

STAMIGA

FORMAT

The complete package for Atari ST and Commodore Amiga owners



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DUAL FORMAT DISK NO 6 ■ DECEMBER 1988

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ST AMIGA FORMAT

The complete package for Atari ST and Commodore Amiga owners



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IMAGE MAKERS

How does a company market itself? Take Commodore and Atari at the PC Show. Commodore's stand, they said, was bigger than any other at the show, and was part of a much-touted IBM promotional campaign to persuade us of the company's size and importance. It coincided with the launch of... Er... Well, the... new Amiga TV modulator.

No one in the computer industry doubts the value of marketing if you want to shift wares in large numbers (Commodore are doing it: 40,000 new sales by Christmas). Surely though, you need something new to sell if you're going to invest heavily in advertising. Where were the 80286 machines, the new KickStart chips, the 1 megabyte Amiga 500, the Commodore hard drive and the new high-res monitor?

Atari again turned their stand into an 'Atari Village', so there was no shortage of new products, but not much room for Atari. When you did find Atari's bit, there were conspicuous absences. This year the company has announced more new

products than most, all of which have been covered by Format, but few have seen the light of day. The laptop ST was originally scheduled for launch at the PC Show, but there wasn't even a model of it. The thing made it showing at last, but only as developers' kit in old Atari PC cases. There was no preview of the pocket PC, due for launch in January. He sees of the Super ST.

We've as here as anyone to see new products (probably lesser as we're trying to pass the message on). We are also sure that Atari and Commodore are among the most innovative computer companies around. Surely, though, a show the size of the PC Show is the ideal place to demonstrate new ideas and keep us coming back for more.

Simon Wilson
Ben Taylor

GRAPHICS



MASTER MINDS

82

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TECHNOPHILE



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LEARN BASIC

95

Number five in our super BASIC series deals with the ins and outs of file handling.



DESKTOP

97

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WORK BENCH

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Table with 2 columns: Game Title, Price. Includes titles like Asteroids, Asterix, Asterix 2, Asterix 3, Asterix 4, Asterix 5, Asterix 6, Asterix 7, Asterix 8, Asterix 9, Asterix 10.

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Table with 2 columns: Pack Name, Price. Includes Amiga 800 Computer, 100KB Hard Module, Colour 100 MB/60KB Printer, 2.5" Floppy Software, 1.5" Floppy Software, 1.5" Floppy Software, 1.5" Floppy Software, 1.5" Floppy Software.

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GAMES

Large table listing various games with columns for title, price, and other details.

BUSINESS SOFTWARE

Table listing business software products under categories: ACCOUNTING, GENERAL BUSINESS, LANGUAGE UTILS, MISCELLANEOUS, WORD PROCESSING.

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NEWS

NO OUTFRAN UPGRADES

US Gold are releasing a revised version of the top-selling ST game *Outrun*, but only for new buyers. Owners of the existing version will not be able to upgrade, though many ST owners have been disappointed with the conversion. Though claiming it is slow and too easy to complete.

US Gold, the marketing force behind *Duress*, have now decided to update the existing version of the game for distribution in the US. According to Pagan McGovern of Probe Software, the software house which wrote the game, they "felt that certain changes were necessary for the US market." McGovern wouldn't specify what the changes were, but insisted they were "very minor".

Steve Fitter of US Gold disagrees, and says the changes actually involve "much better graphics, faster game play and tighter timing to make the game harder".

In the UK, the new version is likely to be distributed as *Duress - US Special Edition*, priced at US Gold's standard £79.95 price mark and shipping from November. This leaves existing owners wondering how they can get the new version, after a disappointing change of heart. Denise Woodard of US Gold's PR Department finally explained that there would be no upgrades available. The original version will be phased out when the US Edition comes on stream.

Probe are currently working on yet another variation of the game, *Outrun Europe*, in which players will be able to race across Europe in a variety of different cars. Single owners can also look forward to the original *Outrun* on their machines "very shortly".

68030 LAUNCHES AT COMDEX

Both Commodore and Atari are expected to launch 68030 or 68030 based models at the Comdex Fall exhibition in Las Vegas this month. Both machines will run the Unix operating system, both will have ultra-high resolution screens, several megabytes of main memory and substantial hard disks. Prices are likely to be high, well over the £3000 mark, and release in the UK is not expected before the middle to end of next year.

