Uno. Le Grand Fromage. The El Supremo Disaster. The Disaster which made all the other disasters begin with small letters. Man, it was wicked.

But, hey, life goes on, doesn't it? OK, so things are a bit harder these days. Back before it happened, you could sprint round a track with nothing but the occasional oil slick to worry about. Pick up a few spawners and you were away: Turbo boosters, extra-sticky tyres, power assist steering - you know the drill. Good clean healthy fun.

Man, that was history. These days no one goes nowhere without a full set of armour plating. You better believe it - just watching a race is now an official health hazard. Each set of wheels comes with a machine gun as standard, 'cos if someone is in your way you don't spend time thinking about tactics. You just convert his car into a Nigel Mansell special. Scrub it out.

Course, you still got all those Turbos and whatnots, but this time you also got rockets to buy. No one argues with those babies: Whammo! and it's out with the replacement car. Now that's my idea of overfaking.

The circuits have changed too so don't expect no more pony custom built race tracks. We race in the real world: Knockered cities, scrap yards, chemical factories, interactive car parks - in other



BADLANDS

Publisher: Domark Price: £24.99



words the worst, man, the worst.

What makes it better is that you can also blow these dumps away. Sure, take a dislike to a certain chemical storage drum and

Kerstunch! It's gone. Oops, did I leave a huge acidic slick for you, buddy? That's too bad. Hur, hur.

And when you raced all eight, you just turn around and race 'em again. Freaky stuff man, re-negotiating all them corners. That is, if there are any corners left. Sometimes the ground get's a bit weak, ya know? Tends to fall away in places. Isn't the state of the roads shocking?

Yep, things have changed around here. Now you got yourself a real race. No more mister nice guy. If you had yourself a fine time with the old-style racing, you're just gonna love this one. Take my word on it. Or face the consequences. And my rocket launcher. OK?

Graphics

Superb. The high resolution display of the Amiga could have been custom built for this kind of game. Equals the arcade version easily.

Sound

Better than average tunes, worse than average sound effects.

Value

Let's see: How many times would you play this game in an arcade? Ten times? Twenty times? Fifty times? This is how you would rate this game in the value stakes. Work the sums out for yourself.



Voodoo

NIGHTMARE



Boots Barker has had a bad day. Stranded in the heart of darkest Congo, he is hounded on all sides by wild animals, natives, jungle gods and the malevolent Witch Doctor. Perhaps things will improve when night falls?

This huge isometric 3D arcade adventure contains some of the most cute and colourful graphics you will ever see. Instantly Playable with simple controls, the game will take you months to complete.

Explore the five underground temples, battle through a vast expanse of jungle, buy exotic items at the native shops, gamble your prizes away at the casino, embark on secret missions and that's not even mentioning the legendary Part II...

Voodoo Nightmare: It's a jungle out there!

"Voodoo Nightmare is huge, it will keep you occupied for ages. Well worth the money." "Superb... check it out!"

Amiga Action, AA awarded

"Its enormous." "Really addictive... you'll find yourself playing it weekend after weekend until you've finished."

C & VG, C & VG Hit

"Exquisite graphics... a plethora of thoughtful touches." "Voodoo Nightmare is a cracker!" The One

"Spellbinding graphics will entrance all gamers for ages."

CU Amiga, Screenstar

ATARI ST

PALACE

AMIGA

A QUICK PHONE CALL NOW COULD WIN YOU . . .

Household names Grundig, Hitachi, Sky and Pace combined to bring you the prize of the year – a complete stereo satellite TV system, with EVERYTHING else you need to bring you all-round TV enjoyment! Every item is right up-to-the-minute. Here is the very last word in TV technology . . . all at the touch of a button.

To win the ENTIRE collection all you have to do is make a phone call and answer six simple questions. We've even presented you with a choice of answers! Then give your name and address...and the first correct answer pulled from our electronic sack will be the winner.

One item alone is worth £390 – the new Pace Receiver/Decoder & Dish. It's been hailed as the very last word in satellite technology.

Pace is Europe's largest manufacturer of satellite TV receivers and their SS9000 IRD has just about everything you might need – including a built-in videocrypt decoder for scrambled channels such as Sky Movies. It's all ready to receive the 16 extra channels of the new Astra 1b satellite – giving you 60 channels in all. It even incorporates a VCR timer that lets you pre-select different channels so that they can be recorded unattended! Remote control on-screen graphics make it simplicity to use. The 60cm dish that comes with your prize is made of a stylish black mesh which blends well with any surrounding.

These are the questions:

- Who invented the very first TV set?
a) Bell in 1900 b) Baird in 1926 c) Einstein in 1929
- When did commercial TV start in Great Britain?
a) 1955 b) 1969 c) 1970
- Which was the first Royal coronation to be screened on TV?
a) Elizabeth II b) George VI c) Edward VIII
- Who wrote the theme tune to the award winning film, Chariots of Fire?
a) Phil Collins b) Mike Oldfield c) Vangelis
- Which star of Wall Street is a famous son of a famous actor?
a) Jason Connery b) Kiefer Sutherland c) Michael Douglas
- Mark appeared in Good Morning Vietnam. Who is he better known as?
a) John Belushi b) Robin Williams c) Tom Cantl

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Under fire from an enemy gun emplacement



I wonder if they want to make friends



Just vape the suckers!

NECRONOM

House: Linel Price: £24.95

WELL, the interesting thing here is that apparently sideways scrolling shoot 'em ups are beloved of all nearly intelligent races.

You are at one side of a latticework of levels, the premier bad mother (TM) is on the final level at the other side. If you complete the first level, you have a choice of three levels and two directions to go in, so even if you can't get any further, at least you'll be able to play four levels.

The levels around the edges tend to be easier than those straight up the middle, but as you'd have to play one or two more to actually get to the other side, and as they are all horribly difficult, the value of taking the roundabout route becomes a moot point.

Anyway, off to level one, and



its arm your ship time, to the accompaniment of a simple yet menacing tune. You get five points to spend on: Ship speed, bullet spray directions, bullet strength, bouncing bombs/missiles, the disruptor, shields and score

multiplier. Since it's nice to have lots of everything there obviously isn't enough to go round. If you finish the first level you get an extra two points, but sorting out your original five is tricky. What you need is a bit more speed, lots more bullet power, and one bouncing bomb. At the end of this level you need to be able to change your fire pattern so a point has to go on that.

Right, on with the action. A smallish screen scrolls pretty smoothly from right to left. Sprites are reasonably good, but the scenery doesn't match even Menace, never mind Blood Money. There are two real bottlenecks on the first level, where the scenery closes in, and killer berserker sprites gallop madly at your ship.

Manic jabbing of the fire button is required in places, while careful manoeuvring is called for in others.

If you finish a level you get a password, but you are only allowed up to three passwords so you need to be able to complete two or three levels per game in order

to get to the end. Personally I find it impossible to believe that anyone could do this. If I, as naturally gifted as I am, find the going nose

bitingly difficult then I'm sure you lot certainly will. You do have to learn the patterns, know what's coming up next, and you do have five lives to help, but it's still fiendish. And that's only the start. Out of the next three possible levels, one is virtually impossible, one is almost impossible, and the other is merely very hard.

While not really matching the releases from recent years in terms of outstanding graphics and sound, Necronom is passable to good in all departments, and offers the severest challenge to joystick hotshots since.... um, since the last one.

Graphics

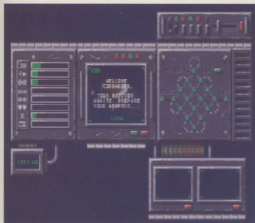
While not as outstanding as some of their older releases the smooth scrolling and interesting sprites are well done. The backdrops are a bit poor.

Sound

A bit lame really. A definite sense of 'I've heard it all before'.

Gameplay

Impossible yet addictive, the aim of all shoot-'em-ups. It gets so hard that even a gaming supremo like me is hard pushed to make it past the later levels. There is enough here to keep you going for a fair old while I should imagine.



Overer, this looks a bit complicated for a mindless thug like me.

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HELTER SKELTER

Publisher: **Audiogenic** Price: **£24.99**



BILLY was a ball, a nice little, red bouncy ball. Bobby was Billy's cousin, and every day they played together in the sunshine, bouncing this way and that between the children and loving every minute of it. One day, they were playing as usual when a big man threw Billy and Bobby at a wall and knocked them out cold.

The next thing that the two balls knew was that they had been grabbed by a man from Audiogenic and had been squeezed into a computer. Now Billy and Bobby are forced to bounce around a screen all day.

They'd much rather be playing with the children but instead they are the main characters in *Helter Skelter*.

This is strange name for this game as there's not one helper skelter in it. Anyway, you might be wondering what it's all about. Well, you don't have to free Billy or Bobby from the computer 'cos you don't have to play the game, but even if you do, that's not the idea.

Billy and Bobby have been employed to rid 80 levels of bug-eyed monsters. If you tire of the 80 levels already available, why not design your own with the built-in

Can you bring the bouncing ball to bare?

editor. Each level consists of a number of platforms which are the haunts of monsters. These monsters really aren't doing any harm but your brief is to bounce on them anyway.

Yes, the object of the game is to get your ball – either Billy or Bobby – to bounce on these poor defenceless creatures who do nothing to harm the environment and really look quite pretty, except for the ones that are really ugly and deserve to be thoroughly thumped.

Graphics

How many different ways are there to animate a bouncing ball? Lots of different monsters but once you've seen one set of bug-eyed things you've really, as they say, seen them all. There is a wonderful built-in editor though.

Sound

Nothing particularly mind-warping in this department I'm afraid.

Gameplay

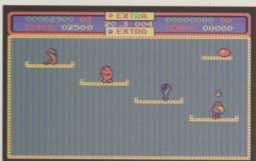
Controlling your ball is not the easiest thing in the world as I sure you'll vouch. In fact, getting Bobby or Billy ball to bounce in the right places is remarkably difficult and is going to take a lot of practice.

Bouncing on these creatures causes them to vanish, but only if you get the one that's selected by the computer.

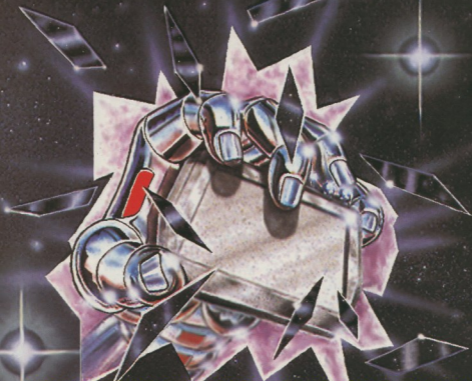
If you get one that's not due to be squashed then you simply squeeze it into two monsters and add to your work load.

To add to the trouble, if you get one of these smaller monsters, its partner increases in size. This means that if you hit him again before his turn he will divide into two again.

Helter Skelter is a really fun game. It's damned addictive and is certainly something to sink your teeth into.



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XIPHOS: What is it, where is it, and if you find it, what do you do with it? The answer to all these questions and more will be revealed thanks to the oddest killer in the universe, the Han Solo of Adlington, yes you've guessed it - me.

The game is based on the continuing struggle between two warring factions in deep space (The Plo and the Qon), both of which are descendants from the same race, which in the distant past was silly enough to delegate total responsibility of running their near perfect world, to their ultimate creation Xiphos (boo, hiss).

Xiphos is a somehow familiarly mad entity, and would be villain of the piece. A huge super intelligence, which for reasons best known to itself, after hundreds of years of trouble free service, one morning announced "I quit".

Thereby plunging the now totally dependent Xiphonians into a technological dark age, with no power and no expertise to rebuild their crumbling culture.

You play the part of an undercover agent sent by the Galactic council, of which the Xiphonian system was formerly a member. Your mission is to traverse the six levels of Xiphonian inner

space, at the centre of which is Xiphos, not only responsible for the demise of the Xiphons but also suspected of causing strange disappearances and possibly altering the fabric of space time.

In order to travel through the increasingly hostile levels you take on the guise of a wandering mercenary fighting for either side, allied only to maximum profit.

This has a dual purpose, not only disguise, but as the only method of raising sufficient funds via bounty, to buy supplies to continue your quest south, and towards Xiphos via the pole base at the southern end of each level.

Unfortunately travelling south increases an effect similar to gravity which dramatically depletes your energy. If, however, you travel

north energy is increased, but it also means you'll be travelling in completely the wrong direction (icky...eh?).

Here lies the trading aspect of the game. After firstly picking your target carefully and dispatching them to the next level of consciousness you will receive your reward, with which you can trade for goods with your victim's opponents.

A map can be built up of the various locations of stations and their allegiances, although this can change due to conquest. The conservation of resources is essential, as running out of energy was the main reason for my regular and early demise.

It's perhaps slightly unfair to compare Xiphos with Starglider II

Graphics

When I first loaded the game and flicked through the manual, my first thought was, "Great!... At last, Starglider III or thereabouts". The graphics are very similar, the backgrounds being very impressive and, with the possible exception of the tractor beam which looks like it was stolen from a specy, they're great.

Sound

The fairly usual run-of-the-mill pings and explosions. A few years ago they would have been great but they all seem a little too familiar now.

Gameplay

The dog fights are perhaps a little too tricky, making the accumulation of the required credits and as a result, the purchase of essentials, simply a little too hard.

constantly, but it's almost unavoidable with the graphic similarity and the general scenario. Nevertheless I still feel the program lacks depth, being essentially a multi-level shoot-em-up, with a bit of simple trading for good measure.

XIPHOS

Publisher: **Electronic Zoo**
Price: **£24.99**

This is the only time you are safe (well, relatively anyway). Fuel up, arm your plane and get at 'em!

WHEN I was younger and thought that my Tandon PC was a really nice state of the art piece of gear I had one game that was my most favourite of all. Many of the more sentient of you will never have heard of this game - in fact many of you may not have heard of PCs.

Anyway, the name of this game was Sopwith, and the plot was quite simple. Piloting your plane from an elevation viewpoint (side on) you had to engage in dogfights with enemy craft and drop bombs on cities and gun emplacements until everyone had had enough.



WINGS OF FURY



Publisher: Domark Price: £24.99

This was by far the best game I ever played on the PC and probably the game I have played the most on any machine. And this was on a nasty monochrome monitor running a CGA simulator. How much better, I remember thinking to myself, this game would be if it had graphics and sound.

Somewhere else across the universe of thought someone must have had a similar, if not the same, idea - here comes Wings of Fury!

The plotline has been developed somewhat. You are the pilot of a Helicat, operating from an American carrier in the Pacific Ocean around 1945.

This is an unpleasant place to be because the place is swarming with Japanese. That's not to say that the Japanese aren't nice people these days. I mean, in WWII they murdered and tortured civilians, summarily executing those who stood in their way. These days all they do is torture and murder business with high import taxes and murder, torture and eat endangered species - no comparison really.

The aim is to eradicate the enemy by destroying their island bases and sinking their ships. Air



combat may ensue, sneaky Zeros (which were manufactured by Mitsubishi as a matter of interest) defend some islands and most ships.

A choice of weapons - bombs, rockets or a torpedo - will outfit you for your mission. It may be necessary to fly a sortie and then return to your carrier in order to re-arm with different weapons. Bombs are the most universally useful, especially when attacking ground

installations. Rockets seem to be rather haphazard and inaccurate whereas torpedos are incredibly unreliable and obviously only useful for sinking ships. Remember you have machine guns for dogfights and those all important straffing runs.

Landing back on the carrier is quite difficult. The problem can be compounded if your plane has received a bit of a pasting from the Nips' Ack-Ack or the odd Zero. One slip, one fatal slip and it's goodnight Singapore.

The variety of missions and the inherent strategy requirements for each level make every flight seem different and challenging. I know I said that Sopwith was my most played game ever, but I have a feeling that may soon change.



Graphics

Excellent. They really are. The animation of the plane as it climbs and dives is more than made up for by the excellent effects as enemy soldiers are pinned to the ground by a well timed burst of cannon. A triumph of the pixel sculptor's art.

Sound

The sound effects may seem a bit tame. The tune is quite stirring but uses the same boring old samples that have been around for years. The best effect is, if you'll excuse the gore, the squeal of an infantryman as he gets shot or a 100lb bomb lands in his vicinity.

Gameplay

This is a game that attacks the central nervous system directly. It overrides all other considerations except massive doses of coffee to enable you to work nine-to-five and play six-to-eight. The control of the plane is a little difficult to get the hang of at first, but the Helicat was a difficult plane to fly in reality anyway.

NIGHTBREED - THE INTERACTIVE MOVIE

Publisher: Ocean Price: £24.99

Graphics

The wide range of graphics featured in Nightbreed make it a very appealing game. Some of the still screenshots are particularly effective in conveying the eerie atmosphere needed. The few arcade sequences are animated nicely and as a whole the presentation is first-class.

Sound

The main theme music takes the form of a haunting little ditty that accompanies the game well. The numerous spot effects enhance the atmosphere until you believe you could almost be there.

Gameplay

Despite excellent presentation, Nightbreed suffers from being somewhat shallow in its gameplay. Although there's a lot to see, the challenge is rather lessened by the fact that all the puzzles can be solved using a trial and error system. All in all, Nightbreed falls just short of the mark and rates as a disappointing piece of software.



While searching around the cemetery you are bitten and infected by Peloquin. You must run for your life or be completely devoured.

HAVING been endlessly questioned and heavily sedated, Aaron Boone tried to take his own life. Somehow his psychiatrist had concluded that he was responsible for 11 particularly gruesome murders - none of which Boone could recall.

As he leapt in front of the oncoming truck all Boone could think of were the grotesque pictures Decker had shown him. Anyone who could perform such butchery didn't deserve to live - the truck hit.

Boone regained consciousness in a white room. Where was he?

Heaven? Hell? No, having been struck by the truck, Boone's body was thrown to the side of the road. He had been rushed to the local hospital with no more than a few serious bruises to show for the suicide attempt.

It was while Aaron Boone convalesced that he encountered a somewhat disturbed character by the name of Narcisse. It was from this strange being that Boone first heard of a place known as Midian, a hidden city where monsters of all denominations live in peace. Decker, Boone's

psychiatrist, had convinced him that he was indeed a monster. Midian seemed the natural place for him to go. That night, Boone escaped from the hospital.

Using Narcisse's somewhat sketchy directions, Boone found his way to an abandoned cemetery. Surely this couldn't be the place. It was then that Boone felt a sharp pain in his shoulder. Someone or something sank their teeth into his already battered body. Running for his life, Boone managed to escape the clutches of his attacker only to run headlong into the hands of Decker and the police. Boone heard a volley of gunfire and fell to the ground, dead.

You play the role of Aaron Boone in search of the wondrous world of Midian. The game follows the film's storyline to the letter and as you progress further into the game you'll find yourself in some pretty hairy scrapes. Your ultimate goal is to prove your innocence and reveal the identity of Mask, the real killer, to the world.

In order to succeed you'll need to call upon the help of the inhabitants of Midian, the Nightbreed.

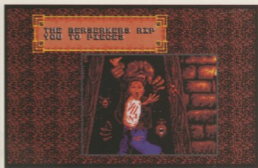
The game is controlled via the mouse using a simplistic point and



click style method. The action is split into two distinct stages, the road to Midian and the underground city itself. During the game you'll be called upon to play various arcade sequences, none of which are too taxing. Ultimately you must win through, otherwise the murders will play on your conscience for ever.



You must get around the surrounding area by car. Be sure to watch out for police roadblocks.



Upon entering Midian, the members of the Nightbreed do not recognise you as one of their kind and tear you to shreds.



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Having visited the shepherds, you are captured by a ferocious looking dragon. If only you had a spell to render him harmless...

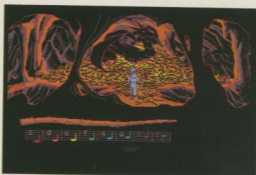
It was long after the passing of the second shadow, a time when huge dragons ruled the twilight skies, that human-kind began to thirst once more for domination over nature. Their weapon in the fight was industry, a skill they wielded with great confidence. As man unravelled the mysteries of light and darkness his power and knowledge grew in accordance. Soon, entire nations believed nothing lay beyond the powers of their own arrogance.

Competition proved fierce, skilled labour was a valuable commodity and tradesmen joined together in order to protect their valuable secrets. These professional societies swelled as their memberships grew and a few of them, notably the blacksmiths and clerics, acquired vast territories with private armies to defend them. Thus the age of the Great Guilds was born.

One guild, the weavers, were not interested in the acquisition of land and greatness; they simply wanted to advance their art. In an effort to break away from the rest of mankind, they isolated themselves on an island that became known as Loom.

As time passed, the weavers did indeed advance in their skills. In fact, the art of weaving more than improved - it became magical! By spinning the threads in certain ways, the guild members found they could cast different spells.

Using the great loom, the guild wove great magical tapestries until one day a young female weaver managed to weave a child. Rather



LOOM

Publisher: Lucasfilm
Price: £24.99



You find yourself travelling down a twisty mountain path. Things would be far more simple if the road was straight

than welcoming this magical event, the Elders of the Guild became angry.

They banished the young woman from the island of Loom and the babe was taken into care. Seventeen years have passed, the weavers' magic has begun to fail.



The blacksmiths are making weapons for the warlike clerics. Using your specialised skills you must stop their industrious fever.

The Loomchild has been summoned by the Elders, the adventure has begun.

Loom is unique among adventures. Like some games, there is no text input. Control is via the mouse, using a simple point and click technique. Magic is a key

Graphics

The graphics found within the world of Loom are first-class. The scenery is expertly drawn, almost to a point where you begin to believe the place actually exists. The animation on the sprites is excellent and the programmers have included a variety of subtle movements that further enhance the game's overall appeal.

Sound

Loom features a whole selection of intricate tunes, all choreographed to tie-in with what's going on onscreen. The hundreds of different sound effects enhance the gameplay and the help maintain maximum atmosphere.

Gameplay

Loom is more than just a game. As progress is made though the story it becomes apparent that what you are in fact playing is an interactive story. Unlike other adventure games, the point and click system does take a little getting used to. However, once mastered, progress can be quickly made. The game's only real shortfall is the fact that the puzzles can be solved largely by trial and error, thus lessening the challenge somewhat.

part of the game and spells are cast by forming combinations of musical notes found upon your mystical staff.

You play the role of Bobbin, the Loomchild. The sacred loom has been broken and the magical powers of the weavers are beginning to wane. Your mission is to venture into the industrial world to discover the reason behind these strange happenings.

Only when you prove successful in your task will the island of Loom be restored to its former glory.



The shepherds seem to be experiencing a little bit of bother with a great dragon eating their flock. Can you help out?



Mandible, the head of the Clerics, sees his ambition to rule the world get blown away as he raises an evil spirit.

A watery duel ensues as Bond battles against one of Stromberg's evil henchmen. Too many collisions and your craft will sink.



Taking jumps at an angle can cause some hilarious effects. Two wheel driving may look fancy, but it's very dangerous!



Deep sea capers ensue when Bond's minisub is attacked by the megalomaniac's army of underwater assassins.



RATHER than opt for the latest James Bond licence, Domark have decided to recreate one of 007's earlier escapades. Pandemonia breaks out when both an American and a Soviet submarine disappears. Who can be behind this terrifying global take-over bid? No one knows for sure, but the British Secret Service are on the case and assign their most famous agent, James Bond, 007, licenced to kill.

The brains behind the "kidnapping" of the two nuclear subs is none other than the wealthy industrialist, Karl Stromberg. It seems Mr. Stromberg wants to create a better world and, from his undersea fortress of Atlantis, he has sent an ultimatum to the world's two superpowers. Either they pay him the equivalent of Brazil's national debt or he nukes Hollywood and Red Square: it's hardly cricket.