The Atari machine, known as the LXK, is aimed at for the general Unix workstation, but with a bit of the graphics workstation market. It will have the same graphics capabilities as the new Atari Transputer workstation, into the Amiga. The 68K will run Unix Version 5 with Windows on top to provide a friendly working interface. The 68030 processor is set to run at 10MHz, and a 68091 maths coprocessor will be fitted as standard. 2M of memory is provided on the

retrieval machine, which also supports a FIM for connection of expansion cards and a SCSI port for hard disks. The spec includes three RS232C ports, MIDI and stereo audio.

Information coming out of Commodore is a little more hazy, but they're known to be working on a 68030 Amiga-style machine which will also run Unix Version 5 and sport 4MB of main memory and a 100MB hard disk. Price could be as much as £20,000. There are also continuing rumours of a 68030 machine on top of this, but no firm launch date has been decided.

Back with Atari, the ST Plus is due to be released to software developers at the end of November in the hope that they will start writing programs with the machine's video graphics and sound features. The Plus is due for release to everyone else early in the new year.

YUPPIE LOVE



Kempston, the well-known peripheral supplier, have just released the new goodies for the ST, with Amiga versions to follow. The £79.95 Oad 1545x is a 130mm wide scanner with accompanying software, which is all you need to scan drawings and pictures directly into your machine. The scanning width is nearly double that of earlier scanners, so you can scan wider pictures in a single pass. They can then be transferred from disk file into a graphics program, Desktop Publisher or into SAMMux, the second new release.

Oad 1545x is a complete ST based personal organiser system, offering diary, storefront, notepad, calendar and graphics report. All the data you enter into the system can be printed out on special Postscript-style paper, and you can still keep a backup in case you loose the paper tape. A reader is not included in the £49.95 price tag, but if you can afford both products you could be the first in your street with scanned photos of your loved ones in your possession.

■ Kempston Data, ST Limited, Forum, Rockingham Drive, Leicestershire, Market Harborough NN14 6LJ 0508 673860

■ Kempston's Oad 1545x organiser and their hand-held scanner. Digitise the one you love for priority.



THE WORD ON DISKS

There have always been a whole variety of applications for ST's, and now you can add 5000.



"5000'S LESSON IS FINE!"
—Bill Gates

replacement to them, South West Software Library has added a complete transcription of the classic King James Version of the Bible to their PD info. The complete files fit on 5.25" disks and include many books from Genesis to Revelations, at an ask price of \$13.00. Once documented, the text is in straight ASCII files, one per chapter, with an average length of 75.

South West Software Library says the disk version of the Bible is ideal for text processing, graphics, printer emulation, speech simulation and lip-synch, as well as its more obvious uses for religious disciplines. While this may be stretching the imagination a little, it's certainly true to say that the text is out of copyright by about 4000 years, and it would be hard to know whose copyright it would be, anyway!

■ The South West Software Library, PO Box 942, Shrewsbury, Dorset SP4 2JD

HAWAII LIVE-O

Worried about your weight?—now your ST can tell you exactly what you're doing wrong, both on ST with a copy of Star Version 2.0 (25% discount), but is one of several programs marketed by Scientific Applications, Ltd. for £. Honolulu, Hawaii. Its author is a qualified MB and provides a complete nutritional analysis with a suggested diet and behaviour recommendations.

Other available are Liverwatch 7.0/8.0/9.0, which documents various factors affecting liver, and Dial-Up (25%), a laboratory analysis tool working on mineral, substances and blood gas analysis. Send money orders in US Dollars—those of a previous destination are welcome to read Europe Solutions for further information.

■ Scientific Applications, 1100 Alana Ave #1002, Honolulu HI 96813 USA
1-808-521-1933

DTP SHOW DISAPPOINTS

The International Desktop Publishing Show was held in the very different setting of the Business Design Show in Kingston, October 1-3rd 1988. An total of 800 games were there, including IBM, Hewlett Packard, Canon and Rank Xerox. You may notice that some of these names are well known in the ST or Amiga worlds and, in fact, the show was bound to have around 800-compatibles and, to a lesser extent, Apple Macintoshes.

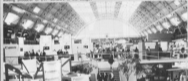
However, SDA, the distribution arm of Silca Shop were trying to sell STs into large companies and had had considerable success with ICL, who have recently bought 50 for a control project. They also claim to be doing well at selling Mega ST, laser printer packages for one-off DTP 'calls' within large organisations. SDA were also showing an early copy of Page Stream, formerly Publishing Partner Professional, which at long last looks near to completion. As soon as there's a version which can stay on its legs, we'll bring you a review.

Microsoft was consolidating its position as a leading producer of DTP software in the budget

sector. Though it had its new products to promote on ST or Amiga, it was pushing the new book by its London-based Desktop Publishing on a Showroom SP-910, which is in effect a set of video tutorials on using all varieties of Fleet Street Office Publisher.

But to be outdoor, 485 were showing off their PC Windows product, together with their hand-held scanner. It's likely that a version of the Laserwin with suitable software will be released for the ST at some time in the future, but no dates were finalised. Also there, the desktop accessories 1070-room outside parking program provided at the May Show show was 'just round the corner', but though we wanted plenty, we again left empty-handed.

There had a jury printer on show which could reproduce at 4056 of the length's 8000 mode screen colours. The 4000 dot per printer does a lovely job, and plenty, but costs over £1000 so won't fit everybody's budget. We hope to carry a review soon.



With the airy surroundings of the Business Design Centre, some of the year's DTP Show

DOWN TO THE C AGAIN

Lattice C, the top-flight C compiler distributed in this country by Metacore, has undergone another revision and entered its 4th version 5.1. This new compiler fully supports the 68000 and 68010 processors and makes comprehensive chip, user linker, machine-

coded library routines and a checker to the existing 68010 standard.

The Lattice Screen Editor is now included in the package but remains as noted when version 4 was released and is integrated with the compiler so that compilation errors are automatically highlighted in the source code. The package also includes a basic-level debugger, CodeProbe, with symbolic and disassembly support. Other improvements include a new global optimiser and a code profiler which will let you know the efficiency of various parts of your program. Enhanced versions have enhanced print, and version 5.0 is £241.

■ Metacore, 26 Portland Square, Bristol BS2 8PQ 00372 429018

AMIGA BOOSTER

Boast of waiting for your Amiga to calculate your latest expense

'claim'? The Amiga Centre Scotland have come up with an Amiga Supercharger kit to help you out. The kit replaces your 68000 central processor with a 14.34 MHz double speed board.

The booster board works with all standard Amiga software, but some programs (games), for example which rely on accurate timing may benefit at the faster speed. There is a software switch to revert to 11.4MHz operation if need be.

Cost of the board and, which runs around 25% speed increase, is £179. If you need real turbo-charging power, you can add a 68000 coprocessor 12 MHz at £103.50 extra, 16 MHz at £150.00. The 16 MHz option claims to run about three times faster than a standard Amiga—but remember these figures will apply to processor-intensive applications, not graphics intensive.

■ Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh, EH1 3JN 031-557 4300

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QUICKIES

■ **Adobe Systems** have come up with a new line in graphics processing. Under their existing Freehand Manager 2 Plus or Animate Manager 2, the ST and Amiga, they have set up separate Freehand Manager 2 Plus/Animate 42 which gives you all the fun of the high-end line with the existing program. You can now change the colour of your lines simply whenever alternative colours occur in your drawing. The new ST version is priced for those who want many more useful options available in the higher sector for a more investment of £11.95.

■ **Lab 616 (01-438 1521)** would have you consider **Super Master** for the tiny, 485K memory in your new ST 486K. Your game designer can benefit quite a lot up to £24 a 64 page and has all the usual mathematical operations, graphics, etc. It's compatible with most BASICs, C and Pascal and also with Pascal, Modula2 and several others on (askpage) Price is £24.95.

■ **Comet (07217 4121)** have updated their GEM remote editor to **2-Resource 2**. This utility handles all the GEM jobs in a high-level program in any of the leading languages and works with medium and high resolution screens. You can try it for £19.95 or upgrade from the original for a penny £15.



■ **Digital International** via the month's **Big PP Photo of the Month** event. During 1988, for the chosen face and visually confusing shot, would like us to tell you of their **Photo Assistant** program which is now available on Amiga in only £6.95. If you read our review of the ST version in issue 5, you'll be pleased to know we got the price wrong. They are, in fact, £24.95 on the ST and £29.95 on the Amiga. Please **0295 82000** to order and give the face to make 'smiley'!

■ **Edinburgh** have merged their operations with **Freehand**. Obtaining the new address for all enquiries about **Freehand**, **Master Menu**, **PC Data** and their other products in **Planet Power**, 44 Elmfield Street, Southend SS41 7RH (0224 270000).

PICTURE THIS!

Macintosh-based Graphics have come up as the solution to the problem of printing out the full 4096 colours of a HAM made Amiga picture, without spending £5000 on a special printer - use their method!