Naturally, Bond is deployed to put paid to the megalomaniac's preposterous plan. En route he teams up with the KGB's ace agent and together they set out to reclaim the stolen subs. Of course, Stromberg is none too pleased at their intervention and decides it might be best if both 007 and his friend take a short vacation in a lead-lined box.

Racing through the winding roads of Sardinia (Spy-Hunter style), Bond is attacked from all angles. Using his finest driving skills he manages to elude capture before his Lotus Esprit transforms into a speed boat and the chase continues over water.

En route Bond may collect numerous "Q" tokens. These may be exchanged for vehicle enhancements such as paint sprays and smoke screens. Q's creative mind has thought of an even greater option - the ability to change your Lotus from a racey sports car into a highly manoeuvrable minisub. This latter metamorphosis proves vital when you drive headlong off a nearby jetty.

So the action continues with

THE SPY WHO LOVED ME

Publisher: Domark Price: £24.95

Stromberg throwing everything he has at his disposal in the path of the relentless Bond. The chases take place on land, on sea (using both a boat and a jet ski) and under the

ocean waves. Eventually, if 007 is worth the tax-payer's money, he wins through and saves the day. Stromberg, being something of a lily livered coward, hops off

somewhere. Leaving Bond to fight it out with his oversized bodyguard, the steel-toothed, Jaws.

Who will be victorious? 007's fate lies in your hands.



Graphics

Although the sprites are somewhat smaller than normal, no details have been omitted. The game is presented very nicely and the scrolling is particularly smooth. Because of the numerous different levels, there are also a nice variation of things to see.

Sound

No Carly Simon here, Domark have taken the original Bond theme and souped it up somewhat in the form of a special house remix version. The spot effects are well implemented and work well. As the song goes, nobody does it better.

Gameplay

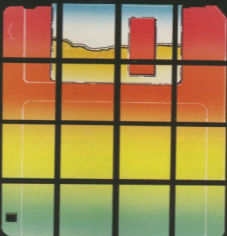
Despite backtracking somewhat, Domark have produced a first-rate game that incorporates both Spy Hunter and Operation Wolf-style gameplay. Difficulty has been set at just the right level, allowing players to progress each time they play.

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SHADOW OF THE BEAST II

Publisher: Psygnosis Price: £34.95

SHADOW of the Beast II is very similar to its highly acclaimed predecessor. However, Psygnosis have listened to the comments made about the first game and improved upon them for this, the second instalment of the Beast saga.

Having fought your way across the plains, you managed to reach the killer of your father, the Beast Mage, Zelek. A long and arduous battle ensued and as the sun set in the east only one shadowy figure remained standing. Against all odds you had defeated the powerful wizard and avenged the death of your once proud father.

As time passed, people moved to the furthest reaches of the land in search of a more bountiful life. What with the Mage long since deceased the peasants slept safely in their beds, or so they thought...

One terrible night, high on mountain top, the silhouette of a lone figure could be made out against the dark night sky. As rain poured out of the sky and lightning flashed all around the strange figure raised a staff causing weird



The forest is a sacred place and the tribesmen certainly don't like intruders violating their lands.

electrical currents to run all over his body. The figure turned and hid until it had become a hideous winged creature. Gliding effortlessly down from the mountain, the creature swooped over a lonesome cottage ripping off the roof as though it were made of straw.

Inside a baby screamed as its mother looked upwards. A menacingly huge hand reached in

and grasped the babe. The creature took off into the distance, leaving the poor woman all alone in the darkness.

So it was that the Beast Mage returned, taking your only son in the process. There was no question what you must do, even without your Beast powers you must travel to the Kara-Moon, defeat the Mage and rescue your heir.

Beast II looks quite similar to its

predecessor. That is, it takes the guise of a platform-style game come beat'em-up. The two main differences between the two Beast games are that this second instalment is much bigger and it requires far more lateral thinking and puzzle solving. Players may now collect coins to spend on needy provisions. Clues can be gleaned by asking the inhabitants of Kara-Moon probing questions. You may even barter objects in return for information and help.

One thing that hasn't changed is the Beast-ly T-shirt found accompanying the disks.

Graphics

Psygnosis pride themselves on producing state-of-the-art graphics. Shadow of the Beast II has to be their best yet. Superbly animated creatures inhabit the land of Kara-Moon and the landscapes are truly breathtaking, especially when you see the amazing 13 levels of parallax scrolling. In a word, Brilliant!

Sound

The haunting theme tune sets the atmosphere perfectly. The many sound effects are varied and extremely well implemented. Even the "game over" sequence is a joy to listen to with its impressive guitar solo.

Gameplay

Shadow of the Beast II is a first-rate arcade game. Control is via the joystick and moving around Kara-Moon couldn't be easier. The puzzle solving element adds a hidden depth to the game and definitely increases its lasting appeal. When you combine the top-quality presentation and the superb gameplay you've got one heck of a game.



Chests contain health-giving potions and valuable cash. But they're guarded by huge monsters which must be slain first.



Puzzles and traps abound. If I were you I'd kill that menacing giant before he pushes the spiked block your way.

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Stephen Franklin
Managing Director



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Memory Expansion Systems

Britannia Buildings, 46 Fenwick Street, Liverpool L2 7NB. Tel: 051 236 0480. Fax: 051 227 2482.

Memory Expansion Systems will be selling and demonstrating their new range of Cortex memory products for the Amiga. High quality half meg, 2meg, 4, 6 and 8 meg Amiga upgrades will be on sale along with hard disk systems and external floppy drives. All at special show prices.

Ram chips for all types of machine will be available including 1m x 40k static column drums for the A3000.

Stand 4

Rombo

6 Fairbairn Road, Kirkton North, Livingston, Scotland EH54 6TS. Tel: 0506 414631. Fax: 0506 414634.

Rombo manufacture a low cost, high specification Video Frame Grabber (or Digitiser) for a range of various machines e.g. Commodore Amiga, Atari ST and IBM PC/XT compatibles. Don't miss the chance to see for yourself the versatility and quality that is attainable from our low cost hi-specification digitiser.

Stand 8

HiSoft

The Old School, Greenfield, Bedford, MK45 5DE. Tel: 0525 718181. Fax: 0525 713716.

Stand 10

Interactive Publishing

Europa House, Adlington Park, Macclesfield, SK10 4NP. Tel: 0625 878888. Fax: 0625 879966.

Interactive Publishing is Europe's foremost publisher of Amiga specific magazines with AMIGA ACTION and AMIGA COMPUTING representing all titles.

AMIGA ACTION will appeal to avid games players and fans of shoot-em-ups with the most comprehensive round up of games reviews in any Amiga magazine in the UK.

Britain's longest established Amiga magazine, AMIGA COMPUTING appears in its sensational new

look for the '90s, incorporating more pages of features, comment and news than ever before.

AMIGA COMPUTING is essential reading to ALL dedicated Amiga owners with coverage everything from programming to games, desktop publishing to music and communications graphics, plus a lively news round and letters page - in fact everything any Amiga enthusiast should know.

Come to STAND 19 NOW! with your special show edition of AMIGA COMPUTING and buy great cover disk for just £1. Subscribe to either of our magazines TODAY and take away A FREE MYSTERY GIFT.

Stand 12

Ocean Software

6 Central Street, Manchester M2 5NS. Tel: 061 832 6633. Fax: 061 834 0650.

The season's catalogue is stronger than ever reflecting the company's investment in software development and design, reinforcing its dominant position as the principal publisher of computer games in Europe.

The new range of product covers both 8-bit and 16-bit architecture encompassing diverse game types and paying tribute to a wide variety of creative sources.

CARTRIDGE SUPPORT - lending a new dimension to the Commodore 64 format. Cartridge is major advantages never before fully explored.

These advantages are instant access and loading. Loading from tape and disk is deemed to be time consuming and wasteful in the eyes of the games player - valuable playing time is maximised. Larger memory games. Up to two Meg (256K) can be stored on a cartridge along with more graphics, more levels and generally far more game presentation. Detailed and interesting between level screens and greater graphic animation.

All Ocean's new titles on Commodore cartridge are written specifically for the format the exploiting all of the above features.

STOP PRESS! For the first time ever, Ocean's full range of Christmas titles are all available on written specifically for the Commodore Amiga.

Stand 14

US Action

4 Whitton Road, Twickenham, Middlesex TW1 1BJ. Tel: 081 891 6713. Fax: 081 892 8127.

US Action/Amiga Direct No. 1 Amiga Specialist. Now in Britain US Action/Amiga Direct Europe's leading Amiga Club, more than 10,000 members.

Due to our international network (Holland, Belgium, Germany, USA and England) you can now see hundreds of pounds on recommended retail prices. Your only commitment: pay £10 for one year's membership.

When you join you can choose any one of the following free gifts: Wicked 50 Games Mouse pad, Marauder II, the number one copy program in the USA.

You will also receive four times a year a free colour catalogue. There will also be discounts on certain UK computer shops entrance fees and special offers at unbeatable prices, no obligation buy. However at our unbeatable prices you can't resist.

Stand 16

Psygnosis

South Harrington Building, 182 Sefton Street, Liverpool L3 4BQ. Tel: 051 709 5755. Fax: 051 709 6466.
There will be AWESOME and OBVIOUS which are both T-Shirt products, and CARHAGE, our hot weapon product for 1990 which is called Lemmings. We will also be previewing our CDV technology.

Stand 19

Special Reserve & Official Secrets

Tel: 0279 600770. Fax: 0279 726842.
Special Reserve and Official Secrets are the largest computer games clubs in the UK, with a membership of over 35,000 16-bit games players.

The clubs are run by Inter-Mediate, the company headed by Tony Rainard, founder of Rainard Software.

Special Reserve supplies games to members at heavily discounted prices, a result of its bulk purchasing policy.

It also provides members with colourful Cyberpunk magazine called NRG with News, Reviews and graphics of new games.

Official Secrets is tailored to the needs of adventure and role-players, supplying a wide range of proscript adventure software through Special Reserve.

Subscriptions include a 32 page magazine called Confidential and Myth, an adventure by Wayne's Scrolls, written exclusively for Official Secrets.

Tony Rainard, John Tode, Debbie Magrane and Karen Hall will be on stand 19, ready to persuade you to join.

Stand 21

Mico Anvika

53/54 Tottenham Court Road, London W1P 9RE. Tel: 071 636 2547.
Welcome to the 1990 Xmas Commodore show. Mico Anvika are pleased to be taking part in this year's Xmas show again and as always in keeping with the tradition we have packed our stand with nothing full of goodies.

Whether you are looking for the latest in Amiga software or hardware we are at your service offering the best price on any goods at the show. We wish all our visitors a Merry Christmas and a happy new Amiga Year.

Stand 26

CVB Computers

97 Crown Parade, Crown Lane Morden, Surrey SM4 5DA. Tel: 081 542 7662. Fax: 081 543 7527.

Surely, premier Amiga dealer. Anything for the serious Amiga user is catered for. See us at the stand or visit our really large showrooms. Superb makelover service.

If you have any questions or problems concerning Amiga hardware or software, come see us. Good prices on all products. The competition knows us, you should too!

Stand 28

Solid State Leisure

80 Finsdon Road, Ithlingborough, Northants NN9 5TZ. Tel: 0933 650677. Fax: 0933 311790.

Solid State Leisure is THE rising star of the Amiga market, with an expert project design team and state-of-the-art research and development equipment, coupled with large scale manufacturing facilities, it is set to take the Amiga market by storm.

Stand 31

Softstore

80-810 Bath Road, Slough SL1 6JA. Tel: 0628 668320. Fax: 0628 668592.

Stand 33

Power Computing

44 Stanley Street, Bedford MK41 7BW. Tel: 0234 233000. Fax: 0236 270133.

From floppy drives, memory expansions, chips and software, to the latest in hi-tech hardware from America, you will find it all on the Power Computing stand.

Look out for the 50MB/1.68930 accelerator card for the 82000, and the 600MB Optical Drive.

Also on show will be the brand new A500 hard disk drive from GVR the Amiga Framegrabber, and the new VideoMaster Digitiser-Genlock from Videch.

You can buy our Dual Amiga floppy drive, the 512K Memory Expansion, and the 1.5Mb Memory expansion all at exciting show prices!

Stand 37

Greater London Computers

811 Hale End Road, Highams Park, London E4 9PT. Tel: 081 527 0405. Fax: 081 531 2686.

Stand 38

Electronic Arts

The Langley Business Centre, 11-49 Station Road, Langley, Berks SL3 8YN. Tel: 0753 49442. Fax: 0793 46672.

Electronic Arts is a leading producer of home entertainment computer software. With the success of titles like Populous, 688 Attack Sub, Deluxe Paint II, and Interceptor, the company has been a dominant force in bringing interactive entertainment to the market.

Shining in their booth are a unique line of products ranging from fast racing action with Indianapolis 500, magical wizardry with The Immortal and ultimate conquest with their new hit PowerMonger.

PowerMonger is the next product from the designers of Populous, Bullfrog Productions. Electronic Arts welcome you to visit their booth, play their games and ask questions.

Stand 40

Domark

Ferry House, 55-57 Lacy Road, Putney, London SW15 1PR. Tel: 081 780 2222. Fax: 081 780 1540.

Amiga, C64 Games Systems... Commodore 64. Whatever the machine you own trust Domark to come up with the goods! We've got a fabulous selection of software from arcade games to flight simulators.

On the Amiga fly the ultimate in fighter jets - the MIG-29 Fulcrum or test drive the amazing Hard Drivin' - sequel to its No 1 Best Selling predecessor.

If speed is your aim then STUTJUN Runner's game and don't forget Spy and Backlands.

New for the C64 GS are the amazing Tengen colour conversions of Vandenberg, Cyberball, which gives a new meaning to American football, Klax, the addictively simple brain teaser and Backlands, sequel to the superb Super Sprint.

Take Bond on at his own game in The Spy Who Loved Me and beat the best in the dirtiest race in town - Backlands. Both for the Commodore 64.

Stand 42

Silica Shop

Unit 10 Rusley Corner Industrial Estate, Edginton Way, Sidcup Bypass, Sidcup, Kent DA14 5SS. Tel: 081 309 1111. Fax: 081 308 1230.

Silica Shop are the UK's No 1 Commodore Amiga specialist retailer and hold the largest range of Amiga products in the country.

They will have a wide selection of these products at the show, covering both hardware and software. Silica have been dedicated to the Amiga range ever since its release into the UK market and are now the undisputed leaders in the Amiga field.

Apart from their London and Sidcup branches, Silica run a speedy mail order operation and provide Amiga owners with a specialist service that is second to none, including FREE newsletters and technical support helpline.

To receive Silica's FREE brochures, contact Silica by telephone or write to Silica Shop, 1-4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX, or you may register today at the Commodore Amiga Show by completing a card on the Silica Shop stand.

Both Silica branches and mail order department will be extending their opening hours during the Christmas period. For further details call Silica on 081 309 1111.

Stand 46a

Mindscape

P.O. Box 1019, Lewes East Sussex BN8 4DW. Tel: 044 486 545/547. Fax: 044 486 688.

Mindscape will be showing all of its powerful Christmas lineup on Commodore Amiga, Commodore PC and Commodore GS.

Visitors to the show will get a chance to play the brand new game from Gray Matter called The Ultimate Ride - it's motorbike racing simulation at its very best with some amazing graphics from the paint box of the creators of Fendish Freddy - making The Ultimate Ride a real interactive racing movie.

Ever fancied a chance of becoming a hospital surgeon?

Life and Death for the Amiga puts the scalpel and the life of your patient firmly in your hands.

Mindscape will also be showing its autumn hit, Captive. Fans of the game will have the chance to meet programmer Tony Crowther and glean some hot playing tips or maybe even the real news about Captive II - Freedom Fighters.

Mindscape will premier the exciting range of simulation product by the world famous Three-Sixty team from California.

The first games are Blue Max - the world war one dog-fight simulator and Descent - a stunning 3D shooter with a multiple mission scenario. Both will be on the Amiga before Christmas.

For those who can't handle the pace from the rest of our Christmas games, there is at least the chance to play the world's best selling chess game on the Amiga - Chessmaster 2100.

There is no doubt that whatever your taste in games is, it cannot fail to be satisfied by a visit to the Mindscape Grotto.

Stand 46b

Chettah

Norbury House, Norbury Road, Fairwater, Cardiff CF5 3AS. Tel: 0222 555525. Fax: 0222 555527.

Chettah, the UK's leading manufacturer of computer joysticks, peripheral and musical instruments, will be proudly showing their new and existing ranges.

The company will be giving away free T-shirts with the purchase of selected items as well as offering very special deals on other products.

Speech synthesizers, infra red joysticks and interfaces will be amongst these special offers, so a visit to Chettah near the Commodore stand should not go amiss.

Of course the company also manufacture games cartridges for the world's leading software houses, and personnel will be on hand to answer any inquiries.

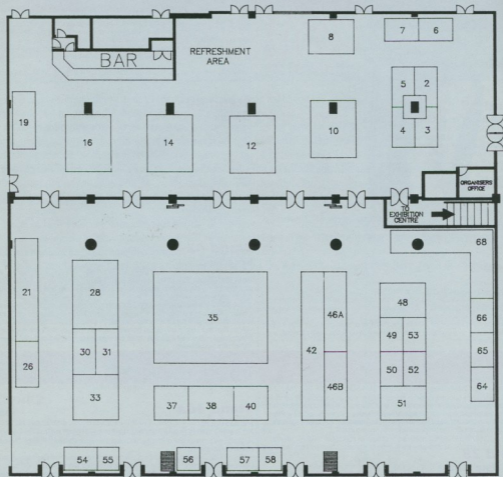
Stand 48

Marcam

62 Tetbury Road, Moulton Park Business Centre, Northampton NN3 1AX. Tel: 0604 790466. Fax: 0604 647403.

Marcam have for the past four years been producing the high quality range of Rendale Genlocks.

CHAMPAGNE SUITE - UPPER LEVEL



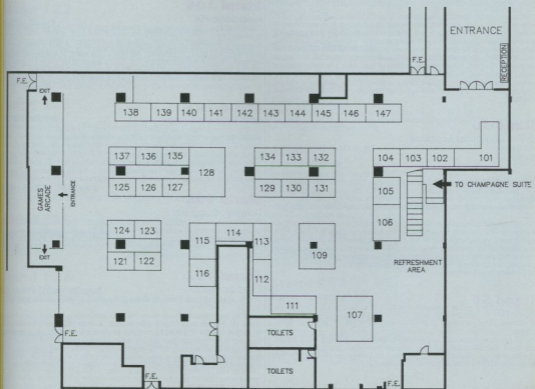
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Who's who at the Show – and where to find them



EXHIBITION CENTRE – LOWER LEVEL



the 8802 and the 8805.

At this show we are launching the latest Rendale Genlock, a SuperVHS version of the economy priced 8802, this version as well as having the usual features of the 8802 also has fade and wipe options fitted as standard, also more control selection is provided by hardware.

Nowadays, as well as producing Rendale products, the company is also marketing quality third party products, such as the Framegrabber and 3D Professional, professional quality products from the States.

Stand 49

A1500

31st Floor, 21 Great Portland Street, London W1N 5DB. Tel: 071 637 2281. Fax: 071 637 4002.

A1500 has been formed as the trading company for the A1500 expansion system for the Amiga 500 by its inventor Michael Root.

Following two years of research and design, the product has been successfully prototyped over the last few months and is now in full production. The A1500 expansion system is being officially launched at this exhibition.

The system's capabilities: Detachable keyboard, up to three disk drives (two floppy drives mounted at front), mouse and joystick ports at front, internal Amiga 500 and Amiga 2000 buses, Amiga 2000 video port, additional microprocessor socket, 19in rack mounting system.

Stand 51

Elite Systems

Anchor House, Anchor Road, Aldridge, Walsall, West Midlands W59 8PW. Tel: 0922 55852. Fax: 0922 743029.

Elite exhibits at the Commodore Xmas Show for the first time ever, showing some of the new C64 and Amiga products scheduled for release during Autumn/Winter 1990. On the stand we shall be exhibiting Gemini 2 - Amiga, Tournament Golf - Amiga, World Championship Soccer - Amiga and C64. Also, an as yet unannounced title scheduled for release January 1990. We hope this show will be a very good launch pad into this new phase of licensed products under development.

Stand 54

ICPUG

45 Brookcroft, Linton Glade, Croydon, Surrey CR0 9NA. Tel: 081 651 5436. Fax: 081 651 3428.

ICPUG, the Independent Commodore Products Users Group, is the premier computer user group in Britain and is in its twelfth year. Unlike many so-called user groups, which are only commercial marketing operations, ICPUG is a genuine association of computer users working together for mutual benefit and organized as a non-profit making co-operative. It is co-ordinated by a voluntary national committee, and there are many separate regional groups. Benefits of membership include access to the FREE public domain software library, technical assistance and discounts on hardware and software. The ICPUG Journal, which is produced six times a year, is in the region of one hundred pages per issue. It is widely regarded as the most authoritative journal on Commodore machines in the world, providing extensive coverage of the full range of computers including the Amiga, C64, PC, PET and all other models. For additional information please contact Janet Boverstall.

Stand 56

Hi-Tec Computer Supplies

131 Wellington Street, Peterborough PE1 5DU. Tel: 0733 555945. Fax: 0733 558974.

Stand 57

FMG

Hazlett Mews, Hazlett Road, London W14 0JZ. Tel: 071 603 3313. Fax: 071 602 2627.

FMG are suppliers of repairs and on-site maintenance for all Commodore computers - from C64s and A500s to PCs. As well as repairs, the company also offers extended warranties on C64s and A500s to guard against any mechanical failure for two years. Just one payment gives you peace of mind and confidence in your computer for the period covered - if anything goes wrong, you simply send it back to FMG and they'll repair it for not extra charge. As a special offer for the show FMG are giving away free software with every extended warranty taken out. For details just pop along to Stand 57 in the Champagne Suite.

Stand 58

Nova PD

30 Parsons Street, Banbury, Oxon OX16 8LY. Tel: 0295 262029. Fax: 0295 275044.

Nova PD provide a complete Public Domain service for the Amiga, everything from utilities to the latest demos. Over 800 disks in stock plus a free ordering service and same day despatch make Nova one of the most popular PD companies around. Nova have recently released a low cost Database system and this will be available from their stand for just £9.99.

Stand 65

Public Dominator

P O Box 801, Bishops Cleeve, Shropshire CM233TP. Tel: 0279 757692. Suppliers of Public Domain and Shareware software for the Commodore Amiga.

Stand 68

Mirrorsoft

Inwin House, 118 Southwark Street, London SE1. Tel: 071 928 1454. Fax: 071 583 3494.

Mirrorsoft is Europe's leading 16 bit Entertainment Software Publisher. In addition to publishing Entertainment software under its two house labels Imageworks and PSS, Mirrorsoft also publishes on behalf of three of America's most exciting software houses: Cinemaware, PSS and Spectra Holobyte. All labels represented by Mirrorsoft have a strong brand identity and market niche. It can offer European game players both at home and abroad a range of first class product catering for every major market area. 1989 was Mirrorsoft's best year ever in terms of critical acclaim and commercial success. We believe our line-up for 1990 is even stronger.