They are offering a postal printing service for high quality hard copy of your gems. Having installed a 300 dots per inch thermal printer themselves, they can print any Amiga picture file (scaled 1/3) format from disk, including HAM images from **Photo Paint** at up to 63 size.

Prices range from £6.50 for a low or medium resolution screen, to £12.50 for an A3 print of a HAM picture, including 90 and return postage in a self envelope. It sounds a good way of starting

your own art gallery.

■ **Graphs**, 341 Jordan Street, Southam, Northants PL27 29R (07500 29947)



■ The results of **Grapher's** design gain the printing service - in 4096 shades of grey. Sure the first is a colour page, but the rest things do look very good.



Printer makers **Citizens** have decided to follow up last year's World Wide Fund for Nature competition sponsorship with another, called **Getachess**. The contest is designed for schools, who will devise environmental projects of their own, which can be tied in with GCSE course work. The winning project in each of four categories (three age groups and one for groups with special educational needs) will receive £2000 of computer equipment, with six **Citizens** printers for runners up in each category.

The closing date is 20th May, 1989, and the winners will be announced by 20th June. **Planet House**, **Rayville Park**, **Catshill Lane**, **Gosnearing**, **Surrey GU7 1BN**

ADD-ONS AVALANCHE

Microdeal have released over:



■ **4-player joystick adapter**

more add-ons for the ST this month than there have been months before. Now having **Seymour** make in:



■ **Whichever I keep my mouse, watch my back.**

To take a brief runthrough: **Cartridge port adapter** (£12.95) to allow electronic joysticks to connect extra sites to the ROM port; **Internal and external real-time clock cards** (£27.50); **Stick library loader** will space for 80 disks (£28.95); **Mouse bracket**



■ **80 disk stick library**

for, um... well hanging your mouse on after use (£5.95); **Adapter** to allow two joysticks to connect to the printer port for those increasingly popular four player games like **Testament**

(£5.95); **Extension lead** to bring the mouse and joystick sockets out from under the keyboard (£2.95); and the obligatory **disk cleaner** and **antistatic** mouse mat (£7.95 each).

■ **Microdeal** Box 68, St Asgell, Cornwall PL25 4PB (0750



■ **Mouse/Joystick extension lead**

GETTING FRIENDLY

Our tame Amiga expert, **Jason Hobson**, likes to keep up to date with all new Amiga software. So you can imagine his delight at hearing of a new one, a sample for research was kindly supplied by the **Amicable Amiga Club** for further study - watch next year's **Planet Power** contribution.

In the meantime, it seems only fair to mention that **CD 036** can offer **System 2's** **Blue Protector** if which will test, kill and protect against all known Amiga viruses. This disk, like all others offered by the club, costs a very reasonable £3.50, or 50p if you send your own disk. Seems like a good deal, and free membership is thrown in with your order.

■ The **Amicable Amiga Club**, 125 Arnold Road, **Beaconsfield Estate**, **Nottingham NG2 5AR**



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A green triangle and a red circle are positioned between the letters 'B' and 'N'.



VIDI ST



Real-time frame grabbing on the ST is no longer a rich man's sport. Rombos, best known for their Amstrad-computer peripherals, have just introduced a budget video digitiser. Richard Monteiro grabs some pixels.

£99.95 ■ ST version reviewed, all models; Amiga version due ■ Rombos Productions, 107 Raeburn Rigg, Livingston, EH54 6PW (0506 35044)

Not another video digitiser? Yes, but this one's different. It's cheap and it offers real-time frame grabbing. Something ST owners do without unless they can afford a videobus £250 for Star's 588. Rombos Productions aren't a household name in the ST and Amiga world, but — as any Amstrad CPC, PCAT or PC user will tell you — their products offer performance at a very reasonable price.

The digitiser box, which plugs into the ST's cartridge port, features a phone socket for video input and brightness and contrast controls. A connecting lead with male phone and male BNC plugs is provided. Although this may not suit your needs, it's encouraging to find something provided. Like other digitisers, VIDI requires a video camera or recorder as a picture source.

The accompanying software uses pull-down menus and icons at the bottom of the screen to control the hardware, but the default settings are sensible and you can digitise or save at

you're got the system running. The digitiser will display screens at up to 25 per second — fast enough to grab application pictures from video cameras and recorders without any loss of image clarity on the monitor's screen. You don't get an image 'tearing' with VIDI.

The device system was at an advanced stage of development but expects further enhancements and additions in the production version. Check the panel for what's promised.

Grab 'em

Digitised images are displayed on screen in 16 colours, but these are used as a form of grey scaling, not true colour. Four palettes are provided which range from mainly whites to pale blues, and a user palette can be applied if you're unhappy with the predefined colour schemes. Changing the user palette is far from satisfactory: you have to load a Digpro or Macintosh picture file containing the particular selection of colours you want in your palette. You need your

own copy of one of these graphic programs to produce the picture file.

Running grabs are displayed on screen and stored in memory. When memory runs out, the first grabbed image is replaced by the most recently grabbed one. The guarantee that the last few seconds of action will always be in RAM. An ST520 can store eight frames, a 1040 24-frame, a Mega 2 16 frames, and a Mega 4 170 frames. Each frame is 128 lines. Frames can be saved and loaded, in either Digpro or Macintosh format and you can use either of these programs to tidy the images.

Brightness can be set to any of eight digital levels from within the software. This doesn't alter the video signal, but modifies it within the machine. Analogous contrast and brightness adjustments are also possible through the hardware controls. The advantage of using analogue controls is that the results can be seen as the frames come in. With software controls you have to keep going through the 'set controls' grab images, set controls' cycle until the picture on screen is acceptable.

Other grab options let you dig the single or multiple images, set the time between grabs to 25ths of a second and set up an interval screen. The most interesting of these options is the alternate. You specify how often an image is to alternate real-time frame grabbing (and remain on screen). This is useful, presumably, in displays when you want something to appear every now and again.

Through the square window

You can grab in the screen through a predefined window. Mark out a section of the screen — anything from a few pixels to its whole area — and hit the digitise button. Unfortunately the software doesn't automatically store

AMIGA VIDI

Available around Christmas. Or early next year find out more information on the Amiga. The hardware is ready to be added to the ST version. Rombos will start work on the Amiga package into the ST software is out of the way.

► The great VIDI ST. The ugly (from left to right) — top row: Romy Dean, Robinson, an impressive Gordon Druce, Richard Monteiro, Mark Highton, Ben Taylor. Against the Amstrad digitisation army — Bill and Simon Williams.





■ Hook the camera to Vidi and start grabbing.



■ Several grabs and palette changes later, the final picture.

gain taken through windows; you must use each frame individually or paste the important bits of it to the clipboard. Neither technique is ideal. It would be useful if Rombos changed the software to allow you to animate windows etc. from your own programs.

The fun really starts once you have a memory full of digitised pictures. RAM contents can be displayed on screen at almost any rate. Screens flipping autorepeats to once all screens have been shown. It goes back to the first, 'Source' and returns

animation are not supported. Images can be placed in a carousel and viewed, though - the effect is similar to various image slide-show programs.

Screens can be sent to a printer using the GEM screen dump routine - though a decent printer driver system should be installed in time for the Atari show. This will allow you to dump full screens and the contents of windows.

Vidi verdict

If machine code files is provided which offers simple access to the Vidi hard wire, you could use this in your own programs to grab screens - or even write your own frame-manipulating software.

Although Vidi isn't 100% complete, it outshines any other digitiser available for the SE. The software is friendly, easy to use and powerful - and that's in its production state. Working through windows is tedious, costly, and highly tedious allowing you to animate windows/grabs will come with the release software. The manual is useful so it's just as well the software is intuitive.

Vidi offers much for comparatively little cash.

TECHNICAL DETAILS

Vidi consists of 18 computer-generated screens including a 300x200 pixel, 18-frame image.

It has extensive digitiser image the image into a 256x256 pixel image. The complete picture is grabbed to an internal frame store (RAM is 256 kilobytes). The interface can detect window calls either over or into frames. The screen buffer is run during continuous grab sessions.

WHAT'S TO COME

Vidi isn't in its final form yet. It should be finished shortly before the Atari Show. According to Megas, Sharp and Rombos these are the features you can expect in the final version.

- The box housing the hardware will be reworked. Presently not only the two new 525 and 1040 cartridge ports, the port in Megas and old SEs is hard to use.
- A new option will allow all grabbed frames to be displayed on screen at once, in a much reduced format, and the required frame digitised full are simply by clicking on the camera image.
- ZIP files will be provided to allow that compression software support is provided in along with GEM and file handling.
- A program window containing red, green and blue filters may be provided for grabbing frames in full colour.
- Pointing facilities will be similar to those in Vidi PC; any portion of the screen can be marked and dumped in any size from a dot screen by a dot grid to 44 dimensions.