Stand 101

Softsellers

6 Bond Street, Ipswich, Suffolk IP4 1JE. Tel: 0473 216160. Fax: 0473 213457.

Stand 102

Microsmart

125 Strong High Street, Milton Keynes MK11 1AT. Tel: 0908 564369.

Microsmart a name that is associated with the more experienced companies of the industry renowned for its 16-bit peripherals and utilities knowledge and stockholding, and still being very much in touch with the 16-bit games software market, involving titles old and new. We have got right product at the right price. So whether your need is through our wholesale or mailorder, please call a sales team that is down to earth, informative and not full of time wasting sales patter.

Stand 103

Mutant Software

475 Staines Road, Bedford, Bedfordshire MK44 6BL. Tel: 081 751 5999. Fax: 081 751 5760.

Computer software games. Specialists. Amiga Atari and PC games held at Mutant headquarters. Immediate sale to the crazy games buying public - cum check list at stall number waiter.

Stand 104

Rivendene PDL

30a School Road, Titchhurst, Reading, Berkshire RG3 5AN. Tel: 0734 452416. Fax: 0734 451239.

Rivendene PDL is more than just a public domain library with customers all over the world. We have grown to be one of the best by offering that 'little bit extra'. Our hotline, for example is on line the serious Amiga user when difficulties arise. Also a faster outsource service is offered together with electronic transfer on to 35mm colour slides of your favourite computer graphics. Complete hardware and software with associated manuals are available at very competitive prices for our new shop premises in Reading. Come to our stand and see for yourself our Mad Hatter prices.

Stand 105

Best Byte Software

48 Nevill Avenue, Hove, East Sussex BN3 7NA. Tel: 0273 746467.

Originally founded in 1984, Best Byte has built a reputation in the mail order market as one service excellence with unbeatable prices. The very latest Amiga games will be available over the counter at discount show prices. Large stocks of blank disks will be on supply which have you very popular with customers. Peripherals from mouse mats to memory upgrades, from disk to disk drives will be on sale. Hot out of user groups hands will be the very best in music and game demos playing on our stand (many previously unreleased) and for sale at a minimal charge.

Stand 106

Dowling Computers

48 Tyne Road, Sandy, Beds SG19 1SA. Tel: 0767 681760. Fax: 0767 681730.

On site will be many popular products for your Amiga - prices will, as usual, be very competitive. Our staff will be pleased to discuss your particular requirements. As well as the newer Amiga products we will have the new range of Star 9 pin and 24 pin printers - mono and colour. May I wish you a happy show and a very merry Christmas.

Stand 107

Evesham Micros

Unit 9, St Richards Road, Evesham, Worcs WR11 6XJ. Tel: 0386 765500. Fax: 0386 765354.

One of the longest established companies in their field, Evesham Micros offers extensive hardware options, with a solid reputation for good service and prices. Awarded 'Aston Dealer of the year 1988' the company feels it is a significant tribute to their commitment to the Aston range of computers which extends over three years. Their mail order service utilizes the latest in computerized mail order technology, whilst also operating retail showrooms in Evesham, Cambridge and Birmingham. We have their own comprehensively equipped workshop, where trained technicians are available to help and advise. Customer Services and Technical Department offer complete after-sales assistance.

Stand 109

Mediaware

Unit 19 Teddington Business park, Station Road, Middlesex TW11 9BD. Tel: 0181 877 8777. Fax: 081 977 9444.

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Stand 111

Harpers Computers

111 Commercial Way, Woking, Surrey GU21 1HN. Tel: 0483 756601. Fax: 0483 759433.
Harpers Computers have been involved in supplying computers for nearly 10 years and can offer almost all you require. We will be selling the latest range of Commodore computers along with many peripherals including Star and Citizen printers. We hope you enjoy the show and please do visit our stand or you won't know what you missed.

Stand 112

Bits 'N' Bytes

112 Dial Lane, Ipswich, Suffolk.
Bits 'N' Bytes computer centres are one of East Angles leading computer retailers covering all aspects of the computer industry from games machines to the 386 desktop PC. On sale at this venue will be 16 bit software including new releases as well as back catalogue titles at massively reduced prices. These will be one off offers for the 16 bit line. Computers, printers, monitors, and peripherals will also be available at massive discounts. It will be possible to order hardware and software at this venue and have it mailed to you the following week.

Stand 113

Software Selection

113 Box 786, Sutton Coldfield, West Midlands B74 4MG. Tel: 021 352 0847.
Software Selection - a company for Commodore Amiga, C64 - C16 at bargain prices.

Stand 114

Athene Computers

114 Stoke Road, Gosport, Hants PO12 1JB. Tel: 0705 511439. Fax: 0705 511466.

Stand 121

Digital Discs

121 Burnside Drive, Bramcote Hills, Beeston, Notts, NG9 3EE. Tel: 0602 256197.

Stand 122

Media Direct

122 Sage Close, Hurley, Stoke on Trent ST1 3SF. Tel: 0782 208228.
Media Direct started off as a small family business operating from one of the partners homes. As our reputation, as a company that supplies quality product and excellent service, we have grown to be amongst one of the leading mail order suppliers of computer accessories and consumables. During the time we have been trading our product range has significantly increased to meet the needs of our customers. We pride ourselves in supplying a quality service and like to think that we are a company whom always puts the customer first.

Stand 123

Nadisystems

123 Fairfoot Road, London E3 4EJ. Tel: 071 537 4702.
Nadisystems we specialise in computer supplies i.e. diskettes, listing papers, labels, storage boxes, ribbons etc. We also sell computer systems like Amiga Atari, Amstrad, Olivetti, Opus and a wide range of printers and other peripherals. More details on the stand.

Stand 124

Miles Better Software

124-126 Cannock Road, Cannock, Staffs WS11 2DD. Tel: 0543 466580.

Stand 125

Start Computer Systems

125 Barbican House, Bonnersfield, Sunderland SR6 0A. Tel: 091 564 1400. Fax: 091 564 1005.

Stand 127

Connect International

127 Tals Lane, Fenstanton Huntingdon, Cambridge, PE18 9JJ. Tel: 0844 47831.

Stand 129

WTS Electronics

129 Studio Master House, Chaul End Lane, Luton, Beds LU4 8EZ. Tel: 0582 491949. Fax: 0582 505900.
WTS Specialise in memories and maintenance will be selling their much renowned AS500 1/2 Meg Memory Upgrade with the 'Chip Memory' option, coupled with the long awaited AS500 High Quality Internal Drive. Products will be available singly or as super value discounted Christmas Bumper Pack. All products will be sold at unbelievable show prices. In addition, other exciting products will also be available on our stand, along with repair and technical advice from our second to none computer engineering staff who will be at your disposal to help with any technical problems you may have, or faulty machines in need of attention. All in all, if you want to leave the show with a smiling face, healthy computer and wealthy wallet, be sure to visit WTS on stand number 129.

Stand 130

Premier Mail Order

130 6 Blackwits Square, Burnt Mills, Basildon, Essex SS13 1BJ. Tel: 0268 590766. Fax: 0268 590076.
Premier Mail Order is one of the oldest established Software mail order companies and has been providing a fast reliable service to many thousands of satisfied customers. We will be displaying a wide range of Amiga software and peripherals at very competitive prices along with some amazing bargains for those CBM 64 owners amongst you, on our stand. Hopefully, delays permitting we should have some of the major Christmas releases available including: POWERMONGER, ROBOCOP2, TOTAL RECALL, GOLDEN ALE, OFF ROAD RACING and maybe even those elusive TURTLES. Please come and visit our stand and be greeted with a good buy.

Stand 131

Alf Payne

131 23 Victoria Road, Dagenham, Essex RM10 7XL. Tel: 081 595 4904/5153.
For Christmas bargains great and small. Come to us we've got them all. "Well probably". Amiga games, budget and full price, joystick, disc drives, half Meg upgrades etc.

Stand 132

Senlac Software

132 14 Oakliffe Close, Old Road Road, St Leonards on Sea, East Sussex TN37 7HB. Tel: 0424 753070. Fax: 0424 755093.
Senlac, for all your Public Domain software. We carry a comprehensive range of PD and Shareware programs, concentrating now solely for the Amiga. Come to our stand and see the latest animation from Doctor Gandale upgrade 5 megs worth of Turbovision animation.

Stand 133

Track Computer Systems

133 Blacksmiths Yard, Sander Gilt, Derby DE1 3PD. Tel: 0332 41817. Fax: 0332 44001.
Visit Stand 133 for the future of software retailing. Track will have over 500 games titles on compact disk ready to download for your Commodore 64 or Amiga. There will also be amazing superstore deals. Don't forget the highly acclaimed track public domain software sets at an incredible £4.95 for 5 disks. Also available many items of serious software at serious discounts. Check our advert in Amiga Computing. Spot prices may be awarded for anybody spotting any Track team member not on the stand. Check Us Out.

Stand 134

European Peripherals

134 36 Cranford Gardens, Compton Acres West Bridgeford, Nottingham NG2 7SE. Tel: 0602 841640.

Stand 135

Care Electronics

135 800 St Albans Road, Garston, Herts WD2 6NJ. Tel: 0923 672102.
Care Electronics will be launching their amazing Flex-Dump, Screen-Dump utility. Compatible with all art packages including Spectrum 512.

Stand 137

Siren Software

137 84-86 Prices Street, Manchester M1 6NG. Tel: 061 228 1831.
Siren Software will be showing the remarkable Soundblaster, a stereo amplifier that comes complete with speakers, power supply and a FREE set of stereo headphones. We will also be selling and demonstrating X-Copy Professional, the ultimate disc backup system. Besides copying floppy disks, X-Copy Professional also has hard disc backup and a superb file copier. Will also be supplying disc drives, discs and PD software.

Stand 138

Complement

138 52/53 Margaret Street, London, W1N 7FF. Tel: 071 436 3436.

Stand 143

Turbo Software

143 Unit 6/7 Acacia Close, Cherry Court Way Industrial estate, Stenbridge Road, Leighton Buzzard LU7 8QE. Tel: 0525 852277. Fax: 0525 852278.

Stand 146

D K Discs

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Seminar Timetable

FRIDAY

11.15am-12.15pm	COMMODORE
2pm-3pm	PSYGNOSIS
3.30pm-4.30pm	AMOS/FUN SCHOOL 3

SATURDAY

10.15am-11am	AMOS/FUN SCHOOL 3
11.15am-12.15pm	COMMODORE
2pm-3pm	ICPUG

SUNDAY

10.30am-11.30am	AMOS/FUN SCHOOL 3
12 noon-1pm	ELECTRONICS ARTS
1.30pm-2.30pm	ICPUG

The provisional Seminar timetable was correct at the time of going to press. But a number of other presentations are being arranged to take place during the three days of the Show.

PSYGNOSIS

Psygnosis presents the future of games entertainment – the next generation.

COMMODORE

David Chamberlain, of Soft Stuff Software, will be presenting his successful range of "Let's Spell" software packages, one of which is featured in Commodore's new "Class of the 90s – First Steps" pack. SoftStuff Software continues to develop education software in conjunction with fully qualified primary school teaching staff, with the aim of making learning fun for young children.

ICPUG

At the Independent Commodore Products Users Group's question and answer seminars you will be able to fire your questions at a team of experts. A team will be drawn each day from the following: Tim Arnor (Precision Software), John Bickerstaff (chairman ICPUG), Harry Broomhall (programmer), Jack Cohen (8 bit specialist), John Collins (programmer), Brian Grainger (languages expert), Joe Griffin (vice chairman ICPUG), Nigel Haydon (technical advisor), Will Light (computer lecturer), Peter Miles (Amiga librarian), Dave Parkinson (Ariadne Interactive), Peter Richardson (regional organiser - north), Kelly Sumner (Commodore sales director), Mark Tilley (Arnor), Barry

Thurston (Commodore developer support), Gary Van Hoel (programmer), Chris Wright (Bytes and Pieces).

AMOS/FUN SCHOOL 3

Unleash your imagination with AMOS and experience its speed and power as the Mandarin technical staff put AMOS through its paces. This market leading package has sold more than 25,000 copies to date and you'll discover how easy it is to create your own exciting software.

AMOS 3D will also be on show: Colourful 3D objects can be animated in real-time to music – and all in AMOS Basic!

For those of you with children, Database Educational Software will be demonstrating its range of Fun School 3 packages – for under 5s, 5 to 7 and Over 7s – the follow-up to the 160,000 best selling Fun School 2. The talk will show how easy learning can be with this fun and addictive software.

ELECTRONIC ARTS

Electronic Arts will be presenting some of their newest titles for the Christmas season. Featuring will be their new release, Powermunge. This is from the designers of the mega-hit Populous.

Come by and see why this masterpiece program has been getting the highest reviews in almost all the computer magazines. As Zero magazine put it, "It's ruddy brilliant."

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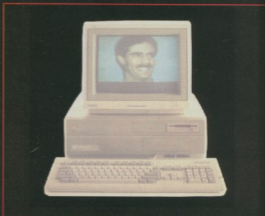
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3 II

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The ever pure, ever vigilant, ever frugal, ever Scottish
Stewart C Russell takes his monthly gander at what
astounding software can be had for nowt.

ABridge

DON'T you just love Standards? Every other industry has standards, but only the computer industry has Standards.

Let me explain. A standard part will fit where it's meant to fit, and work as it's meant to work. Software, however, may say that it will accept a certain Standard file format, but the truth is, the Standard format is open to different interpretations, creating vast incompatibilities which, in theory at least, should not exist.

As one animation package seldom gives the desired results, it's often necessary to use several of them, swapping files between them. If you want to use two packages that speak slightly different dialects of ANIM, you have what is technically known as a Problem.

To every Problem, there's a Solution - and that's not a solution of alcohol in water. No, the solution is Animation Bridge (Fish disk 359), which will interchange files between most animation packages. Oh, alright, between The Director, Sculpt-Animate 4D, Photon Point 2, Animagic, Videoscape, Animation Station, DPaint III, Animation: Editor 1.11 and Cel Animator. Enough to be going on with, anyway. Even if you



Game of the month Amoeba

SOMETIMES, when things aren't going quite right in my world, something reliable and simple, and above all, ridiculously violent, is required to get things right again. And what could be simpler than Space Invaders?

No-one's quite sure why Space Invaders is so much fun. Perhaps it panders to the destructive side of human nature. Perhaps it is fuel for natural xenophobia. Whatever it is, it's a wonderful way of

hammering the crap out of moving targets at no personal risk whatsoever.

Amoeba Invaders is an old game, conceived a considerable number of moons ago by The LateNight Developments Corporation. Nothing has been added to the stark playability of the original Taito machine, save for the addition of colour. After all, the first invaders boxes were strictly monochrome, so it shows how far we've come in the last twelve years, as long as we discount machines like the NeXT.

For those of you who remember colour Space Invaders, that was achieved by the technological miracle of strips of coloured plastic stuck to the monitor. The invaders at the bottom started out red, but the other ones went that way as soon as they hit the red band. And we go to all the bother of copyists to achieve the same. Sigh. Call that technological development?

To be really pedantic, Amoeba Invaders adds the heady delights of a score that doesn't "clock" at 10000 points. Talk about the march of progress.

The original source of Amoeba Invaders is Fish Disk 120, but it's so old that nearly every PD collection has it tucked away somewhere. Check the bulletin boards too - it's pretty small, so it shouldn't break the phone bill if you download it.

only use DPaint III. Animation Bridge has something to offer.

DPaint III has a habit of filling animation files with excess (harmless) garbage like the remains of old stencils and brushes. Animation Bridge will strip this out, leaving the file up to 25% shorter.

In addition to its easy to use Intuition interface, there's also an ARexx port which may be of use to folk who routinely process animations, and hate overworking the mouse.

Better still, if you send \$20 to Ron Tarrant and Mythra-mations Animation and Software, you get an Animation Bridge which doesn't

keep interrupting you and asking for money.

Some day, all animation packages will completely understand one another. Until that day arrives (and the sun sets in the east) we'll have to use Animation Bridge.

Mach II

I know a lot of people who like to have a clock on the Workbench screen. I never use a clock myself, preferring Russell's Three Rules for Healthy Living. These are: Eat if hungry, Drink Coffee if tired, and

Sleep if nose touching keyboard.

Summarising all the PD clocks would be a huge and futile task. Imagine - "This one tells the time. So does this one. This one likewise". So here is something not entirely different, but nearly.

There are many Freely-Distributable programs which are best described as Mouse-Accelerating, Screen-Shuffling, Window-To-Front, Auto-CLJ, Mouse-Blanking, Screen-Blanking, Auto-Window-Activating, Configuration-Saveable Clock Utilities (With Added Hotkeys), or MASSWITACUMBSAWACSCU(WAH) for short. Some are big like MachII,



which takes up 44k of disk space) and some are small (QMouse, just over 4k). Most of them are quite remarkably clever.

MachII (Fish Disk 254, unspecified Shareware amount) is quite the most feature-packed MASSWTFACUIMBSSAWACSCU(WAH) available. In its standard configuration, it displays the time and free memory, alternating with the date, in a window in the screen titlebar. This window floats to the top of the screen, and will even float to the front screen. This is cheating Intuition a little, and it can be disabled if problems occur.

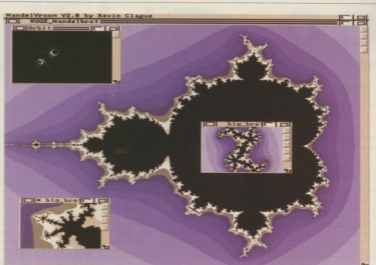
One of the most thoughtful features included in MachII is its ability to remember qualifier keys (Alt, Shift, Ctrl and the Amiga keys). This means that instead of having to press keys all together (such as Ctrl-C) you can press them individually for the same effect (Ctrl, then C). This could be useful for those with impaired hand movement, or indeed anyone who's ever experienced joys such as Ctrl-Right-Amiga-F5.

Configuring MachII is pretty easy. Hit the mouse Menu button in MachII's clock window, and the auxiliary SetMach program is called up. This presents you with a mass (nay, a plethora, even) of gadgets, each controlling a different operational nuance. You'll need to dive into the documentation to work out what everything means, so maybe configuration isn't so easy after all.

If you don't like wasting space, try QMouse. It has all the really useful features of MachII, except for the remember qualifier keys routine. It also has the smallest clock around - it will fit between the "Workbench release" and the free memory display. It's also under 4000 bytes long.

QMouse can be configured using a long set of CLI arguments, or by creating a config file with a text editor. This may seem a little unfriendly, but if you follow the documentation it isn't a problem.

Version 1.6 of QMouse is on Fish Disk 262, and there's a \$10 Shareware fee. It's the sort of program that a lot of BS's have,



Mandelvroom

HEY, aren't those Mandelbrot set things real pretty? No? Phil E. Stein's, the lot of you, I happen to like them, but then I've always felt comfortable with complex numbers, matrix maths and zero-survivability situations.

The trouble with most Mandelbrot set generators is that they expect you to be able to key in huge quad-precision coordinates, and then they laugh at you for ten hours while they render a screen of total blackness. Would it not be PDH (Pretty Damn Hip, if you hadn't twigged) to just point and click on your very own A to Z of the z->(z²+C) ?

Such is Mandelvroom 2 from Kevin Clague. You never, ever need get your hands dirty with vast floating point constants - nor do you ever need to spend hours waiting to see if you've turned up an interesting bit of graphics, or a window full of black.

By creating a new window, and then zooming into an existing window on the set, you get a rough idea of what your picture should look like instantly, since at first Mandelvroom will merely magnify pixels from the old window. Once you start

rendering, the picture will gain detail.

Nor do you need to hang around while the iterations are stuffing their stuff. The program sports optimised maths routines for extra speed, but will render any number of Mandelbrot and Julia sets simultaneously.

You don't get summat for nowt, so multitasking slows everything down a little.

Extensive online help is available on just about every feature, so you won't have to read the huge doc file. Many of the screen manipulation tools work just like DPaint, so most people will know what to do with the Palette and Cycling tools.

Mandelvroom supports every screen mode except HAM, and will auto-detect faster processors and extra number crunching chips. The only thing that you really must have is 1 meg of RAM to use all the functions, but it will run (sort of) on a stock A500.

Intuition is used really well - lots of programmers could learn from this example. In fact, they can - Fish Disk 214 contains all the C source, which is reasonably well commented.

Mandelvroom 2.0 is certainly the friendliest introduction to fractal fun, and lives, along with plenty of pregenerated images, on Fish Disk 215.

and it cost me just over 10p in phone charges to download the Qmouse archive over a noisy, long distance phone line. Few PD libraries can offer that kind of value for money.

SRT

HMM. Yet another "Replace volume X in any drive" System Requester. I wonder who thought up that particular gem of popular prose? It may do the job, but it's dull, so let's change it.

Huh? Change System Requester Text? Most people, after much

erming and humming, would conclude that, short of reburning the ROM, this kind of task is far more difficult than it is urgent, and they go back to their own interactive multihypermedia devices.

But wait. A little System Requester we've all met is "Software error - task held". This has been known to reduce grown writers to visible gibbering, and is unpleasant in extremis. We might as well put in some code to catch the Software error, and render it less harmful.

Carolyn Schepner's SRT allows both of these things. By creating a text file of alternate Requester texts, SRT will replace the boring CBM

ones with your own wacky creations. The supplied example file is a little Middle-Earthish, with Track Troits, Disks of the Clan of DOS and captive Printer Dwarves.

You can change any text to anything you want. It's best to stick to something roughly sensible, since "Error validating disk" maybe be dull, but it has loads more relevance than "Goo boogie aka zacka".

If you replace the dreaded "Software error" text with "DEBUG", you get a full register dump the next time an error would have occurred. You also get the chance to suspend the errant task, or to



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reset the machine. A suspended task can do no further damage, except that crashed CLI commands won't allow the CLI to close.

Except for the Guru Protection, SRT (TBAG 28) is little more than a bit of fun. It allows the machine to be customised the way you like it, and may also make your days less fraught.

Memguard

EVER had a totally reliable program crash on you for no readily apparent reason? It's kind of worrying. It will often happen if you try some new and possibly dodgy software, then take a trusted workhorse out for a canter. Whap Bang, a face full of red hex with a flashing border.

Quite often, the cause of this is Low Memory Corruption. The first few hundred bytes of memory contain some extremely important information which the system uses for finding libraries and managing interrupts. If a program sloppily patches some system information, then forgets to set them right, the system will crash quicker than the Stock Market.

A very well respected programmer thought about this, and wrote a lengthy C program to scan this area for changes. Unfortunately, it hogged 50% of the processor time. What was called for was an extremely tight piece of assembly language.

From the K-Seka assembler of Raf Tanner comes Memguard Ila, which installs a small interrupt routine to check the low memory for change. If a value is altered, an Alert (looks like a Guru, but is OK really) gives you the choice to restore or change the memory location's contents.

What's really incredible about Memguard is that it checks memory every video frame (50 times a second) yet uses only 2% of the processor's power. Since it's a very low level interrupt, using Forbid() to halt multitasking won't stop Memguard.

So now if you're programming, or just using software you're unhappy about, Memguard will keep you safe. Of course, if a really brutal program stomps on Memguard you'll be in for a crash. But then, if any program stomps another you're asking for a visit from the Red Rasher anyway.

Get the newest version of Memguard you can - version Ila is

An accident with a monitor - but MemGuard stops it



on Fish Disk 354. Older versions aren't as clever or as reliable.

Mandel Mountains

ALMOND BREAD has a lot to answer for, not least for its nutritional value. You see, in Germany, "Mandelbrot" is that very confection. Imagine going through life being called "Almond Bread" - almost as bad as "Russell". Well, Professor Mandelbrot certainly used his loaf to develop his fractal theories.

MandelMountains, rather than

being a devious EC plot to stockpile all those hard-shelled nuts, is a Mandelbrot Set generator. Oh puhlease, sez you, not another one. Well, yes, it is, actually, but this one's a bit different.

The standard view of the Mandelbrot set looks like the chromatograph of a squashed bug, given a little imagination - black in the middle, with a set of fringes which darken as they go out from the centre. MandelMountains uses a different approach - a 3D black plateau with silvery mountainsides sloping down from it. It's prettier to look at than describe.

This rendering technique (the

Continuous Potential Method) is very processor-intensive. Not merely do you have to do all the usual convergence iterations, you also have to do a bit of 3D trigonometry to find out where the point should live. And as you have to do this for every pixel, one can settle down for a nice kip.

The world always looks brighter after a kip, and so the stupendous MandelMountains screens are incredible - the CPM makes Mandelbrot Sets and Julia Sets like a zany form of landscape.

Screens are saved as IFF, but with an additional chunk to hold data for MandelMountains. DPaint will ignore this extra information, but will not save it back out - so doctored MandelMountains pictures won't reload.

MandelMountains 2.0 is well worth its \$10 registration fee - if you upgrade to a faster machine, MM will use the maths coprocessor. If you like Mandelbrot sets, have a hunt around Fish Disk 354 - you'll iterate until the cows come home.



Roadroute

IT IS nice to get from A to B, avoiding the jam-packed dot carlage way of C, the sheep track at D, and the section of motorway at E which has been coned off since Hadrian's lads built it. So how can you help?

Usually, looking at a good roadmap will help a bit - save for the roadcones, that is. The old method of route planning involved a little rolling wheel thing which could be read off in miles, and the ability to follow the wiggliest road with absolute accuracy.

For some years now PC and ST owners have had AutoRoute, a delightful program which will tell the the quickest route to a reputable Amiga dealer. AutoRoute's authors considered piracy too life in the Amiga scene to market AutoRoute Amiga, so the pirates' loss is our loss too. "Kill a pirate today" is the moral of the story.

Jim Butterfield, that guru of all things Commodore, had a need to work out his A to B without recourse to an A to Z. He produced an AmigaBASIC program to do the job, added some data from some motoring organisations, and created RoadRoute the First.

Like all AmigaBASIC creations, the first RoadRoute ran like a sloth in snooze mode. After a rewrite in C, RoadRoute is much quicker - but hardly all singing, all dancing. More like mostly barking hoarsely and galumphing about in a vaguely syncretized

manner, but it does work.

The other problem is, currently all the maps refer to the USA and to Canada. All we need now is for some patient, kind soul to type in distances between places in the UK and we're laughing. Don't wait for me to do this, as I have all the attention span of a caffeine-soaked shrew, and a hideous dislike for conic projections.

Roadroute doesn't draw maps, but then neither do the incredibly useful AA Computer Routes. All you do is type a Start, an End and a Via, and Roadroute will find the best way. It can either choose the Fastest or Shortest route, and estimates the time taken according to the US 55 mph speed limit.

RoadRoute is on Fish Disk 358, and is Freeway, erm Freeway. And don't let me stop you typing in maps for Great Britain...



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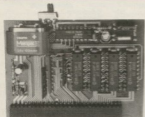
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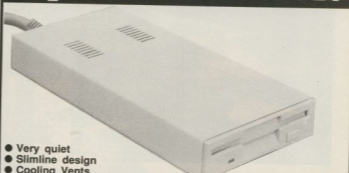
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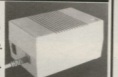
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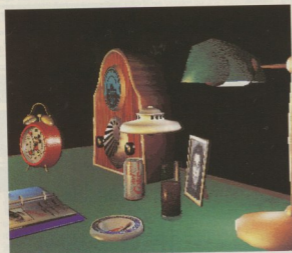


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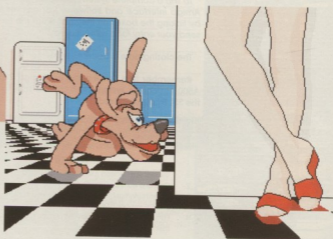




On the Gallery

Here are some of the winners from the recent annual animation competition held by Amiga Centre Scotland.

The competition once again drew a huge number of very professional looking efforts - so professional that a large percentage were actually submitted already edited onto video tape.



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The closing date is December 31.

Remember that you'll need an Amiga 2000 or suitable A500 expansion system (with a Zorro slot) to make use of the SSL Transputer Card.

Rules

1. The editor's decision is final (however stupid).
2. Only one entry per person.
3. All entries must have been received by the closing date: 31st December 1990.
4. Entry is not open to employees of Interactive Publishing, SSL and their associated companies.

Entry Form

1. Which company played a major role in developing the Transputer?

- A. ☐ IBM B. ☐ INMOS C. ☐ Amstrad D. ☐ McVities

2. Which of the following is a Transputer-based operating system?

- A. ☐ Helios B. ☐ Multidos C. ☐ TOS D. ☐ PRIMOS

3. How many high speed links does each Transputer have?

- A. ☐ Two B. ☐ Four C. ☐ Eight D. ☐ Twenty-four

4. The SSL Amiga/Transputer Board is so new that SSL haven't had time to think of a name for it yet! What would you call it?

Your name: _____

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Amiga

Amiga

Amiga 1Mb.

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Amiga 1Mb.

I was in 1987 that I first wondered what possible use you could have for an advanced authoring system for interactive video. Microdeal had driven up from Cornwall to show me an ST controlling a videodisc player, in which sat the original arcade videodisc of *Dragons Lair*.

"Oh yes", exuded the spokesman, (there will be cheap videodisc players on the market by Christmas, and you can buy the controlling software and *Dragons Lair* disc from us for only \$100".

Three years later and videodisc players have flopped. In this country. Apparently there are sufficient machines in the US to make it worth Michtron's while to release *Viva* there. In those three years the scope of *Viva* has changed quite dramatically, yet at heart it remains a videodisc player-based system.

Applications range from training, sales promotion, simulations and games, and as a general information distribution system. It contains functions for controlling such external hardware as videodisc players and video recorders (including genlock), as well as multi-tasking and providing links to word processors, databases, drawing packages, animation packages (or combinations like DPAII), video digitisers and sound samplers. Of course to do that you need quite a lot of ram, and indeed, that is just what *Viva* expects you to have.

To use the package properly you are advised to have a bare minimum of 1.5 Mb, 2 Mb to do anything useful, and 3 Mb to do anything special. A hard drive also comes in handy since *Viva* stories with extensive use of sound and graphics gobble up disk space.

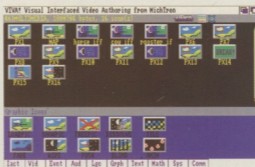
That's just to start developing. To generate your graphics and sound you're going to some of that hardware and software I listed earlier. Be aware that though you can produce standalone applications, the user will invariably need at least 1 Mb of ram and two disc drives to be able to use it.

The basic concept of *Viva* is that of taking graphic screens and sound effects, stringing them together, and by use of text and control commands offering the user a series of options, finally presenting information based on the user's reactions.

If you have a videodisc player connected then obviously you have access to large amounts of graphics and sound data. You could, for example, take that

Hype and hyperbolics

Duncan Evans tells us an audio virtual imagery object (story), about *Viva*



The effects panel with sources

Dragons Lair disc and demand totally different solutions to the problems within the limitations of the graphics at your disposal.

The trouble is that in the UK there aren't an awful lot of videodiscs for you to use. The manual does help out a little here as it lists both manufacturers of videodisc players and suppliers of videodiscs. In America,

Spinning a yarn

Actually programming a simple *Viva* story couldn't be easier, as all the commands come in the form of icons. It is simply a matter of stringing them together on the main screen, complete with branches and loops where necessary, to organise an interactive story and its special effects.

Unfortunately the function of only a few of the rather garish icons is intuitive, so careful study of the manual is necessary. To make assimilation easier the icon commands are organised into groups thus: Interactive (hot spots,

questions, timers), video (laserdisc commands which are very easy to use), Events (branching and labelling), Audio (sampled sound and music commands), Graphical (covering JFF images and the various special effects), Text (display, printing and sending text to the Amiga speech synthesiser), Mathematics (operations on variables - useful especially for simulations and games), and System (access to computer system functions and other *Viva* stories).

While organising a short story is easy enough, for anything interactive or slightly more complex a great deal more consideration needs to be shown.

Most programmers I know don't use flow charts, just lots of paper. For a moderate size *Viva* production I'm afraid that flow-charting of some sort needs to be done before starting. While you can delete and insert icons at will, if you don't have a clear idea of what you are doing when you

start, the story may work but it will do so in a haphazard fashion.

A *Viva* work screen has pull down menus along the top; an info bar which constantly tells you how much memory you have left and the number of icons used, a storyboard on which the icons are arranged, and at the bottom a list of all the icons in whichever function group happens to be open. Going back up to the pull down menus, these cover mundane functions such as disc access, running the program, executing a wordprocessor, animation package, or package, sound sampler, video digitiser and database. Now you see one of the reasons why you need so much memory.

Viva offers none of these extras, you need to create everything used in *Viva* from some other source. There is the facility to create some text from within *Viva* though, but this is only a couple of words that can be overlaid on a graphics screen. For anything more you do need that wordprocessor. Considering how easy it would have been to include a rudimentary text processor and art package this is a little niggardly.

Also on this top bar are the defaults which cover where the program expects to see its data coming from. These are set to DFO initially, and can cause trouble when you load in a storyboard from say, DFI: it loads in all right, but when you try to run the story the program reports a File not found error, simply because it is looking at the wrong drive for its data.

Initially an icon representing each of the function groups is presented along the bottom of the screen, being replaced by the actual commands when you click on one. The most commonly used function group will be Graphics, so lets have a look at what you can do.

LOADPIC and SHOWPIC are fairly obvious in their functions, but SHOWPIC can also be used to simply clear the screen by assigning the screen colour zero as an argument. The special effects that can be performed on your newly-loaded picture include a checkerboard effect (spiralling in or out), pushing the old picture off with a new one, fading to black, revealing a picture as if it were painted on vertical blinds, slowly rotating until the full picture was shown, that old standby the dissolve, and a four dimension wipe which rolls a new picture over the existing one.

Feature

An interesting feature is that if you have genlock and superimpose a computer picture completely over the top of a video picture, then using a fade, dissolve, checkerboard or push command with colour zero as an argument would reveal the underlying video in a fairly impressive manner.

Error in the system

One dreadful feature of Viva are the error messages. Unfortunately an otherwise helpful manual has neglected to list and explain them. Thus: Screen size not equal to page size, which is what happens when you try to load a 320 x 256 res picture, could be taken to mean a variety of things. The screen you are loading, the screen size of the Viva environment, or the screen size of a screen you defined with NEWSCREEN at the start of your Viva story?

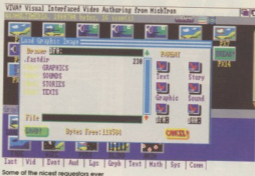
This tends to happen a lot with other aspects of Viva, making it easy to program, but hellishly difficult to sort out just why things aren't happening in the way you think they should. Going back to the NEWSCREEN command, the manual states that this is primarily used so that the SPEECH command can be used effectively. Setting up a screen with less than eight colours is required for decent speech.

The odd thing is that the standard Viva screen is of course 320 x 200 (as it is American). The manual recommends this and 640 x 200 or 400 as your standard resolutions. Unfortunately the NEWSCREEN command only lets you set up a screen in variations of 320 and 640 horizontally by 256 and 512 vertically, or the English standards.

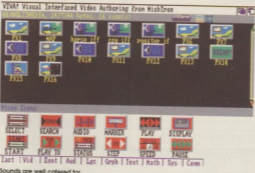
Anyway, as soon as you have decided to load and play around with a picture, the appropriate icons appear on the main storyboard. Clicking on the icon reveals a further level of interaction. You can move, edit, delete, insert, copy or test the icon.

On the special effects icons, there is a speed of completion setting which you can experiment with by repeated testings, until it meets your requirements.

In the spirit of real programming, the Events functions allow you to use labels in order to implement If-Else, Do-Until, While, Goto, Masterloop, Return, and Break commands. The philosophy here being that it may be a collection of pretty icons, but it should still be structured properly.



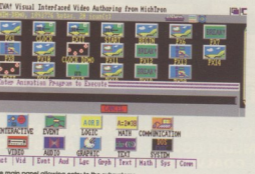
Some of the nicest requestors ever



Sounds are well colored for



A spot of interaction is called for



The main panel allowing entry to the subsystems

The other function groups offer scrolling text, a number of different fonts, mathematics so that interactive applications can be developed - logical operators, variables, constants, Inc, Dec and the usual maths operators - the playing of sampled sounds, various Interrupts, hot spots, keyboard scans and timers, configuration of the serial port, as well as reading and writing to it and, of course, control of a videodisc player. The commands for this are as easy as using a VCR at home.

A typical Viva application rather resembles a Hypercard application on the Mac, as a series of connected screens with audio effects containing information are presented in accordance to the user's responses and interaction.

Simple simulations and educational material can be produced with a lot of effort. At this point you'll be looking to the printer option which will list out the functions of the icons and what they are operating on.

I have to say that if all you are going to do is produce material which strings together graphic screens and sounds together in this way then perhaps you'd be better off with a copy of AMOS, as it is far more powerful, but then obviously it is harder to use.

Deluxe Video is the other alternative which springs to mind if you take up the option of using genlock to mix computer and video signals, though you can produce a more interactive production with Viva than you can with Deluxe Video. Where Viva really shines is when you get hold of a videodisc player and videodiscs, mix in some computer graphics, and really dazzle the audience.

Viva really works on three levels, and only on the last one does it excel. On the other two there are alternatives on the market which are both harder and easier to use.

Whether the program's memory and hardware requirements are worth meeting just so you can use the package is dependant on the application you have in mind. Though it can certainly produce good results, sometimes very quickly and easily, Viva can also be very fiddly, at times unhelpful, and simply not have the scope to do what you want it to do.

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FLASHDISK! is a shareware floppy disk optimiser for all models of the Amiga computer, including the Amiga 3000. It is not a cache - it merely reorganises the information on the disk to make directories and loading more efficient.

The changes are permanent and will usually increase the loading speed of directories between three and five times, the increase depending on how badly the original disk was fragmented. In addition, loading time of large programs is often reduced. The resulting disk is still an AmigaDos disk and is 100 per cent compatible.

FlashDisk! v0.3 does not work on hard disks. It will however work with any floppy trackdisk compatible device that is in the slots DFD; to DFD3. When doing a two drive flash the source and destination must be of the same format - basically the same restriction that Diskcopy poses on a two drive copy. This will change - remember v0.3 is an alpha release.

FlashDisk! will not work on copy protected disks. It will also fail if the source disk is corrupt. In this case, run DiskDoctor or DiskSolv on the

CHIP HOG! This option, when enabled, tells FlashDisk! that it may use as much memory as it wants. For speed reasons this is mostly chip memory - the more memory, the faster FlashDisk! works.

It is not advisable to use this option if you plan on using another program at the same time, it just makes things go a lot faster.

When Chip Hog! is disabled FlashDisk! will use as little memory as it can (50k to 100k). This slows FlashDisk! considerably but makes running other programs at the same time less dangerous. You may turn this option on and off at any time. For kicks, run a memory watch program and toggle this option.

Also note that in low memory conditions and when the Chip Hog! option is turned off, FlashDisk! will sometimes have to search all over the source disk for information. This can make the drive sound like it is falling apart, like Workbench does to badly fragmented disks. This is normal, there is no need to worry. When FlashDisk! is done, the final disk will work much smoother in all environments.

PROOF: When enabled, this tells FlashDisk! to print meaningless information on the screen. Mostly it is used to verify that the program is in fact working - a

heart beat. Proof may be turned on and off at any time. FlashDisk! works a little bit faster when this option is disabled.

FORMAT: When enabled, this tells FlashDisk! to format the destination disk as it goes. You must have this option enabled if you are flashing to a new disk. It is a good idea to always have Format enabled. However, if the destination was previously formatted successfully as an AmigaDos disk with no errors, this option is optional.

The flashing process is noticeably faster when disabled. This option may also be turned on and off at any time. The author may change this because he feels it is potentially dangerous to the novice user. Should he keep this feature? Write and tell him.

VERIFY: This option, when enabled, tells FlashDisk! to verify the destination with the source. It may also be turned on and off at any time.

If a verify error occurs FlashDisk! will report the error and continue. At the end, the number of verify errors encountered will be displayed. If there were any errors, the odds are that the destination disk will not be useable. Try it again.

tool. CU users may find it easier to rename FlashDisk! to FD.

Once FlashDisk! is running, select



This month's cover disk was optimised using FlashDisk's MegaFlash! option.

the source and destination disks by clicking on the big gadgets beneath the Source; and Destination; headers. Select the optimisation method: Directories, Loading, or MegaFlash! Select any other options: Chip Hog!, Proof, Format, and Verify.

Once you have chosen the options that you desire, make sure the disks are in the correct drives and select GO!

You may stop FlashDisk! at any time by pressing the STOP! gadget,

hitting Ctrl-C, sending a Break to its process, selecting the close gadget of the window, or pressing the Escape key. At times, there is a brief pause before terminating, but nothing unreasonable – it depends on what FlashDisk! is doing at the time you try to stop it.

If FlashDisk! is flashing a disk, the first Ctrl-C, Escape, or close window event is regarded as an abort. A second will close FlashDisk! down.

Optimisation methods

Directories: Makes the directories as fast as possible, which includes placing the *.info files in the best location for Workbench users. This option is good for both CU and Workbench users.

Note: After optimising, leave the write protect tab off and let Workbench validate the disk. Although not necessary, Workbench works smoother if it can validate the disk.

Loading: Makes every attempt to put large files in as contiguous an order possible. It also tries to optimise directories and is a good option for big programs.

Megaflash: Does anything and everything to optimise the performance of the disk. At this time it only does a few more things than the Loading option.

Copyright

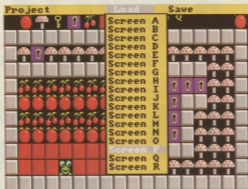
FLASHDISK! v0.3 alpha is shareware. Copyright © 1990 NiteWing!. Any donations would be more than appreciated (any amount). For various reasons the author cannot offer upgrades or any other Registered User policies. He will, however, send an availability notice to all who send a donation.

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Othello1.18

AS you have already guessed, this is a version of the classic board game Othello, said to have been invented last century in England. Some absent-minded person then forgot about it until it was rediscovered in 1971 by Goro Hasegawa. It was named Othello when his father, who studied Shakespeare, noted how quickly the board can change, just as the situations in Shakespearean plays often do.

This is not a thrills-and-spills



Gribit

Gribit is three programs in one – a game, a sprite editor and a screen editor. The game can be played as it stands. When you feel that you want to make some alterations, the sprites can be altered with the sprite editor and the screens amended with the screen editor.

Alterations can be made permanent by saving them to disk, so make a backup copy before playing around. All the necessary files are in the Gribit drawer, so you need only drag the drawer to another disk to back it up.

An option screen is displayed after loading the program. The first option is G for Game.

Gribit is played with a joystick plugged into the hole next to the mouse port. To complete each screen you must collect all the mushrooms. Sounds easy enough, but some are locked behind doors.

To get through a door you need to collect a key. Where do you get the keys from? Well, if you remove the red squares, by

running over them, objects will start to appear. Apples and cherries will increase your energy – that's the green bar at the right of the screen.

Bonus points are awarded if your energy reaches the top of the screen and you still have three lives. If you have less than three lives, an extra life is awarded instead of the bonus.

Try to avoid the purple frog as contact with him drains your energy. The purple frog can be stopped with a bubble. To blow bubbles press the fire button. To pick them up again just move over them. If the purple frog collides with a bubble he gives up a key.

If you (the green frog) collide with the purple frog a key and some energy is lost. If your energy level reaches zero, a life is lost. If anything falls on your head, a life is lost.

The P key will pause the game. To continue press the Fire button or any key. Pressing the Escape key quits the game and takes you back to the options screen.

The second option on the options screen is S, to edit the screen. Select sprites from the top row with the left mouse button,

Any of Gribit's 18 screens can be loaded, edited and saved again. Redesign the whole lot and you've got yourself a brand new game.

then place them where you want them on the screen, again with the left mouse button. Screens can be loaded or saved from the pull-down menus. The Options entry in the left-hand menu quits the screen editor and returns you to the options screen.

Sprites can also be edited by choosing C from the options screen. Select sprites from the bottom row with the left mouse button. The edit box will automatically update. The pull-down menus allow quick alterations: Scroll left, right, up, down, Xflip, Yflip, Rotate, Fill and Erase.

Colours can be selected by pointing and clicking. The bottom colour is the drawing colour. Save on the left-hand menu saves all the sprites. Options, as you know by now, quits the editor and returns you to the options screen.

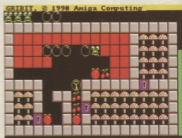
No doubt after playing Gribit, Basic programmers will be itching to know how it works. Double click on the Gribit.BAS icon to view the listing. If you want to customise the program in any way – or more likely borrow some of the routines – you'll need to decompile the source code first. You'll find the Decompile command in the C directory of the cover disk.

Copyright

Gribit was programmed in HiSoft Basic by Alan Mead and is Copyright © 1990 Amiga Computing. Gribit should not be included for sale in any public domain.



If you don't fancy the idea of being a frog all your life, take quick visit to the character editor and change your identity.



The easiest way to get keys is to let the purple frog chase you then hold down the fire button to lay a trail of bubbles.

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version of Othello — there are no sound effects or fab graphics. Stuart Bain, who programmed it, wanted this version to be as small and unobtrusive as possible so there would be no memory or multi-tasking problems. Crunched, it tots up to under 2,500.

Othello is very easy to play because it has only one rule. It is played on an 8 x 8 board with

black and white counters. At the start of a game, two counters of each colour are placed in the middle of the board. Black has first move.

The object is to place a counter of your own colour in an empty position in such a way that at least one counter of the opposite colour is trapped between it and another counter of your colour, in any

direction. The trapped counters then become your colour.

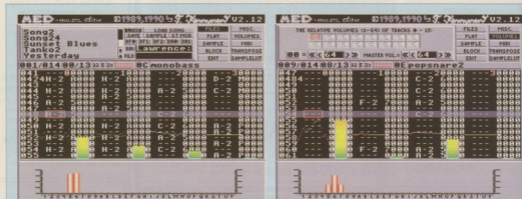
Note that you can flip in several directions at once, so the board can change dramatically in only one move.

In each turn the player must always flip at least one of the opponent's counters. If this cannot be done, the turn is lost.

The game continues in this way

until the board is full, until all of one player's counters have been flipped, or until neither player can play. The winner is the player with the most counters — unless it is a draw, of course.

This version is very easy to play. After clicking on the icon, the board will appear in its starting position. The window has normal gadgets to allow closure, dragging



MED v2.13

MED is a music editor. If you've ever used Soundtracker, you'll know what one of those is and you'll feel right at home with MED. If Soundtracker means nothing more to you than a word you keep seeing in Amiga magazines, then you're going to have to get your thinking cap on and prepare your mind for a new concept.

The odds are you've already loaded MED and, provided you didn't get in an awful mess because you didn't know what you were doing, you've probably had a good look around already.

Don't let its apparent complexity put you off. Even if you've never played a musical instrument in your life I can guarantee that you'll be able to create some stunning tunes in no time at all using MED.

Let's start by loading a demo tune.

The first thing MED does on running is ask you for a drive name. Click on the button which relates to the drive you have the cover disk in; probably DFO.

Next, using the file requester arrows, scroll down the CD014 list and click once on the MED213 directory entry (directories are in light-grey, files are in black). After that directory has loaded, click once on the DEMOS directory.

There are two tunes in DEMOS, the one we're interested in is Song24 so click once on that and then click once on the Load Song button to the right of the file requester.

After a short wait the tune will have loaded. You'll see all sorts of things happening on the screen. Don't worry about them, it's just MED

letting you know it's working.

Before we go any further let's decide on what each part of the MED display is called so we can avoid confusion later.

The display at top left with the file requester and the load/save/drive gadgets is called a control panel. There are 10 of these control panels related to the 10 control buttons at top right. The control panel we're looking at right now is the Files Panel.

The big area below with all the numbers in (that's the music!) is called the block display. This is the area you'll use to compose your tunes. In between the block display and the control panel is the status bar.

So let's have a listen to what we loaded. Click once on Play in the double bank of buttons at top right. The control panel will change to display the Play Panel. Find the Play Song button, take a big breath and click on it.

The notes under the highlighted bar are the notes currently being played. It all moves very fast and it all looks very complicated. But persevere, because in a while I'm going to show you how to compose a short tune.

A tune written with MED is made up of blocks. The demo tune we're listening to contains 19 blocks, numbered 0 to 18. In the Play Panel, at top left directly under the MED logo, you'll see a short list of five numbers, one under another. The middle number, the one highlighted, is the block that's currently being played. This list, by the way, is known as the playing sequence list (PSL).

If you watch carefully with the tune playing you'll see that many blocks appear in the PSL more than once — they are repeated. Once a block is composed you can repeat it

anywhere you like in the tune simply by inserting its block number in the PSL at the correct point.

A block contains a number of lines for you to enter music on. The default is 64, although this can be adjusted to any number between 1 and 256. How quickly notes get played depends on the setting of the tempo proportional gadget (the slider bar at the top of the Play Panel).

OK, let's compose a little tune.

Select the Misc control button, click on Clear Song Only and then click on OK. What we've done is cleared the tune from memory but left the samples it was using behind so we can use them to compose our own tune.

Click the Sample control button and then click the >> gadget in the Sample Panel until 'strings2' appears in the gadget above it. Strings2, which you'll notice is sample number 8, is now the current sample.

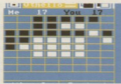
Before we can make sweet music together we need to tell MED that we want to do some editing, and we do this by clicking on the E button on the status bar. When editing is on, the E is highlighted. So do this now. Right, we'll start with channel 0 on the left. You should see a red rectangle (the cursor) in the block display next to the number 000. If not, hold Shift and press the up arrow key to get to the beginning of the block.

Here comes our first note — press the letter P once and let go, just as if you were playing a short note on a piano. You'll see the display for channel 0 change to look like this:

l=000 E=3 8000

or depth-shifting.

The game waits till you click the left button once before starting play, so that if the Amiga is first it does not immediately play on loading. To place a counter click once on the centre of the square where you wish to play. If the move is legal, your counter will appear and the trapped counters will be flipped over. If it is an illegal



Level pegging so far at 17-17, but methinks Black has a dastardly plan...

position, nothing will happen.

After a short pause to allow you to review the new board situation, the computer will make its reply if it can. The score line at the top indicates the current number of counters as well as the players' colours.

When the game is completed and the result displayed, click on Restart for a new game.

For the technically minded the source code for Othello v1.18 is included on the disk. It has been crunched with Powerpacker. Double click on its icon to view it.

If you wish to customise the program in any way — the weightings at the end of the listing may be of particular interest — you will have to decompile the source first. You'll find the Decrunch

000 is the line number, E-3 is the note we entered (the note E from octave 3). The 8000 is a bit tricky, as you need worry about for now is that the 8 is the sample number — strings2 is sample number 8.

As you pressed P you heard the sound of the note. In fact, you're still hearing it because strings2 has been set up to repeat. Press the spacebar to stop the note playing.

Now use the down arrow key to move the cursor (the red rectangle) next to line number 006 and press O, move down to 008 and press I. (Don't forget, you can press the spacebar if you want to stop the note.)

Got the idea? OK, now look at Figure 1 and enter the rest of the notes for this block. Note that next to the line numbers in Figure 1 are the keys you should press, not what is displayed on the screen. Also note that the figure only shows the notes you should enter, leave all the others blank.

012 U 016 P 022 C 024 I 028 U 032 Y 040 P 048 O

When you've finished select Play Block from the Play Panel to hear what you've done. This block needs to be played twice methinks, so stop the music and click once on the down arrow next to the PSL (the playing sequence list) and then click once on a button. You'll see another 00 appear in the list.

Now for another block. Get to the Block Panel and click on New Block. Press Shift-downarrow to get the block display to show the new block.

Now to enter the notes for this block, which you'll find in Figure II. You've got the idea of entering notes by now, so I won't pontificate.

Having entered the notes for block 1 go back to the Play Panel and add this block to the end of the PSL, so that the list reads 00, 00, 01.

000 G 002 W 004 E 006 R 012 E 016 W 032 G 034 I
W 036 E 038 R 044 E 048 W

Select Play Song to hear what you've done (spacebar or Stop Playing to stop).

At this point it may be wise to save things, just in case of accidents. Select Files, put a data disk in DFO, select the DFO: button to let MED know you've changed disks, click in the File saving gadget, type in a filename, click on Save and then on Save Song. You'll be presented with a requester asking which format you want to save it in. Choose Song+Samples.

Get back to the beginning of block 0 by pressing Shift-uparrow. Now press the right

arrow key until the cursor is over the "—" of the first line (000) of channel 1. Make sure editing is on (the E in the status bar should be highlighted) and press the G key. Now do the same thing for channel 3 on the far right.

Press Alt-spacebar to hear what you've done (Alt-spacebar is the hotkey sequence for Play Block).

Press Shift-downarrow to get to the start of block 1. Move the cursor over the "—" of the first line of channel 1 and press Z. Do the same for channel 3. Press Shift-spacebar to hear what the whole song sounds like after we've added this background hum. It's got a bit more body to it, no?

Right, the last thing we're going to do is use a couple more samples to add a bit of percussion. Get back to the beginning of block 0 (Shift-uparrow) and move the cursor over the "—" of the first line of channel 2, the only channel we haven't used yet.

Now get the Samples Panel up and click on << until you reach popsnare2 (sample number 4). Now press R and you'll hear the sound of a snare drum and F-2 will appear in the display for channel 2 next to the line number, 000.

Scroll down the display and add the same snare drum note (key R) to channel 2 on lines 016, 032 and 048.

Now click once on << in the Samples Panel to make bassdrum3 the current sample. Move to line 014 in channel 2 and press the E key. Add further bass drum sounds on channel 2 to lines 030, 046 and 062.

Press Alt-spacebar to hear the block as it now sounds.

All we have to do now is add the percussion track to block 1. To do this we'll use a MED shortcut. Stop the music and make sure the cursor is in channel 2 (I assume you are still in block 0 — if not, get back there this minute!) and then select the Block Panel. At top left you'll see some cut/copy/paste/swap buttons for both track and block.

What we want to do is copy the current track in block 0 (the one with the cursor in) to channel 2 in block 1. So click on Track/Copy. Now move to block 1 (Shift-downarrow). Notice that the current track is still channel 2. Click on Track/Paste. You'll see an F-2 appear at the top of channel 2 proving that the track has been pasted in.

That's it. The song's finished. Press Shift-spacebar to hear it. Roger Waters eat your heart out (oops — don't be nasty to Roger, he has good lawyers).

Of course, what we've done here is a very,

Samples

THERE are no samples provided with MED on the cover disk, except those contained within the demo tune, Song24. If you want, and you probably will, you can save out those samples as separate files using the Sample Panel in MED.

Pretty soon though you'll be wanting more. Where do you get them? Your best bet is to phone your local PD pusher and ask him. He's probably got thousands of samples on various Soundtracker disks.

Of course, you could always create your own by using a sampler. This has the added advantage that your tunes will sound more original because the listener will be listening not only to a tune he hasn't heard before, but also to a collection of samples he hasn't heard before.

The third method of getting samples is to borrow them from other tunes. To do this you'll need something called a "ripper". Again, contact your local PD pusher.

If enough of you write in demanding them, we might be persuaded to put a few on the disc in the future.

Copyright

MED v2.13 is Copyright © 1989, 1990 Teijo Kinnunen. It has been released as shareware, which means if you use the program regularly you should ease your conscience by sending a small donation to the programmer. If you don't want to send him cash, a present of some kind always goes down well.

Funny money, boxes of biscuits, bug reports, questions, hellos and anything else you like to: Teijo Kinnunen, Oksantie 19, SF-66300 Oulainen, Finland.

very, simple tune. MED is capable of <-far> greater things. The more you play with, the more you'll find out about it. Do read the documentation a few times else you'll be missing out on some of the special features.

If you get really stuck you can always write to Teijo Kinnunen, the programmer. His address is in the Read Me file in the MED212 drawer. (He's still at school so give the guy a break if you don't get a reply for a while.)

But I reckon you'll soon get the hang of it. Before you know it you'll be sending me tunes for the cover disk.

command in the C directory of the cover disk.

Copyright

OTHELLO v1.18 was programmed in machine code by Stuart Bain and is Copyright © 1990 Amiga Computing. Neither Othello v1.18 nor its source code should be included for sale in any public domain, shareware or freeware disk library. Pink Floyd don't have the monopoly on good lawyers

Fame or Fortune

We are more than happy to pay large sums of money for some of the outstanding and professional contributions we receive. At the same time there seem to be very few authors in this country who are prepared to launch their work as shareware.

Countries such as the U.S.A., Norway, Sweden, Canada and Germany are constantly turning out excellent utilities that put a lot of commercial software to shame. What do we have to offer in this country?

Send your submissions to: The Disk Submissions, Amiga Computing, Europa House, Macclesfield, SK10 4NP.

Pipes of Lost Time

DECEMBER's tune of the month is a moderately-sized piece of music in the pop-cum-medieval-cum-heavy-metal-cum-madrigal mix. Don't ask me to explain that, it will all become apparent when listened to.

The tune came to its composer, Nicholas Heaps, one night when he had decided to produce something really outlandish. Luckily, the results worked. The whole thing took him about a week to finish and it recently won the Electronic Music category in a school music festival.

Nicholas uses an Amiga 500 with 1 meg of ram. Had he only had 512k, he would not have been able to create this song, but the final product runs on a 512k Amiga. If the tune fails to play, close down all unnecessary windows (don't forget the CU one) and try again.

Nicholas also has two fairly large speakers and a television plugged into the Amiga. There are three annoying things about his

television: it's not a monitor, it gets upset and starts displaying rainbows because his speakers are so close, and there is a single cell on the screen that doesn't like the colour blue. Strange.

Sound Advice

Are you a budding musician looking

for fame and fortune? If so, perhaps the Amiga Computing cover disk can give you a little push up the ladder. You never know who might be listening to your music. For instance, Howie Davies got commissioned by a software house after Rock The House appeared on the cover disk.

Original or classical stuff only

please, preferably in self-contained modules.

If you insist on sending executable tunes, then try not to send the kind that freezes the mouse pointer or uses the left mouse button to quit; right button or both is better. If your tune needs a separate Play utility, please include that on the disk as well.

QCal

QCal displays a calendar of the current day, month and year. It then allows the user to display any day/month/year with the mouse, and recall or input an entry for that day.

All changes and additions will be saved in a file, QCal.dat, in the current directory when the program is ended, or when Save is selected. QCal.dat will be created if missing.

This is stating the obvious, but I'd better do so anyway otherwise Green will come round and bash me in again - QCal will only work correctly if you have a battery backed-up clock fitted in your Amiga, like the one in the A501 memory expansion.

If you haven't got a battery backed-up clock, you will need to use Preferences to set the correct day, month, year and time before running QCal. Refer to your user manual for instructions on using Preferences.

QCal can be started from CU or Workbench. If you specify the -c flag from CU (run qcal -c) the calendar will display a clock. The clock can be switched on or off by clicking on a hidden gadget in the top right-hand corner of the window.

To add an entry, select day/month/year by using the mouse. Click in the display box at the bottom of the window, then add your entry when the cursor appears. You have two lines in which to make your entry. Press Return at the end of each line to finish.

The day number will then be highlighted in a different colour.

To display an entry, select day/month/year by using the mouse. Any days which have an entry will be highlighted in a different colour. The entry for that day will be displayed in the box at the bottom of the window.

There are a few gadgets to play with. Most are self-explanatory but a few that could do with clarification:

PURGE: Deletes any entries that are before the same day of the previous month. For example, if today was 23-Jun-99 and you selected Purge, any entries on the 22-May-99 and before will be deleted.

SAVE: Saves all entries to a file called QCal.dat in the current directory. All entries will be saved automatically when you quit QCal if any entry has not been saved.

YEAR: Clicking with the left mouse button on the arrows will change the year +/- one year. The right mouse button will change the year +/- 10 years.

Copyright

QCal was written by Malcolm McDonald and is Copyright © 1990 Amiga Computing. It is freely distributable so long as no money whatsoever changes hands. QCal should not be included for sale in any public domain, shareware or freeware disk library.

QCal v1.8. Friday 5th Oct 1998

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mon	Tue	Wed	Thu	Fri	Sat	Sun					
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736 - Agatron star trek slide show (very nice)

735 - Agatron animations disk no 34

734 - Agatron animations disk no 33

733 - SCOPEX beast music demo (absolutely brilliant)

731 - Sidney and Friends utility disk (great utils)

730 - Beatle mania, 34 SONIX beatles tracks (great)

728 - Two disk Laurel and Hardy disk as featured

729 - In COMMODORE USER (great fun)

727 - Gary Tower ray traced slide show (only available from 17-BIT SOFTWARE

726 - intro's 46 More lovely demo's to impress

724 - intro's 45 Do these demo's ever run out?...NO!

723 - intro's 44 More specially compiled graphics

722 - AMAZE music disk with 56 tunes in all, and a long play feature. (THIS IS TRULY AMAZING.)

721 - DISORDER Mega demo, great music and graphics

719 - SYNTHIA 2 Music util demo (GREAT FUN)

718 - Fractal slideshow. (Yummy graphics)

717 - CASP, music disk (the guy responsible for the bad dance remix in our library, 4 more super tunes

714 - RED SECTOR Martin Galway music disk

710 - BUDBRAIN DEMO (outrageously funny disk

687 - CRIONICS MEGA DEMO, featuring the best anim. I've ever seen (of madonna walking). GREAT

681 - WARFALCONS MEGA DEMO (stunning)

684 - FRACTAL FLIGHT demo

685 - KEFRENS music juke box (don't miss this one)

688 - Horror slide show (SPOOKY!!!!)

696 - DEPECHE MODE music disk (GREAT STUFF)

ZYDEC RAM EXPANSION

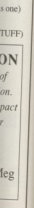
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So why do so few people

The reason is twofold. Software manufacturers are reluctant to bring out a product for which there

Of course this doesn't mean

Amiga Computing 107

Feature

you connected it up properly). Not much scope for pulling the girls/guys there then.

Why do I need it?

Well, you don't actually need it. Nobody needs extra ram unless they have a specific task that requires it, and this is usually limited to the small number of people who actually make a living from their machine.

The point is it makes a whole lot of tasks a whole lot easier. Tasks is a key word here. One of the things that sets the Amiga apart from other 16-bit machines is the fact that Amigados can handle true multi-tasking - not just task-swapping as on the Mac and the PC, but tasks running simultaneously - you can format a disk and use ProText at the same time.

Multi-tasking is great, but obviously each task takes up a certain amount of memory. Imagine trying to run DPaintIII and ProPage at the same time. Well, with about three megabytes it is a viable proposition, though you'll have to watch out for your chipmen.

This is another factor to be taken into account when looking at memory expansion. Generally, for most applications the critical factor is not how much ram you have in total, but how much chip ram you have.

Chip ram is the memory which can be directly accessed by the custom chips through their DMA channels. It is, therefore, the only memory that can be used for things like screen displays, sounds and other DMA-intensive activity.

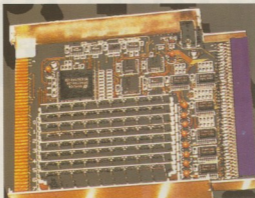
Expanding the total ram of your system will help alleviate this problem since programs will be able to fit in the fast ram, leaving chip memory available for more important tasks.

If you have a Father Agnus there is a possibility of expanding your chip ram to 1Mb. Usually this will require some modification to the A500's motherboard, thus invalidating your warranty.

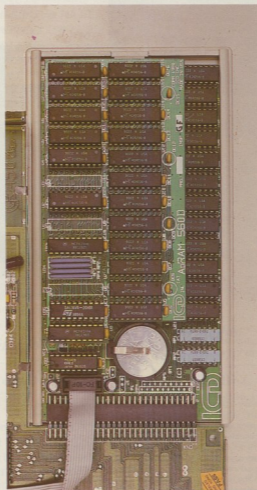
What's about?

Essentially there are two ways to expand your memory. First there is the old favourite trapdoor method. That is, after all, what it's there for. Originally designed to accept the A501 half-meg expansion, there are now quite a few larger varieties about.

The alternative is to expand, naturally enough, through the expansion port. This has the advantage of being much easier to achieve



Inside the Cortex expansion unit. Here we have a fully populated board.



(or offload if for some reason you wish to disconnect the ram at a later date).

Following slightly along these lines, many external peripherals which connect through the expansion port allow for memory expansion. The A590, CBM's hard drive is one example which allows for up to 2Mb in half-meg steps. Similarly the update to the Vortex controller.

Let's have a look at two ways of expanding your memory to mythical levels.

Cortex

The Cortex, from Memory Expansion Systems, is probably the best example of an expansion port type add-on.

Visually unimpressive, the unit is a square box which fits snugly in the expansion port. The uninspiring outer case is broken by only three stunning features.

The first is the blanking panel for the through slot. To open this you will have to remove the screws on the underside of the unit. This is not particularly difficult providing you have a brain and a cross-head screwdriver.

There is nothing in the universe more annoying than the lack of a through port, except perhaps the tendency of Volvo drivers to cut out in front of my GPz550.

Imagine the scenario. You have two jolly useful, jolly expensive things that need to be connected to the expansion port. Both are fabulous, but would be truly mega-fabulous if you could use them together. But you can't, simply because the manufacturer wanted to save a few quid.

In this respect the Cortex unit excels, having not only a through port, but also a blanking panel to avoid the embarrassment of not being able to use it if you don't have any more expensive peripherals.

The other two notable features are a jack socket for the accompanying power supply and a little light that comes on to tell you that everything is mellow and just don't worry about it, everything's fine.

Why an extra power socket? Well, CBM have a bad history with PSUs. Around 20 percent of the C64s returned in the early days were due to power supply units having burnt out. The Amiga PSU is far more rugged and reliable - reliable, that is, for powering the Amiga and perhaps a few external floppy drives. When it comes to hard drives and 8 Mb of ram leaching of your Army you may be

Feature

in trouble.

There are some people who will maintain that they have memory, hard disks, floppy drives, genlocks and so on running off their A500 with original PSU with no problems. They will probably have a higher percentage of unexplained gunks, disk errors and other nastiness. If in doubt, pump it up, and that's what the Cortex allows you to do.

The unit contains slots for eight 1Mb SIMMs. In other words you can have 2, 4 or 8Mb but not the stages in between. It can be a bit of a nuisance not being able to add ram in small chunks. Since the ram is on a SIMM card, you can only use SIMM cards. No more bargain hunting at shows for cheap chips.

Aside from that, it works. What more could you want from a ram card? It is even A1000 friendly.

Adram 540

The Adram 540 from ICD is a trap-door expansion. Not your normal half-meg job though. The AD540 is expandable, in blocks of 1Mb, to 4Mb, if that still isn't enough, there is a daughterboard option to bring your fast ram even further into the lofty heights of truly elephantine memory (yes, more than 64k!).

The snag with all this messing about in the trapdoor is (as Berk would tell you "there's something down there") that it is just that - messy.

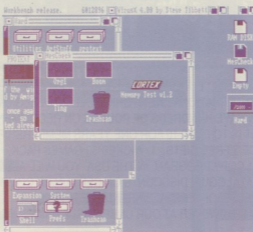
For a start the board is a little too big to fit properly. A little handy work with a scalpel is required to make the trapdoor see eye to eye with your new piece of kit. Then, of course, you have to remove the shielding - not that it made much difference anyway.

Since the memory mapping is all done through Gary, and since he isn't expecting to find 6Mb in the trapdoor, a little piece of hardware is supplied to make him look in the right direction.

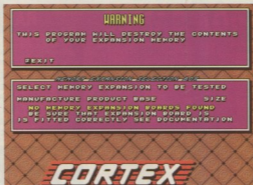
A board has to be fitted to sit between Gary and the motherboard. This isn't too tricky, since those people at CBM have put all the important stuff in sockets - all the better for whipping it out. A ribbon connector connects the Gary board with the expansion card.

If you want to take advantage of a Fatter Agnus, or if you wish to install the A560D - a daughterboard which gives an extra 2 Mb ram - you will have to get out the soldering iron and do some nerve-wrecking stuff.

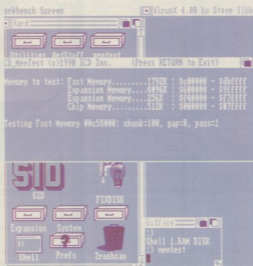
A jumper lead must be connected between the Gary board and



The cortex is supplied with a test disk and a few interesting samples



The cortex test software also includes a certain amount of trouble shooting



The test utility supplied with the ICD board is less impressive, but it works!

a vacant jumper hole on the A500 motherboard. This is slightly hazardous for those with the DTs, as the hole is situated between the 68000 and the Amiga rom.

Once installed, you can safely forget about it - there is little chance of it giving any trouble. The only bother is the fact that only 1.5 Mb of ram will auto-configure, the rest will only be mapped in after running the supplied software. This is fast in execution, and can be neatly tapped on to any startup-sequence.

The real advantage of this method is the fact that once installed your Amiga looks absolutely the same. There is no problem with your useable desk space suddenly vanishing, and you won't have to engage in major surgery to be able to use your mouse in your left hand.

There is no additional power supply for this model, but it is highly recommended that you buy an upgraded PSU if you are using more peripherals that draw their power from your Amiga.

So what do I buy?

There is no answer to this question. At least, not one that will prevent late phone calls from thousands of readers willing to extol the opposite case.

The getout wimpy answer is that it's up to you. But of course it is. Adding ram isn't just a question of buying some chips and plugging them in. You have to look at the way your system is going to expand in all directions.

It would be too bad to spend a lot of money on one system only to find out later that you couldn't use it with some other peripheral you desperately wanted.

For example, the Adram will still allow you to use external auto-configure ram, like the chips you can plug into the A500, but obviously you can't use it with the KCS PC board, which has to fit in the trapdoor.

The ram expansion should be the malleable quantity. Let the decisions about other peripherals determine which expansion you buy.

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Memory Expansion Systems
(051) 236 0480
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Escape from Reality

THERE has been a lot of talk about the prospects of virtual realities in the future and about how Amiga technology is at the forefront of these developments. Maybe there's been too much talk. Virtual reality is not a dream of the future - it is with us here today, and in fact, has been for some time.

Virtual reality is a term which can be applied to many computer software constructs. It implies an interactive simulated environment which would certainly be satisfied by, say, a 3D maze game or even a flight sim. But it is not only in these alternative realities that we already have development.

There is a lot of interest in constructing a virtual reality analogous to our own, that is, a complete reality as close as possible to our own but under our control.

Real developments began to take place in this field with the arrival on the international science scene of a concept known as chaos theory. Some high level simulation of real world variables was required to explore the ramifications of this discovery.

The quest for reality through artificial data was well supported in the area of graphics too. The aspiration was to produce a photorealistic simulation of a landscape that only existed in the data banks of a computer.

While it is a matter for philosophers to mull over how it is possible to judge the apparent reality of a display, for the common man it is easy to see that at the moment we are as close as makes no difference. All he has to do is watch some of the computer generated adverts that assault us every night on the TV.

Do we need to justify this attempt at control over the reality we inhabit? Well, no. Not really. But that never stopped anyone. Ray tracing packages, it is argued, are a great aid to visualisation in design work. That may be true, but in my experience all the pretty pic-

Just as your favourite mag is due to be at the printers, Nic Veitch tries to escape the slings and arrows of outrageous publishing by retreating into a world of his own



Texture mapping expands the realm of raytracing into one of near photorealism

tures were produced after the design was more or less finished. In fact, if a designer hasn't got a pretty good idea of what something looks like before rendering then he shouldn't have been given the job in the first place.

Its real use is communicating this information to others less technically minded. Or for creating almost photorealistic images of imaginary - and therefore alternatively real - scenarios. Or for having fun with.

The point? Ray tracing packages, like little girls, need no justification. They are also quite moody and fairly unpredictable, but I'd

better not say any more or we'll get letters.

Real 3D

A few months ago if you were talking ray tracing on the Amiga you were talking Sculpt 3D. Now there is a choice. Two months ago we saw the release of Marcam's 3D Professional. And now we have Real 3D from Active software.

There is a certain attitude that seems to prevail in terms of ray tracing on the Amiga, to the effect that Sculpt is the standard against which all others should be judged. To a certain extent, since

it has been the only major selling ray tracing package in this country, that view is valid, but it would be very unwise to adopt standards just yet.

The reason for this is that Real 3D works in a way fundamentally different to Sculpt's approach. Sculpt considered each surface as being made up from small triangular flat planes. Every surface can be approximated in this way, the number (and therefore the size) of triangles used determining just how much deviation there would be between the true surface and this approximation.

The approach of Real3D is to consider each surface as just that, a surface in mathematical space. Only when it comes to the actual rendering is this surface quantized, broken from an infinite landscape into finite chunks of picture definition.

The advantages of this method are easy to realise when you see your first picture. Gone are the angular surfaces that were so characteristic of anything produced by Sculpt. Added realism is the bonus.

It also makes the components easy to rescale. In Sculpt when an object was created it was necessary to give it scale by defining how many points were to represent the shape. This meant if that object was used larger at a later date the triangular planes would be clearly visible.

If a large number of points were specified originally, to account for later changes in scale, this would result in faster rendering times for that object, no matter what size it was used at. Clearly an undesirable compromise would be necessary. So we see that early on, although the inevitable comparisons will be made to Sculpt, the approach is quite different.

Design

The design area, where all the serious mucking about and coffee

drinking goes on, will be familiar to anyone who has used a CAD or ray tracing package.

Three views of the "landscape" are presented, in wireframe form, arranged in orthographic projection. If you like, each view is a window on to the design area from a different plane, one for each of the three dimensions.

Each object must be designed either from the extensive range of primitives, or using one of the tools (which we will cover later).

A primitive is a representation of a simple object such as a sphere, a cube, a cone or whatever. Any shape or size of building block which Fisher Price have ever manufactured is represented in some way or another. Each of these objects can come in any size or colour.

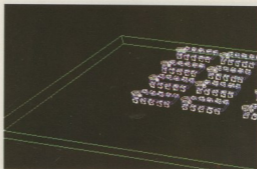
Complex forms can be created by combining these primitives. In addition to simply placing the objects so that they connect up, Real 3d allows a full complement of Boolean functions to be performed. These include ANDing, ORing, XORing and most other combinations you can probably imagine.

The use of primitives - or prims - and the additional ability to combine them logically with other objects lends itself to an engineering form of design. The operations performed on the prims are very much akin to the kind of shaping, milling and forming that would go on in the workshop.

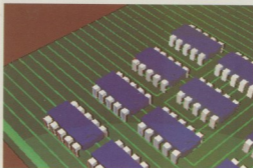
The windows can be resized to facilitate the positioning of small objects, and in fact the entire screen can be given up to the view from one window. Since most design work is usually and easily accomplished in two windows I still find it difficult to believe that no one has ever included a "view two windows only" option.

The co-ordinate system can be switched from absolute (x-y position from the origin) to relative (x-y position from the last selected point). Judicious use of the Amiga-arrow key combination is called for to accurately position the cursor, unless you have a remarkably good mouse or a remarkably steady hand.

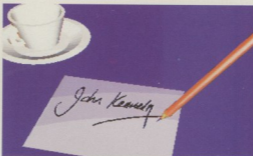
The wireframe views themselves can also be modified. There are good reasons for deleting wires from the view of an object: In complicated ones it can often be



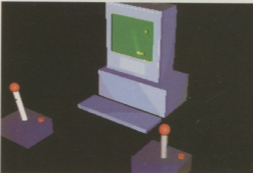
The wireframe preview from a circuitboard effort...



And here is the finished product. Perfect presentation graphics



Creativity bordering on sheer poseyness here I think



a lot easier to work out just exactly what is going on with a few less wires hanging around. It also makes the screen refresh a good deal quicker.

Tools

In addition to manipulating prims, objects can be made using a variety of tools. The most useful of these is undoubtedly the lathe, which is in some ways better than the real thing.

Having entered the position and orientation of the spindle a profile line can be drawn; this profile is then rotated around the designated axis to give a solid object. It is possible with this tool to bring the workpiece to a point anywhere along the spindle (which in real life would have the work flying across the workshop at 600 r.p.m.).

The rectangular and cylindrical tube tools will allow the designer to flow a tube of defined cross section along a profile line. These two are very useful for creating everything from handlebars to chairs.

Lastly there's the pixel tool. Any IFF can be read in and converted to a selected object, ideal for rendering that corporate logo or portrait of your good self.

Hierarchy

This is one of the most impressive features of this package. Also objects are created in a hierarchy. This means that, for example, if you were to create a stool you could either have the object grouped as: seat, leg1, leg2, leg3 and leg4, or as: seat and legs, where legs was a lower hierarchical level.

There may not seem to be much difference at this stage, but supposing I now want to make all the legs green. In the first example I'd have four operations to complete, one for each leg, whereas in the second example I could do the same job in just one operation.

Saving and keeping large libraries of objects also becomes more feasible. You could use the chair in any one of many potential scenarios so it's nice to be able to identify that as one component of a scene.

Hierarchical systems will save you effort and headaches every time, but you must use them prop-

erly. A certain amount of thinking is required to plan out your object before you lay mouse to window.

Macros

Macros, short sequences of automatically executing commands, are well supported in Real3D. It is often necessary to repetitively perform a series of operations, for example, creating a row of 10 copies of one object.

This is where macros come in. Start recording, copy the object and move it. Now successive operations can be performed by the press of a button. Not only is it labour saving but it is more precise than trying to do the operations manually.

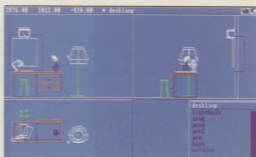
Materials

In order to create a true photorealistic representation of a scene, account must be taken of the different light-affected characteristics of certain types of material.

Glass, for example, is almost completely transparent, and yet at the same time highly reflective, whereas metallic surfaces are reflective but not in the least transparent.

A whole range of materials come pre-defined with Real3D but you are at perfect liberty to design your own if you see fit. Sliders control the brilliance (reflectiveness), transparency and "speed of light" through the substance.

The speed of light is actually referring to the refractive index of a transparent body, the measure



A prisoneresque landscape planned (above) and wireframed (below)



of how much light gets bent as it enters. It is possible to choose a refractive index far above any that actually exist for any material on this planet.

Materials may be merged, saved and loaded at any time, but remember to load the right materials before you start fiddling around with a scene. Fortunately the materials can be stored as sets, so you can tie in the name of a range of materials with any particular set of scenes you are working on.

The bending of light through objects is quite useful. It is quite conceivably to create a working lens using real 3D, though calculating it's focal point may be a little tricky.

Although light is bent when passing through transparent objects no account is taken for the different frequencies of light.

This means that you rather unfortunately won't be able to recreate the album cover from Dark Side of the moon - a prism will only bend

white light in Real3D, it won't split it into a rainbow. Still, it does allow for some very interesting (and realistic) optical effects

Textures

Another feature, which every ray-tracing package but Script seems to have, is the ability to map an IFF image around the surface of an object and so give it an apparent texture.

All varieties of IFFs can be used, from 2-colour to HAM and any size you care to mention. A whole set of different mapping methods opens up a whole range of possibilities. If you were to scan in a map of the world and use a "ball" projection on to a sphere you would have a globe.

These textures can also be used, obviously, to give apparent depth and detail on the surface of an object, where it would be impractical to include this detail by way of adding many small prisms.

Wireframe

The wireframe preview mode allows you to take a quick look at the positions of your objects before you commit yourself to a full render. Also in this screen are controls to adjust the apparent perspective of the scene (if you like, the focal length of the lens on the camera you are using to take the picture) and it's magnification.

The wireframe is invaluable, easy to use and so quick, even with many objects to display, that it is scarcely believable. Where it really comes into its own is in the preview of an animation.

A near enough 20 frames per second animation should let you see how the finished article will look.

Rendering

There are many options in the rendering phase. Fast will provide you with a more complete idea of exactly what is going on. By the way, calling it fast isn't that misleading. The time taken for a simple screen is quite astounding.

Some fairly cunning routines are at work which actually make the time taken more predictable. The rendering speed is less dependant on the number of objects or how many light sources there are. The lampless mode will outlight the



area, giving you an idea of what everything is going to look like before you decide on the dramatic lighting effects to use. Unfortunately, since the brightness of the lamps is not adjustable, these effects are quite difficult to obtain.

Lampless mode will also map in any textures used, something that would be left out in fast mode in the interests of speed.

Normal mode will take into account shadows, transparent objects and textures. In fact normal is the highest quality rendering you can get. For really excellent results you can add dithering, shading and turn on interlace mode. Machine parts and metallic sculptures always look better using the greyscale option.

The two remaining render modes are shadowless, which is a bit self-explanatory, and outline, which will do some interesting hidden line removal for you, though quite slowly for some reason.

Backlight control, colour and brightness are selected from a series of sliders. Beneath these are the resolution controls. It is possible to render an image faster by using big chunky blocks instead of pixels, but this is only really useful when used in conjunction with the Box feature.

Real3D will use all of the memory it can get hold of in an effort to speed up rendering. In fact even the beginner version requires at least 1Mb. I have 6.5Mb installed on my system - Real3D is the only software so far that has used over 95 per cent of that!

Boxes

A jolly handy thing is the box. While on the render screen a box can be drawn around any area of the screen. Selecting Fill Box from the pull down menu will render the data only in this box.

This is incredibly useful if, say, you are only changing a detail in one small part of the screen, or for an animation where all the motion occurs in a box which is smaller than the total screen.

It can also be used quite stunningly with the resolution control on the main panel.

Animation

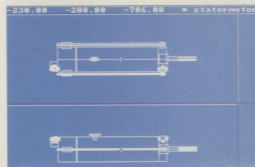
Real3D really excels in the animation department. Spline orbits for



Some wonderful effects can be created with shadows



The desk again, without the wood texture



the observer, the aim point or for any of the objects can be drawn and the resulting frames will be automatically calculated by the software.

This means that once you have completed your master design for a new house, city or universe, all you have to do is specify a path through it and the software will take care of the rest.

Stroll through the wireframe preview and make a few adjustments and you are ready to render the lot in one batch. On the render master control panel turning off the single option and adding a filename in the box provided means that every frame in the current animation file will be rendered.

Not only that, but it will be saved to the pathname specified as numbered frames. These can then be loaded into the replay facility, or even into a completely different package, since they are plain IFFs.

In reality

Is it worth it? As ray tracing goes, and I've yet to find anyone who makes a full-time living out of ray tracing on the Amiga, this is certainly one of the best packages around at the moment.

If after reading all that you're still not convinced, work out how many games you could buy with the same money. You think it's a lot? I reckon you'd spend more time creatively designing and enjoying the world of Amiga graphics with this package than you would playing twice that number of games.

The Sculpt scenario won't happen again. The next version is already underway, with 24-bit colour image support. Ray tracing is becoming the cult scene on the graphics circuit again, with more packages being released across all formats than you could safely wave even a small stick at.

What Real3D may lack in certain aspects of image quality it more than makes up for in speed and ease of use.

Here, at last, is ray tracing for the masses.

Reviewed: Real3D Professional
Active software/Amiga Centre
Scotland
Tel 031-557 4242

HOW often have you muttered "Who writes the music for these things, I could do miles better than that, if only I had the gear" while you waited for a game to load?

Well now it's time to put your melody where your mouth is and prove your point with Mugician, a professional standard music package based around good old Paula, the all-singing all-dancing sound chip.

No doubt all the musos out there are just about to flick over to the next page, thinking that anything that is not dedicated to Mid is not worth bothering with.

Fact is, they'd be sadly mistaken - the games and demos scene could do with some new musical ideas, and Mugician could well help meet that challenge.

If, like myself, you are a musician but not a programmer, struggling to bring your great ideas to electronic life, Mugician could be a godsend. With it you work with samples - including your own - which can be manipulated and incorporated into your own programs.

Also featured is simulated synthesis, with which you can create sounds from their component parts, designing your own waveforms and adding various effects. These sounds can consequently be saved for later use.

Making sounds from scratch, even with Mugician's aid, is still a difficult business, and it's a good idea if you are a beginner to use some of the sounds provided until you become more practised. As I mentioned earlier, this is a professional utility and will take a novice a while to master it.

This is what you will be dealing with:

Song Editor: The first screen you will see on loading will probably be the last you will use. This is where all your hard work of creating sounds and consequently patterns is put together into sequences to produce your final four channel masterpiece.

The Instrument Editor: This is where the first 31 of the possible 63 sounds can be produced via synthesis, or in my case blind chance. All the parameters required to design sound are available, plus an effects editor which is excellent for creating weird and wonderful sounds (great for games). The main advantages of using waveforms are their efficient use of memory and, of course, the effects available to manipulate them.

Mugician

State of the art or sleight of hand?
Paul Austin pulls the latest music utility out of the hat

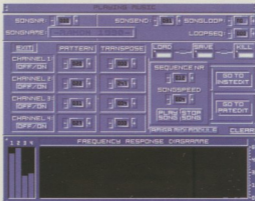


Using the sounds of the real world.



Create your sounds and add the FX.

Building up step by step.



Where you construct your final masterpiece

The Sample Editor: Here is where the other 32 possible instruments can be loaded in sample form. They are held in one large buffer one behind the other, which can then be zoomed in on and various editing functions applied.

Looping is available, plus the ability to load IFF sample files, like those created with Aegis Audiomaster or any of the samplers featured in last month's issue.

If you have a parallel type sampler - not a joystick port model - you can use your own samples with the program, which is happy to use samples of various rates and lengths, dependent on available ram.

The Pattern Editor: Once you have amassed the sounds you require it's time to write a classic - and this is where it all starts. Patterns work in step time, each 64 steps long, and up to 256 separate patterns can be edited for use in each song. The finished patterns can then be formed into songs in the song editor.

The manual suggests that you should read it at least three times. This is very good advice - take it! Each of the above sections could warrant a small novel in itself.

A more detailed review of the program features would have left both of us a good deal older and you probably none the wiser. The best way to learn with a program like this is by experimenting.

The manual also offers a Programmer's Corner which contains some assembler routines so your songs can be used independently of Mugician, for instance in games, demos, and so on. Basic Midi functions are available but external keyboards are not essential.

Without doubt! Mugician was produced more with the programmer in mind than the performance musician. There are quite a few PD packages for this area of tune composing, but this package has a more professional feel to it. The remarkably useful synthesis facility is something you will not find in any of the Soundtraker clones.

The Digital Mugician
Softeyes (0734) 817261
£29.99

This may not be one for a beginner, but for a serious user who wants a full purpose music and FX package, it could be ideal.

amiga alamanac



MACHINE CODE121

The way to the heart of any hi-tech machine is at the lowest level possible. So reckons Jolyon Ralph, the thinking man's guide to all things 68k. This month he looks at a useful book and explores the world of "rippers".



CODE CLINIC125

Any Soundtracker/Noisetracker clone is only as good as the samples it sequences. In this enlightening article Paul Holmes explains how to tell a tune by its cover and how to take the wrapping off, IFF style.



MUSIC129

Jason "Donovan" Holborn delves once again into the music world. Among the scores of snippets he uncovers this month are new versions of MusicX and that old chestnut that's been around almost as long as he has, Deluxe Music.



COMMUNICATIONS133

Once again Armitage prepares you and your system for entry to the electronic reality that permeates the very ether. Grid-locked on, decked up and with clean sox you are now ready for the alternative real world.



DESKTOP PUBLISHING ..137

The archaic Nic Veitch attempts to get up to date with some of the radically new concepts in the world of DTP - without mentioning those nice people at Gold Disk (well, almost).



BUSINESS141

Paul Austin, the man who is to money management what John Major is to, well, money management, picks up his penny and his briefcase to discover that there is some finance software worth the interest.



AMOS145

Still here by popular demand, Peter Hickman answers some of those difficult questions about the authoring system of the hour. Which hour is perhaps a little obscure but we'll let Peter deal with that.

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If you prefer to have the magazine delivered with your morning paper, cut out this form and give it to your newsagent

Books, bugs and an easy way to create your own tunes. Amiga Computing's resident guru Jolyon Ralph continues to investigate everything 68k



A friend of mine phoned me a couple of weeks back to rave about a new book, "Mapping the Amiga" published by Compufel books. He said that since getting it he has not needed to touch his collection of Abacus and Addison-Wesley reference books.

Could the vastly expensive and several thousand pages worth of Amiga programming manuals really be condensed into one \$20.95 book? This was one I had to check out.

Scanning through the book reveals short - half page on average - descriptions of all library calls, all system structures (ExecBase for example), and every hardware register, including all the fiddly CIA registers that no one can remember properly.

How does it cram all of this into 446 pages you may be asking? Well, it is basically a reference book. It is not intended as an introduction to Amiga programming.

Although it does include an introductory section on how to use library calls in Assembler, C and Modula 2, this is only 12 pages long.

There are explanations of how things like Copperlists, the blitter, sprites, etc. work hidden throughout the book, but they are arranged in order of hardware registers, not in an order that beginners could work through easily.

The outcome is that the book is very sensibly arranged for people who already know the Amiga well. The long explanations of the blitter, and so on are ideal 'memory fresheners', but I'd recommend another book, either the Amiga Hardware Reference Manual (Addison-Wesley) or the Amiga System Programmers Guide (Abacus) for people new to Amiga programming.

For experienced coders the book is brilliant. Every hardware register is documented in order. No more looking up what \$dff016 is in a table, looking that up in the index and then reading about what it does. Just scan through the book for \$dff016 and the information is there at your fingertips.

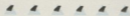
With library calls things are even easier. Before you would have to look up a

routine through several different tables, then finding out it is a Dos library call which is in a different book by a different publisher! All library calls and structures are listed alphabetically.

I have several times in the past given up with the old manuals when trying to find something like the RastPort structure information. With this book I found it in seconds.

The hardware registers are excellently documented, the Library and Device calls are well covered, but a book of this size could not hold all the information there is about all these different calls, so you may still find the official reference guides are useful.

In conclusion the book is brilliant. I don't know how I ever survived without it now. Not the best thing out for beginners, but if you've mastered the basics and need a decent reference, this beats the Amiga System Programmers Guide hands down. And it's \$12 cheaper too!



Danger UXB

Something not so wonderful may be happening in the not too distant future. Remember all the scare stories of Amiga viruses living in battery-backed clocks? Remember rumours of viruses that could destroy your Amiga?

Now, with the aid of the new ECS chipset on the very latest Amigas - currently only fitted to the 3000, but available soon for all Amigas - it is possible for a virus to blow up your monitor!

I'm not going to tell you exactly how to do it in this column, that would be stupid, but the new Denise chip has to do some special tricks to be able to produce the new video modes, and if you fiddle with these you could send signals to your monitor that could damage it.

What if you write a program that crashes and just happens to write to the wrong hardware register? Just

make sure your code keeps clear of any register above \$dff10f.

The 68000 is a fast processor, in fact compared to similar speed chips found in PC clones, it's very fast. Not as speedy as a RISC chip (extremely fast), but you can't have everything. Still, there's more than one way to skin a cat, and there's a nifty way using a fast processor and programming in machine code if your routines are not as fast as they could be.

The obvious way to do something is not necessarily the quickest. For example, to clear a data register - d0 for example, the instruction CLR.L D0 may be the obvious choice to many of you. However, that takes six clock cycles, and the less-obvious MOVEQ.L #0,D0 only takes four cycles.

There are several of these single-instruction level substitutions you can use to speed up your code, but that's only part of the story. Take the following routine, to move a block of memory 1000 bytes long from memory pointed to by a0 to memory pointed to by a1:

```
move.l #0,d0
loop: move.b (a0),(a1)
      move.b d1,(a1)
      add.l #1,a0
      add.l #1,a1
      add.l #1,d0
      cmp.l #1000,d0
      bne loop
```

Now, I've gone over the top with that routine. No one with any knowledge of 68000 would write a routine as bad as this, but the important point is that the above routine works. It is perfectly valid 68000 code.

Let's try optimising this routine. Firstly, look at the four lines after the LOOP: command. They can be replaced with a single line:

```
move.b (a0)+(a1)+
```

Now look at the rest, the first and the last three lines. They can be replaced by a DBRA loop.

MACHINE CODE

So our final code is:

```
move.l #999,d0 ; D0RA loops for D0+1 times.
move.b (a0)+(a1)+
dbr a0,loop
```

Isn't that a lot simpler? And faster. Ignoring the loop, the original code would take 64 clock cycles per byte transferred, the new version only 12. This is a good example of how to speed a routine up by recoding with faster equivalent commands.

However, the method is still the same, take a byte at a time and stick it into the next address. The next level of optimisation depends on rethinking the whole approach to the problem. Why move a byte at a time when you can move four?

```
move.l #249,d0 ; 250 loops 250 x 4 = 1000
loop: move.l (a0)+(a1)+
dbr a0,loop
```

Now, the move.l (a0)+(a1)+ in this takes 20 clock cycles, you have to add on 10 bytes for the loop, but as you are only calling it 250 times instead of 1000, it is much faster (7500 cycles compared to 22,000 cycles for our improved byte transfer routine, or 88,000 cycles for the original routine!).

This gets block moving down to 7.5 cycles per byte. There is a faster way, 250 lines of move.l (a0)+(a1)+. This is a bit daft for memory reasons, but if you really need the speed, it shifts at five cycles per byte. You can improve the performance of the routine by putting more than one move.l in the loop, for example:

```
move.l #124,d0 ; 125 loops (125 x 8 = 1000)
loop: move.l (a0)+(a1)+
move.l (a0)+(a1)+
dbr a0,loop
```

I'm not saying this is necessarily the fastest way to do it, in fact I'd love to see a faster routine (68000 only, no cheating with the bifter please!).

If you want to share your fast routines, be they block moving or anything else, send them to me. Got a fast multiply or divide routine? Have you sussed hex to decimal conversion? No doubt I'll cobble together some form of prize for the fastest routines in various categories



Rip it up and start again

Have you ever loaded up a demo and thought 'I like that music, wish I could rip it'. Have you tried one of the



public domain music rippers with only limited success? The reason is that most demos clear the memory on exit, or the module is immediately overwritten in memory by something else loaded in, quite often the music ripper.

Now, the Action Replay cartridge from Datel doesn't find Soundtracker modules for you, but with its help you can hunt down and rip the tunes with ease.

For this trick, you will need one Amiga 500 or 1000 with at least 1Mb of memory, 1an Action Replay cartridge, a blank formatted disk, a sensible version of Soundtracker (Pro-tracker, or Noisetacker V1.1 or above) and a decent soundtracker ripper (the latest Fraxion ripper, for example) or Ross's public domain Amiga-Mon, or preferably both.

Power up your Amiga, and when it prompts you for a disk press the Action Replay button. From the Action Replay screen press F9, if necessary, to get rid of the German keypad. Then type ZF0 to disable your fast memory, ZV0 to disable virus testing and ZW0 to disable clearing ram on reset.

Reset your Amiga again - this is important, it disables the fast memory - and boot the disk with the tune you wish to rip. Wait until the tune is playing then press the magic button.

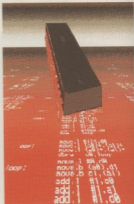
Now - and this is the clever bit - type LORD OLAF on the cartridge screen, and it will inform you that Sysop mode has been activated. This will allow you to read and write to any area of memory, including the previously protected cartridge ram, and our disabled fast memory. You can even disassemble the cartridge.

What we can now do is copy the entire contents of chip memory, including the module, into fast memory, which, as it has been disabled, cannot be overwritten by a soft reset, or by loading other software in. This is done by typing:

```
IO 7FFF c00000
```

(assuming your fast memory lies at \$c00000, as all A501 compatibles do). Now reset again and load your music ripper. Tell it to hunt in fast memory, and with any luck it should find your module.

If you haven't got a ripper, or it can't find it, you have to resort to the manual approach to hacking modules. Using either the Action Replay monitor itself, or better still, Amiga Mon, the public domain monitor, hunt for the string M.K. (M dot K dot) in memory. This stands for Mahoney & Koktus, the authors of Noisetacker, and all Noisetacker modules (95per cent of demos use Noisetacker modules) carry this stamp.



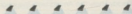
Code is the way to the heart of the machine

This is near the beginning of the module. Hunt backwards in memory from the start and you will see the names of all the instruments (for example ST-04:boingbassdrum) and at the beginning the name of the song.

Starting from the first character of the name of the song, save out a large block of memory to disk. 300k is usually enough. Call it mod.something, so you can load it into Noisetacker. If you've used the cartridge monitor to save this file out, you will have to FDS0toD0S convert it first.

Now, reset the cartridge and the Amiga back to their default settings. The quickest way is to power off your Amiga for 10 seconds and power it up again. Load up your Noisetacker Protracker and load in the module you saved. Save it back to disk again immediately, and it will save it as the proper size.

Play the module. If it works, you've successfully ripped the module. If not, try again. I must thank Alex Slater for his help in preparing this ripping yarn, and he hasn't even got a cartridge! (Ahem Datel?)



Jot to Jolyon

Have you got a problem with your sprite routine? Is your assembler giving you grief? Are you fiddling with the wrong bits in \$d0040? Or have you written some mind-shatteringly fast routine to calculate the average airspeed of an unladen African swallow to 20 decimal places?

If so, write to: Jolyon Ralph, c/o Amiga Computing, Europa House, Adlington Park, Macclesfield SK10 4NP, or if you're a really hi-tech guy, send me electronic mail on CIX (jralph@cix) or on the CA885 or Yugen Hal Bulletin Boards (see COMMS listing)

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Education Orders Welcome

Paul Holmes takes the wrapping off a sampled sound file to see what's inside. If you want to hear what he is on about, check this month's Amiga Computing cover disk



WE stopped our look at IFF rather abruptly last month, just before we got to a rather exciting bit on SMUS chunks. So let's rejoin the action.

A SMUS chunk has seven standard chunk types - SHDR, NAME, Copyright ("c"), AUTH, ANNO, INST and TRAK. It may also contain embedded instrument forms - hopefully 8SVX, but they don't have to be. Descriptions of SMUS standard chunks can be found in the Exec manual App.B pp.53-62, and are not given here.

NAME, Copyright, AUTH and ANNO are treated as text, as in 8SVX.

The SHDR format is just like VHDR, in that it is case-insensitive, but fussy about order.

```
53484452 00000004 397C7001
SHDR...9ip.
```

appears as:

```
SHDR | :size=4
tempo 14716
volume 112
tracks 1
|
```

INST chunks come in three flavours - name(type 0), MIDI(type 1), and general type. The last of these is unlikely to be used, and if so I've no idea what for, but it's provided for flexibility.

```
494E5331 0000000F 01000000 46656E64
INST..... Fend
65725374 72617400      erStrat.
494E5331 00000004 05010307
INST..
```

and:

```
494E5331 00000004 049405FF
INST.....
```

are equivalent to:

```
INST | :size=16
register 1
name "FenderStrat"
|
INST | :size=4
```

```
register 5
MIDI
channel 3
preset 7
|
```

and:

```
INST | :size=4
register 4
TYPE 9
data1 64
data2 255
|
```

Note that the zero on the end of "FenderStrat" is just a padding byte, not a terminating zero, as the length of the string (9) is just the chunk size (15) minus 4.

All three INST formats are order critical. Mnemonics like "name" or "preset" are case insensitive, but the contents of strings like "FenderStrat" will be copied with case information preserved, as this is likely to be demanded by application packages.

TRAK chunks are the most complicated, and their format reflects this. Each event has its own mnemonic.

```
inst 2      use the instrument in register 2.
time 3/4    use 3/4 time in score.
keys Db     use D flat key signature in score.
volume 127  full volume. Figure may be 0..127
midichn 5   set MIDI channel 5
midprp 34   set MIDI preset 34
```

As the above are events, not fields in a data structure, they may appear in any order, and any number of times throughout the track. Not all music packages will accept a keychange mid-score, but there's no law against it.

Notes and rests have the format:

```
<notespec> ("c") ("t") (<tuple>) ("d") ("r")
<value>
```

where:

```
<notespec> = (<note><octave>)|"rest"
<note> = "C" | "C#" | "D" | "D#" | "E" |
```

```
"F" | ... | "B" |
<octave> = "-" | "0" | "1" | ... | "9" |
"c" means the note is chorded.
"t" means the note is tied.
<tuple> = "3" | "5" | "7" (for triplets
and so on)
<value> = "1" | "2" | "4" | "8" | ... | "128" |
(2=minimum, 8=quarter, et al)
"rest/4" means a crotchet rest.
"C#5/3/8" means C#, octave 5, quarter,
part of triplet, so 2/3 normal length.
"F2d/4" means F, octave 2, dotted crotchet.
```

Note that flats are not yet supported (they soon will be), and that most applications (for example Sonic) will use octaves 2 to 7. A1=55Hz, A4=440Hz, A7=3520Hz.



Samples

Samples are stored in an IFF file called "8SVX" which stands for 8-bit Sampled Voice. It can be used for two different jobs - a one-shot sound effect or a musical instrument. Let's look inside an 8SVX, to see how it does it.

Every FORM 8SVX contains at least two chunks - VHDR and BODY. The last is the chunk which holds the sampled waveform values, and it's probably quite large. A 3-second sound effect, sampled at 12kHz will use almost 36k. The VHDR chunk, on the other hand, is tiny. Just 28 fun-packed bytes, laid out like this:

```
56484452 00000014 00008CCA
00000000          VHDR ...
00000000 2EE80100 00010000
```

which translates into:

```
VHDR | :size=20
neShot 36036 : (4 bytes)
repeat 0 : (4)
PerH 0 : (4)
PerSec 12012 : (2)
octaves 1 : (1)
comp 0 : (1)
volume 65536 : (4)
|
```

CODE CLINIC

This means that the size of the sample – that is the data size of the body chunk – is equal to $\text{oneShot} \times \text{repeat} = 36036$ bytes. A repeat value of zero means that this is a one-shot sound.

PerSec is the number of samples to play back each second. PerH and octaves are used for musical instruments – more on these later.

A value of 0 in the comp field means that no compression is being used. Last time I checked, the only other value reserved for this field was 1, meaning Fibonacci-delta encoding.

If you have your own compression method, put another number into this field, to identify the compression method you have used. Ideally, get in touch with Commodore to register your number, so that compression method number 27 (or whatever) means the same to you as it does to everyone else.

Bear in mind that the one-shot-repeat = the number of samples after any decompression, so it's only the same as the data size of the body chunk if the sample is uncompressed (they usually are.)

Finally volume, ranging from 0 to 0x10000 (65536) and 0x0000, strangely enough, for full volume. Zero is for silence.

Here's a thing – why is the playback rate 12012Hz, not 12000? I'll tell you. The audio chip has a clock rate of 3,579,546 cycles per second (on a PAL A500 – don't assume it will always be this). The rate at which it plays back a sound is calculated as one sample per N clock cycles. The period is calculated as:

$\text{Int}(3579546 / \text{ideal frequency}) = 298$ cycles.

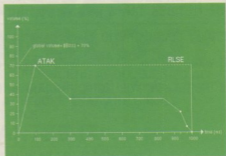
The actual playback rate will then be $3579546 / 298$, or 12011.899Hz. This is the closest approximation you can get to 12kHz. No worries – it's only out by 0.1%, so no one can tell the difference.

Musical instruments are rather more complicated than one-off effects. Sample lengths are the first problem. What if a piece of music calls for a very long note, say a whole note in a smoochy slow number. Must we store a huge sample of the instrument to allow for this possibility?

Thankfully no. What we can do instead is store a one-shot part which is used at the start of the note, and a repeat part which is played over and over again until the end of the note. If the values were one-shot=35036, and repeat=1000, then a play-back routine should play the first 35036 bytes once, then repeat the last 1000



CODE CLINIC



ATAK and RISE define the waveform volume envelope

bytes until told to stop.

The repeat part must contain an integral number of waveform cycles – if not you'll get a loud click at the end of each repeat.

Frequencies can also be a problem. For one thing, the playback rate is not fixed – it has to be altered in order to generate different notes. Also, many musical instruments cover a wide range of octaves.

To go up to a frequency much higher than that at which the instrument was sampled would push the audio DMA down to a very low period.

Firstly, you can't have one sample in less than 124 clock cycles. This would give the hardware insufficient time to fetch data from memory.

Secondly, frequencies are less accurate as they get higher. The nearest approximation to 28kHz is 28185Hz, out by 0.66%, starting to get noticeable.

To get by these limitations, the instrument can be sampled at several different octaves. The "octaves" field in VHDR is set to the number of octaves used. The BODY chunk starts with the instrument samples at the highest octave. The "oneShot" field contains the number of bytes in the one-shot part of the highest octave. The "repeat" field does the same for the repeat part, so together they add up to the total length of the highest octave.

Next in the body chunk is the next octave down, which is exactly twice as long as the first octave, as each octave is twice as long as the one before it.

Finally, the "perH" field is used to say how many samples there are per waveform cycle in the highest octave. The "perSec" field is ignored.

An 8SVX form must have a VHDR and a BODY – these are required chunks, but it can also have optional standard chunks. And like any IFF FORM, it can contain non-standard

chunks too. (Look back at November's Code Clinic for a reminder of what these terms mean.) Your program must skip over any chunks it doesn't recognise, not just guru out. If it does that's your fault.

Three common property chunks are "NAME", "(c)", and "AUTH", which are text chunks used to hold the name of a FORM, its copyright details and the name of the author. Because they are property chunks, each type should appear at most once.

There may also be one or more "ANNO" data chunks, holding text annotations typed in by the author. Frankly, ANNO is very rare in 8SVX files, but you could well see them in other FORM types.

Finally, let's have a look at the envelope chunks, ATAK and RISE. These are used to change volume factors as a sample is replayed. (By volume factor, I mean that each point is a multiplier of the global volume given in the VHDR chunk.) Each envelope chunk contains one or more "EGPoints". Here's an example:

```
4154414B 0000000C 00440001 0000000B
ATAK..... 00008000 ....
```

This means:

"Start the volume at zero, then over the course of 100 (64) milliseconds slide it up linearly to 100% of the global volume (800000000). Next, over the course of 200 (32) milliseconds slide it down to half the global volume (800000000)".

You know that it has two points, because an EGPoint is always six bytes, and this chunk has a data size of 12.

The RISE chunk does the same of the end of the sample, so if it has, say, three points of 100, 40 and 30 milliseconds, you should start to execute it 170 milliseconds before the sample is due to end.

Next month we deal with musical 8SVX files, which use 8SVX samples as instruments.

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Jason Holborn prides himself away from his keyboards to keep you in tune with the latest news and gossip from the Amiga music scene



Deluxe Music deluxe?

The gossip channels have been buzzing recently with rumours that Electronic Arts are hard at work producing a major upgrade to Deluxe Music to bring it in line with current developments.

According to EA's own Sarah Shepsett, because the Deluxe packages were designed as in-house development tools, they are in constant development. As soon as EA feel that they have a sufficiently enhanced version, it will be sold as an upgrade.

Sarah went on to say that even if an upgrade was to arrive, it certainly wouldn't be available for at least another three months. Version 1 of Deluxe Music became obsolete years ago, so it would be in EA's interests to do something about it.

Doin' the Doo with MusicX

After years of rejection, it seems that the Amiga is finally starting to make its mark in the music industry. Among those now using it is Betty Boo, whose hits include *Where are you baby?* and *Doin' the Doo!*

According to MicroIllusions, Betty is using an Amiga running their sequencer system, MusicX, to produce all of her latest chart hits, including much of her new album *Boo-Mania*. Although Betty was unavailable for interview, it is believed that she is a great fan of the Amiga.



Betty Boo: Another devotee

Betty joins other big names such as Courtney Pine, Jan Hammer and Prince, all devotee users of the Amiga for musical purposes.

All patched up

Sound Quest Inc., the Ontario-based company who produce a range of synth patch editors for the Amiga, have released *Midi Quest*, a universal editor/librarian. The program comes with configurable Midi drivers, integrated graphic editing and multi-instrument filing capabilities.

The program allows you to manipulate synth patch files (sound data files) created by Sound Quest products on both the Amiga and other computer systems. They can be edited to create new banks of sounds by cutting, pasting, mixing and blending patches from other banks.

Music eXtra

It's finally here! MusicX 1.1 has arrived, and already there's talk of even more upgrades in the pipeline before the big one arrives - Music-X 2.0. This latest release has been floating round a number of UK and US recording studios for several months now, but at last it's available to Joe Public.

The first thing you'll notice about it is the fact that it no longer works on a 512k Amiga. OK, you can load the thing in, but don't expect to be able to use it - all you get is loads of "Out of memory" requesters every time you try to do anything.

When you first load it up, things look virtually identical, but that's not to say MusicX 1.1 is nothing more than a few fixed bugs. No stress, MicroIllusions have included many new features to further enhance what is generally regarded as the Amiga number 1.

The really good news about this new release is its price - MusicX 1.0 would

have set you back \$230, but MusicX 1.1 has been launched at \$150. Existing users can upgrade from 1.0 to 1.1 for just \$20. Give MicroIllusions a call on 0480 496497 for more info.

New MusicX features

Multi-serial capabilities: MusicX can now talk to up to eight serial ports simultaneously (using a serial port expansion card such as that available from ASDG, Inc.) in both directions, which allows it to address a theoretical 128 Midi channels simultaneously.

Event sculpting: Just like Passport's *Master Tracks Pro*, you can now sculpt note velocities, continuous controller values, aftertouch, pitch bend and so on using the mouse.

Drag the mouse across the bar editor screen and MusicX will redraw a continuous series of controller events to conform to the mouse's path.

View controllers: You can now choose to display one type of controller at a time, or all controllers simultaneously.

Velocity flattener: This works just like the MusicX velocity scaler, except that it sets the velocity to a constant value which can be ramped or randomised.

Lock channels: It is now possible to lock the current Midi channel from within the bar editor, which makes it easier to selectively edit data for a particular channel from within a multi-channel sequence. This is a bit like a musical equivalent of DPaint's stencil function.

Sample tuning and envelope editor: Sample envelopes and tuning can be edited in real-time while sequences are playing.

Play sequence events: MusicX will now automatically stretch a play sequence event to the full length of the sequence that it is to trigger.

Budget showdown

This month we start a two part com-

MUSIC

parison of MicroIllusions' MusicX Junior and Passport's Trax sequencer. Both are competitively priced, but which is best for you? Let's start with a look at the most recent arrival, Trax.

This is being distributed in the UK by MCM (071-724 4104).

America software house Passport have never until now been particularly active on the Amiga. In fact, until quite recently the only thing they had to offer Amiga owners was Master Tracks Pro, a professional sequencer with a price tag to match.

Now, after almost a year, Passport have finally released Trax, which is substantially a cut down version of Master Tracks offering the same Mac-like user interface, with powerful editing and composition facilities.



Trax basics

Trax offers 64 tracks of realtime recording which can contain up to 16 channels of Midi data. It uses the same tape transport-type controls used on just about every other sequencer. Just select the track you wish to record to, click on the Return button and start playing. Trax then does the rest.

Once a sequence has been recorded you can set both the channel which the track is to be played on and the synth program number it is to be played with. For rhythm parts, you can loop tracks simply by clicking on the loop gadget for that particular track - which is much simpler than the MusicX approach.

All the rest of the track operations - delete track, copy track and so forth - are pretty standard and are selected from the pull down menus. Surprisingly, if you wish to extract particular Midi events this has to be carried out from within Trax's sequence editor.



Sequence editing

Editing of sequences is carried out from a MusicX-like Step Editor which displays notes as horizontal bars, their varying lengths denoting note duration.

Editor modes are draw (add notes with the mouse), select (highlight a block of data), erase (click on notes and they disappear) and keyboard, which allows you to add notes in step time using your Midi keyboard. You can also scale notes' velocity and duration.

An extra editing facility allows you



Trax uses the now familiar tape transport controls

to edit the Midi data for a particular event by double clicking on the note in question. This brings up a requester that lists the event's attributes as Midi stream data - a bit like the Event Editor in MusicX. Just click within one of the fields and you can change it simply by typing in the new value.

Quantisation is particularly well handled by Trax. As well as the usual facilities, it lets you to shift notes slightly away from the quantisation grid, therefore allowing you to play a sequence slightly ahead or behind the beat.



Song creation

Most budget sequencers leave a lot to be desired when it comes to song creation. Indeed, even the professional version of MusicX doesn't offer any real form of song editing (PlaySeq events don't count!). However, Trax has shown them all how it's done with its dedicated song editor.

Almost identical to the one in its big brother, Master Tracks, the editor builds up a song by manipulating the available tracks in terms of measures. Each track is displayed as a number of graphic blocks, each block representing a single measure.



The new Velocity Flatten module lets you set the velocity of selected notes to a constant value.



Songs are built up by arranging measures within the Trax Song Editor. This option alone makes Trax something pretty special

These blocks can be moved around and new sequences created by cutting and pasting down blocks from other sequences.



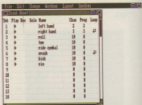
Conclusion

Trax is a darned good sequencer capable of handling the most demanding sequencing tasks. But for a program that is aimed at the amateur musician, I just can't understand why Passport didn't build in support for the Amiga's sound chip. After all, not all of us can afford such luxuries as multiple sound modules, samplers and synths.

The editing facilities are second to none. Both the Step Editor and the Song Editor are well designed, powerful and above all, easy to use.

If terms of raw sequencing power, you couldn't really ask for more from a budget offering. But it's the lack of sound chip support that really lets it down.

WRITE TO ME! If you're a musician who uses the Amiga, Amiga Computing wants to hear from you. Whether you've got something you'd like to get off your chest concerning the Amiga and music, or you've got a handy hint to help other musicians get the most from Amiga music products, get in touch.



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This HORSE RACING software was used to select the 1001 NORTONS COIN outsider in this years GOLD CUP. Data for this program requires the RACING POST. An INTERNATIONAL version is available for AMIGA & ATARI computers using the DAILY MIRROR for data on UK races.

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Before you enter the alienesque landscape of the alternative reality that is comms, Armitage has some really helpful advice



COMMUNICATIONS

OK, so you have your deck and you have your sax. Or to put it another way, you have a modem and you have some comms software.

If you have been smart and listened to what I've said previously, your deck will handle at least 2400 baud, and the software will be a PD/Shareware package such as Noamm, Access! or JRCcomm.

Hold on there. Maybe you are still not convinced. Maybe you're chicken. What's worrying you? Phone bills scare ya? High price of equipment? Tch. Pathetic. Don't tell me you believe all the nonsense the Powers That Be spread?

Phone bills need not be a problem. OK, so it's not free. But what's? Even the electricity which drives your Amiga costs money. If you are sensible (or tight) you can get online several times a week and still have change from a fiver.

In fact, you could probably buy a few fubes with the change as well. It's only expensive if you want it to be.

You always have control. Remember that.

Expensive equipment? Of course it is. Just like buying a motorbike. You could spend twelve thou on a Bimota. Or you could spend four hundred on a second hand 1982 GP2500. It's up to you.

A few words of warning regarding second hand modems. You'll find that quite a few fellows are waiting to dump their equipment to help finance something more modern. As a result, you will surely be tempted with offers such as a 300 baud deck for less than fifty pence. Think carefully!

Although fifty quid is not (relatively speaking) a lot of cash, the fact the deck runs eight times slower means your phone bill could be eight times bigger too.

OK, so if the offer is just too good to refuse, and you only want to try comms out to see what all the fuss is about, then go for it. You could always sell the thing to some unsuspecting comms-virgin later, couldn't you?

Comm scan also be a good way to meet people - here a user is engaged in banter with a comms junkie in the states.

```
Send QLM to Nite Mare, port 2 (n/y)? Yes
RETURN when finished, Max 5 lines:
" As you can tell by the line noise!

[Feedback, Delay, Off, Files, Status, Line, Word, Close] ?-Menu
Main: M

PR User Name      Login  CPS Hide From      Where
=====
1 Green           8:42  248    Recalled (ely, Quest) Rain
2 Nite Mare       7:45a 248    Waterford, MI      (N) Unmessage

[Feedback, Delay, Off, Files, Status, Line, Word, Close] ?-Menu
Main:

*** QLM from Nite Mare (port 2)
This is fascinating. You're actually calling from England also? You work on
1600... the mysterious English... European... ahhh... something like that,
counterpart? MCM.
Press any key...

Main: QLM
Which port (ask!!!)? 2
Send QLM to Nite Mare, port 2 (n/y)?
```

So you have your deck and sax. What next?

Cables. Is your Amiga talking to the modem? This should not be a problem, as the good old 'miga sports a decent RS232 port. Plug in and go with any standard cable.

If you are having probs, check the pins. They are usually sensible, and seldom require more than a transmit line, a receive line, a ground and an acknowledge. Easy.

To connect your deck to the national phone network, you need a new-style BT socket. If your house is still fitted with the horrible 1/4 inch jack plugs, ring up BT and crackle at them.

Tell 'em you have static. Tell 'em you can't hear your dear granny when she calls. Chances are the first thing BT will do is change your sockets. Worked for me.

Most modems will auto-dial. This means when you plug 'em in instead of the phone, your computer will dial the BBS numbers for you. No phone button punching required.

If not, or you think you may want to use speech occasionally, you'll need to connect your phone as well as the modem. Some modems have through ports for the phone, but if yours doesn't a splitter from your local fanny will solve this problem.

If might be worth your while getting an extension cable too. Setting up your computer in the hall so you can use the phone is not fun, especially if you hail as is cold as mine.

Finally it's time to go. Pick a number from the list overleaf, and check to see that it's the right time, if the board says it's 24hrs you can't go wrong.

Copy the number into the Phone Book part of your comms software. Then go for it. Dial it.

If you are lucky and get online first time, let me know. I have never seen it happen. More likely you will hit an engaged tone, the baud rates won't match or it just won't work.

I know how you feel. Keep trying!

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When you get your bank account statement or a balance from an autobank machine you can confirm it with PFM quickly and easily. Simply select PFM's unique "Auto Balance" option and type in the balance as given by the bank and PFM will attempt to balance and highlight entries that have not yet been processed through the bank.



Home Finance Program By Peter Veale.

Here's what the critics say:

Amiga Version by Dan Lennard.

"PFM is one of those rare programs with which it is easy to feel comfortable from the first time you run it."

Ron Massey, ST USER

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ST UPDATE.

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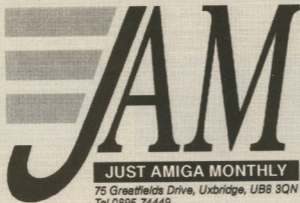
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JAM is typeset, laid-out and produced on an Amiga 500 and an Amiga B2000 -- living proof that the Amiga is ideally suited to serious pursuits other than playing games. **JAM** concentrates on the applications and programming side of the machine, never afraid to go in-depth when the occasion calls for it.

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Nic Veitch takes a look around at what's going on in the expanding DTP world and tries to mention someone other than his friends at Gold Disk

The world of DTP, resting as it does upon the crest of the wave of new technology, is an ever changing place. Someone's always developing new whatifs that makes some process easier or something like that. As soon as you become proficient you become outdated - there is a constant state of flux that must be ridden even as something mythological probably had to be. Anyway, on with what's going down.



Price war

I don't know, some people don't know how lucky they are. First of all we give away a very nice demo on the coverdisk and now Gold Disk have dropped the price of their famously wonderful Pagesetter II.

What happens? We get complaints. Well, okay, we got an awful lot of letters saying how wonderful the demo was and all that, but there were one or two dissenting voices. One guy wrote in to complain that he couldn't place text at an angle. Well, I mean, I'm so sorry. We must have overlooked that. The fact that the only DTP package (but not for long) that can do this is the very latest version of Quark Xpress is neither here nor there.

The point of all this is that Pagesetter II is now available for around \$53 from HB marketing (0753 686000), or if you have no joy there I believe Silca Shop (081-309 1111) can do you a deal. It is not only the best value DTP package for the Amiga, it is the only one specifically designed for those of us who don't have a Class 1 laser product at the other end of the parallel cable. Other price



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restructuring effects Pro Page V1.3, now \$169 ex. VAT and the Outline Fonts package, now \$108.75 ex. VAT.

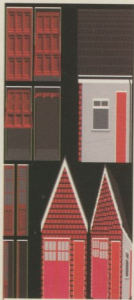
Gold Disk have brought out a new range of scalable fonts. Aimed at more specific areas than the Outline Font pack these fonts are once again licensed from AGFA, the world's largest producer of sizeable fonts.

Four packages are available at the moment, each containing three fonts. It is possible to use these fonts to create a statically sized bitmap font for use in any Amiga software which uses workbench fonts (i.e., a lot of wordprocessors, nearly all art packages...).

The four packs (Designer, Publisher, Decorative and Video) will be retailing in this country for around \$35. Font aficionados are reminded that Gold Disk have a library of over



Price cuts across the board for Gold Disk products



Examples from the new range of font packs from Gold Disk

100 Compugraphic fonts which can be ordered direct. For more information contact Gold Disk at their new offices in Ontario on (010) 4166024000.



Clippin'eck

One thing that's always useful when dabbling with DTP is a nice spot of clip-art. According to Diskotech 80 per cent of Amiga owners in this country have one or more art packages, and clip-art isn't necessarily restricted to DTP.

Hopefully trying to be of help when at the last minute you find yourself 400 words short with a space to fill at the bottom of Page 60, these people have put together what could be the first of many "oven-ready" disks of useful stuff.

House builder, apparently, is a comprehensive library of many graphic elements which can be combined to reproduce, in correct colour and scale any house of the present, past or conceivably the future. There are over 750 graphical elements to fool around with.

All the pieces share the same 32-colour palette and general scale for ease of compatibility. The houses can be combined with some of the customising clips such as catflaps, satellite dishes and the like to create truly individual pieces.

House builder comes on two disks with a manual including tutorials and is available for \$30 from Diskotech.



Professional DTP

Yes, it's Gold Disk again. I know what you're thinking but can I help it if they seem to be the only active people in the world of DTP. I mean they don't get all this coverage because of cute PR people or anything (sorry Keith).

Well, it was in the wind wasn't it? First Pagesetter got seen to, then Pro Draw had a spring clean, now it's Pro Page's turn. Although copies have not turned up for review yet I think I can pass on some of the information we have received from Gold Disk.

Improved features will include style tagging, rotation of text and graphics, automatic page numbering and faster PostScript generation. The really big additions will be 24-bit colour support and Pantone colour matching.

Pantone is almost another industry standard. If you talk to your local printers they will understand all about it, or at least have heard of it. This addition means that you will now



DESKTOP PUBLISHING

be able to define the colours and rest assured that they will come out exactly as you specified them. Style tagging is a real boon too. Just imagine. You can set tags on the copy before you read it into Pro Page. No more messing around waiting for the screen refresh just because you had to set a crosshead in a different size. No more relentlessly searching through oceans of text looking for the thing that was supposed to be in italics...

Pro Page will now support 24-bit colour files, such as those produced by ray tracing packages, scanners

etc. This means they can be imported into a document and separated to their original colour depth.

Just because you can't see them very well on screen doesn't mean that you can't print them out!

The ease-of-use flavour seems to be one aspect they are keen on keeping. Every copy will ship with an instructive video-tutorial to enable users to get to grips with it fast.

Professional Page 2.0 should be shipping by the time you read this at the wonderful price of \$395, whatever that gets converted into by distributors here.



House Builder comes with a collection of examples...

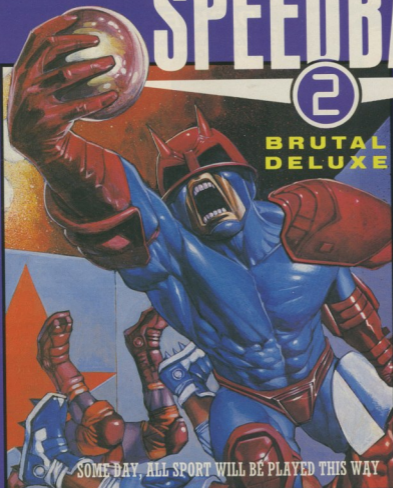


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2

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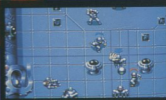
The challenge is this. Take control of Brutal Deluxe, the worst team in Speedball history, and turn them into champions.



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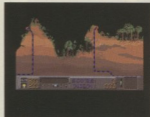
TRAINED ASSASSIN

This blockbuster combines the best features of some of the most popular games ever to have appeared on the Amiga.

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It features five action-packed levels with different varieties of scrolling and gameplay, with the fifth level guaranteed to raise your joystick's temperature by a few degrees (if not your own).

"Trained Assassin is of a standard that could probably survive unaltered in a real arcade - few games could manage that". - Stewart Russel, Amiga Computing.



RAIDER

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Money? Get back. You'll be alright Jack with Paul Austin looking after your stack. Swop your jeans and T shirt for a tie and biro and bravely enter the world of corporate finance

THE Amiga's brilliant sound and graphics capabilities has in the past tended to mask the contribution it can offer in the business field. But now more and more business-orientated software is introducing it into Britain's offices.

Aimed a little lower down the market than the accounts office is Personal Finance Manager, a powerful database with full Workbench compatibility which will hold an account only limited in size by available memory.

Although theoretically huge, and certainly useful for a small business, it has been designed on a much more personal level.

After setting the starting balance for the account, alterations are made via transaction forms. Account entries and standing orders are the means by which changes in your balance are made, for example when you go shopping, or perhaps a monthly loan repayment. Consequently you have to keep all receipts so you can keep

your account up to date.

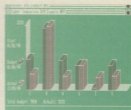
Entries can be checked against a formal statement or deferred, this being displayed in the program, making balancing your statement much easier. Checked items are denoted by a tick next to the relevant entry. All entries are automatically ordered by date.

Standing orders can easily added to the account. These orders can already be in operation, for instance, say if you have a loan running at the moment and you wish to add to the account simply enter how often, how much and how long the loan has to go, and the account will then reflect the debit from the balance when the amount is due.

Orders can also be suspended if required, but when the suspension is lifted all outstanding payments will be made. Also variations in the amount due can catered for, such as a change in the mortgage rates.

Balancing the account is made even easier by **Reconciliation**, a pro-

BUSINESS



Budget comparison bar chart: What you see is what you've spent, and what you thought you would

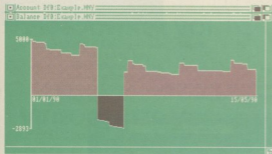
cess by which the program will automatically balance your account over a definable period, deferring payments until a match is achieved with your bank statement.

Deferring transactions can also be carried out manually. This simply suspends any particular transaction from appearing in the present balance, but does not remove it from the account. This can be done when the transaction has cleared.

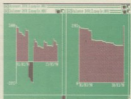
It's also possible to set up a budget by using code letters when entering details—for example, L for loan. A set amount can then allocated to each category. These can be displayed in numerical or chart form showing actual and budget amounts.

Ten separate categories can be created which can be separately fil-

Balance display chart: Now that's what's known as a bad patch



Double graph: Take a closer look, or compare last month with this



tered for individual analysis—useful for finding out exactly where all your money goes and why.

If more than 10 categories are required—say one covering car spares for a year—simply enter a separate code letter for each entry concerning car spares and when the analysis is required after one of the filter codes to the designated code and filter the data in the usual way. The result is a detailed account of all spares expenditure over the last month, quarter or year as required.

The real power of the program begins to show when using graphs and charts. Each of the component parts can be displayed in a pie chart format showing spending on a specific budget. Also a budget comparison is available as described above.

The account can also be displayed on a bar graph showing the account over any predetermined time period. One month's graph can be displayed alongside another, both using the same graph format and thus the improving analysis. You can see at a glance any major change in expenditure.

Each of these screens and graphs can be displayed at once via Workbench style sizable windows. The refresh rate when resizing a window isn't very good, but it is sifting through an awful lot of data. Different time periods can be displayed in each graph and up to five separate windows can be on screen at one time.

Printouts are available (and standing orders), either of the entire account, or over a specified period. The size of the account (and standing orders) can also be pre-specified.

If for example the number of entries was limited to 100, on the one hundred and first entry the program would wrap-around, adding the first two entries together to produce a new starting figure.

A **Goto Date** option will move to a specified point in the account so there's no need to scroll through a long list of account details.

When all alterations are complete the details can be saved directly to disk either under the present filename, thereby saving over the old data or, if required, as a separate file.

I found the program excellent, ideal for personal or even small business accounts. The only problem will probably lie, if you're not an orderly person, in keeping entries it up to date. But if you can change your ways you may change your debits to credits, permanently.

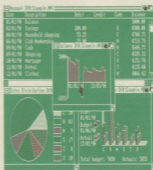
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BUSINESS

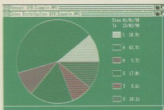
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04/01/79	Club membership	25.00		M
05/01/79	Cash	75.00		H
06/01/79	Shopping	35.43		C
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The main account screen, where facts and figures first appear.



Everything can be displayed at once in dynamically-resizable windows

Pie chart: Cut yourself a slice, and find out who else has



Transaction form: Where all the money hopefully goes in, or perhaps out

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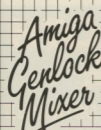

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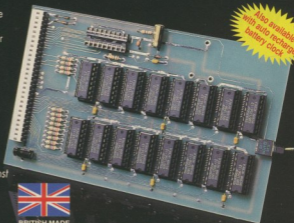
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AMOS genius and insufferable bighead Peter Hickman keeps up to date with what's new and has us all reaching for our joysticks



WOTCHA AMOS freaks, how are things going? Well with the European Computer Entertainment Show and exciting new AMOS projects popping up... things have been really busy this month.

So before I rabbit on with the AMOS news let me just say how nice it was to meet some of you at the E.C.E.S. (I could be found annoying everybody on the Mandarin Software stand). All of your comments were very much appreciated and I will try and incorporate some of your suggestions into this column.

A couple of you said I went too fast in the first instalment of our ongoing write-a-game series, especially Peter "Baby Bear" Lee, who thought I tried to squeeze too much in. Oh well, I think I've gauged this month's part of the AMAL tutorial to the correct level.

I New for AMOS news. Here is a bit exclusive straight from one of Mandarin Software's programmers: Fun School 3 - the top selling series of educational programs written with AMOS - is being converted to work with the Commodore CDTV (gasps of shock and horror).

What future implications this has for AMOS users is currently the subject of much speculative comment and I cannot say any more 'cos I've been told to keep my big trap shut! (I just hope the CDTV sells in big numbers.)

With AMOS 1.2 finished (get your copy of the update disk from the AMOS PD library, phone Sandra Sharkey on 0942-495 261 for more details) François Lonet has been busy working on some new goodies for us lowly Basic programmers.

The major new addition to AMOS is a new music extension which has better support for converting some of the more complex Soundtracker modules. I don't have a copy yet, but by the time you read this it should be available from the AMOS PD library. Of course François is also busy on the AMOS Compiler which should be available in January (keep those fingers crossed).

Our last piece of news concerns

AMOS 3D. Quite a lot of you asked about the 3D demo which was running at the show and hopefully a fully interactive demo should be available before Christmas in all major PD libraries.

Although the product will not make an appearance until January (busy month for AMOS users) I have a feeling that you can get a sneak preview of it if you turn up at the Computer Shopper Show.

One late piece of news which has just reached me is that Glipper the mad Mandarin monkey made famous by numerous "guest" spots on STOS and AMOS packaging, has finally cracked and let loose with an Ud 9mm at Europa House.

Rumour has it that the demented creature had felt rejected by Mandarin staff ever since the Fun School 3 tiddies came onto the scene. Richard Vanner said: "It's very sad, all he does now is sit in a corner and suck a banana. Perhaps I shouldn't have let him listen to Steve Wright in the afternoons?"

Fortunately nobody was injured in this incident. "Nuff said!



Give it some stick

LAST month we looked at simple movement and animation using AMAL (you did buy last month's issue, didn't you?). Now let's see how to move the little guy with the joystick.

Press the Escape key to jump to Direct mode and insert the AMOS Data Disk (the one with Amsteroids, Magic Forest and all of the other games on) then type;

```
LOAD"AMOS_DATA\MAGIC_FOREST\MFSprite.Ask"
```

We now have the SPRITE file with our little geezer present in memory for us to muck about with. We are going to have to do a bit more typing than usual, so press Escape to jump back to

editor mode and type these next few line which will tidy up our display:

```
CURS OFF : FLASH OFF : HIDE ON : CLS 0  
DOUBLE BUFFER  
GET SPRITE PALETTE
```

OK, now the really hard bit (well it's not that hard, I just wanted to alert you). It's time to design the AMAL program which will make our guy move left and right according to our joystick movements.

One tip I can give all budding AMAL writers is that when constructing an AMAL program I find it best to jot down some notes on a scrap of paper as well as a complete list of all external and internal registers (more about those as we go along) as some strings can become very complicated - just look at Amsteroids.

The first thing we need to do is to set up a starting label for our AMAL program. While this is by no means essential, it comes in handy as a reference point. Remember to type this next line in exactly as it appears:

```
As="Begin:"
```

That wasn't hard was it? Now we need to test the joystick. We can easily do this using two "special" AMAL registers J0 and J1. The first returns a value from port 0 (or the mouse port to all readers who, like me, prefer user-friendlier terms) and the latter returns a value from the joystick port (port 1).

The value passed into these registers by the Amiga depends on which way you move the joystick. By pushing up you will get a value of one, by pushing right you will get a value of 8, by pushing up and right you will get a value of 9.

There should be a simple diagram somewhere around this page showing the values given when the joystick is manipulated. These should make life a bit easier (there are other ways to look at how joystick values can be interpreted but they all involve a bit of binary maths so we will forget those for now).

AMOS



AMOS3D coming soon

OK, type this in :

```

A5=A5+"If J1=1 then Jump Left ;"
A5=A5+"If J1=8 then Jump Right ;"
A5=A5+"Jump Begin ;"
    
```

You will have noticed that when the program detects a movement – either left or right – it jumps to another label. This is because of the way AMAL works – it will only let you follow an "If" statement with a Jump, eXit or Direct command. The last line tells AMAL to jump back to the label we defined at the beginning of the program.

Now comes the really exciting bit, the movement and animation. We need to define the labels Left and Right: which the main part of our AMAL program will jump to if the joystick is moved. Follow each of these we will need to put the commands we want executed if any of the joystick conditions are met. Type this :

```

A5=A5+"Left:Anim 1,(1,4)(2,4)(3,4)(4,1,4)
; Move -16,0,16 ;"
A5=A5+" Jump Begin ;"
A5=A5+"Right:Anim1,(6,4)(5,4)(4,4)(5,4)(6,4)
; Move 16,0,16 ;"
A5=A5+" Jump Begin ;"
    
```

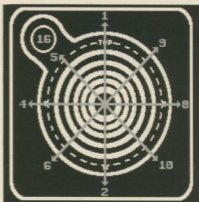
As you can see, we start the line with the Label name followed directly by the animation data. You should always put your animation before movement 'cos AMAL will not execute the next command until it has finished moving.

After we have finished moving the geezer the AMAL program is told to jump back to the label Begin. This allows another set of tests to be made for the joystick movement. Of course, all of this happens 50 times a second (60 times a second in the U.S.A.), amazing huh?

Anyway we have our AMAL string, and now we need to display the BOB and assign its animation channel, so type this (it's roughly the same as in the last issue) :

```

BOB 1,160,100,1
CHANNEL 1 TO BOB 1
AMAL 1,A5
AMAL ON 1
DIRECT
    
```



Value responses for different stick positions

I am rapidly running out of space, so before I go let me give you a quick explanation of the AMAL external registers. These are labelled RA to RZ and let the user communicate with the AMAL program.

One of the best examples so far is Amsteroids – I didn't say the game was that good but it makes excellent use of the AMAL registers.

In this game when an asteroid is hit by your ship it passes a value into an AMAL register which is continually checked by the Basic part of the program. When the value is introduced to the register the Basic program plays an explosion sample.

I'll take you through an example of using registers in the next issue, but for now take a look at the program on the

Cover Disk which uses an external register to tell the Basic program whether the player is moving left or right.

Also on the Cover Disk are some of the sprites from Fun School 3 for you to play around with. A complete set is available from the AMOS PD Library.

Oh, Richard Vanner wants me to remind you all that Fun School 3 is an excellent series of educational programs available from Database Educational Software, but I won't 'cos I'm not getting paid on a royalty basis.

Next month we will explore the mysteries of registers and scrolling (space permitting). Have fun.

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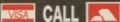
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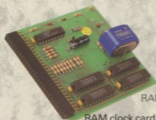
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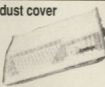
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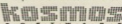
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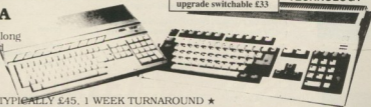
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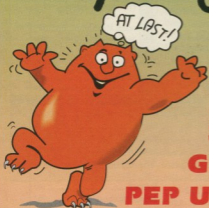
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The Tipster-International

If you are a wild eyed thrill seeker, who lives only to dispatch mutant scum to another dimension, this is probably not the one for you. On the other hand, if you're a level headed type who enjoys an occasional flutter and wants to take a little of the gamble out of gambling the Tipster could be ideal.

The program is designed to be used in conjunction with any daily newspaper either home or abroad which gives good quality racing coverage – the Daily Mirror being recommended for British races.

Unlike most programs, the first thing to do is NOT slam the disk in and see what happens. Read the instructions – it's well worth the effort. This will explain the rather complex procedure involved in entering details for your first meeting.

The first thing to do is to fill in your data sheet, which should contain all the information relating to the meeting and your first race. And I do mean **all** – date, course, going, time, distance, runners and the type of race. A list of all the top trainers and jockeys is also required. And I'm afraid this is just the beginning. Now come the details for each horse.

These must include the trainer and jockey, recent form, weight carried, the age, its favourite soap opera... In short everything that relates to the horse and its recent outings. This must be repeated for every nag in the race, a daunting prospect, but perhaps not as daunting as facing your other half with the news that the housekeeping is still to clear the last of Newmarket.

Once your data sheet is complete, all you have to do is type in your chance to type all the information from the data sheet into

Can your Amiga even the odds? Paul Austin studies the form



The simplest of many option screens.

Here's how things should go.

The tipster bench-test results

Results over a seven day period three races per-day.

21 separate races detailed. Positions and odds.

Best value represents the best each-way bet, as a result best values can be placed anywhere in the first three. All odds are for/against. No third place details available.

Firsts		Seconds		Best value	
1			Shapford 14/1		Kalos princess 50/1
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8	Rami 11/8		Swordsmith 6/1		Swordsmith 6/1
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10	Golden cat 8/11				
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20					Farm week 5/2
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Winning details should be considered as a close approximation. If a \$1.00 bet was placed on the nose of each of Tipsters predicted winners over the sample period, the total winnings would be \$35.00 this includes the return stake of \$8.00 on winning horses, minus the \$21.00 original stake leaves you with \$14.00 of pure profit. Try to contain yourself, you gambling fool you!

Now here's the bad news. If \$1.00 each way was placed on the best value horse in each of the races, I'm afraid a loss of \$9.75 would have been the sad result. \$42.00 stake money with a miserable \$32.25 return.

Keep in mind that the bench test was conducted over a relatively short period when making your judgement on the program. Perhaps with the required effort you could see some results, but you would have to be very keen on the Gee-Gees, either that or very greedy.



Graphic representation of predictions.

Try to control your excitement

your Amiga. I'm told that, with practice, the required info can be entered directly into the machine from the newspaper at a rate of four races per half hour.

The program operates via mouse and keyboard, options being selected by activating the window via mouse. Then alterations are made with the keyboard. Unfortunately this process must be carried out for every input of data, which means constant jumping from keys to mouse, which dramatically slows things down.

The operating system is a classic case of over design. A straight-forward keyboard controlled file format may not have been as pretty, but a lot more user friendly.

After all the typing and clicking is over, the program makes an analysis of the race, hopefully giving you the forecast for first and second, plus the best value bet available. This can be displayed in forecast, graph, full data and print-out formats. Also all data can be saved to disk if required.

User parameters can also be created. This allows the details for different types of races to be saved on to disk – useful if you feel confident that your system may be better concerning certain races.

Buying Tipster gives you access to the backup service provided by Tam Marketing – monthly news letter, discount upgrades, a Saturday betting service and all sorts of goodies. At a small fee, of course.

THE TIPSTER - INTERNATIONAL
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This is by no means the simplest of programs to use, but if you are willing to make the effort you may be on a nice little earner.

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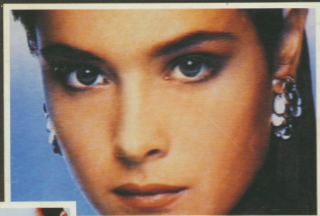
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