Other additions include grabbing images outside windows as well as inside, changing palette colours via sliders, data-time setting and help options.



■ Captured, the Ferrari office. And, window-grabbed, Jason (the guy who enters the office back a screen) and Richard (who helps him).

for

- Real-time grabbing
- Images can be grabbed into user-defined windows
- Macintosh and iMacintosh formats are supported

against

- Terrible manual
- No picture-editing tools

Features

1 2 3 4 5

performance

1 2 3 4 5

ease of use

1 2 3 4 5

manual

1 2 3 4 5

format value

1 2 3 4 5

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Screenshot on C64



Screenshot on C64



Screenshot on Amiga



Screenshot on C64



Screenshot on C64



Screenshot on C64

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HYPER PAINT

Atari have set out to create a line of integrated 'professional business software' worthy of official approval for the ST. HyperPaint is the first of the series to emerge - Ben Taylor assesses the Hyper series hype.

IMG FILES

STU has got a little-known but increasingly important picture format. It's the IMG standard picture files on IBM PCs, but since HyperPaint was shown released on the ST the format never took off.

The virtue is that the data is stored in a format independent of the screen size. You can have images larger than the screen and only the parts that are stored, so small images take only a fraction of a 640x480 space, rather than wasting 300 as a blank screen.

With the advent of laser writers, IMG files are becoming popular, since they can store pages of data at 300 dots per inch - far too many pixels for a 640x480 or Neochrome screen.

Atari ST series aren't exactly starved of art packages. There's Degas (still commonly accepted as the current 'standard'), Neochrome, CyberPaint, Spectrum 512, Quantum Paint, EasyDraw... the list goes on. So where does Atari's offering fit into the scheme of things?

HyperPaint aims to provide Degas-level painting functions, and can work on any mode of ST from a 512 to a Mega, in low, medium and high resolution modes. The version reviewed by Format was a pre-release copy - there was no manual nor any of the traditional glossy sample screens that traditionally accompany

art packages, but nevertheless the menu system proved simple to follow.

All formats

The screen layout has a menu bar with three headings along the top, and a toolbar strip down the left side. The colour palette (16, 4 or 2 colours depending on model runs along the bottom of the screen. All this reduces the actual drawing area, but the [F6] key will hide the menus and reveal the whole canvas.

To keep screen clutter down, there aren't many menu headers or icons visible. Rather than 'Draw',

'Text' or 'Brushed' in the menu bar all the functions are lumped together under one 'Options' menu. This runs counter to the WIMP philosophy, and more meaningful menus would have been nice.

Similarly, there is only one 'Draw' tool, with which everything from lines to circles, rectangles in Fill Menus are created. Double-clicking on the Draw icon brings up a menu, and you click on the kind of object you want to draw.

You can alter the format of a picture file at any stage. HyperPaint can store data in Neochrome, Degas and Degas Compressed format, or the GEM/IMG format. The last category is used by PC GEM programs like GEM Paint, and since the ST can directly read PC 3.5" disks it may be useful to you. It is perfectly feasible to load a compressed Degas picture and save it out as a Neochrome image, or any of the others, so you've got a complete format conversion utility built in for virtually any image file you may find on a public domain disk. The only exception is Amiga 1P format - you can't directly tap the large body of high quality artwork created in Amiga.

Screens and brushes

HyperPaint has several different screens you can work on. A 520x512 can work on up to three different pictures at once. 1040x and Mega can have ten. Each picture is independent, and has its own palette. A touch of the cursor keys will flick between the screens, forcing a simple animation.

Another animation effect is possible by using colour cycling. This is the now-standard technique of rotating the colours in the palette - you can choose the number to be cycled, and how fast, and if chosen properly you can make a 'waterway flow' as the colour shifts.

■ HyperPaint can read and edit files in Neochrome, Degas, Degas Compressed or IMG format as used by GEM/PCs. Here are three classic shots from our package, including the GEM Tigen.



■ You can zoom in to a picture at any magnification from x2 to x16

HyperPaint's range of brushes is good. You're given eight standard brushes for drawing lines and shapes with - small dot, cross, vertical bar and so on. You can edit any of these and save them for later use. The most powerful feature is an Angerbrush brush for block copying. You can mark any area of the screen - rectangular or hand-clipped with the 'Lasso' tool - and use that area as a brush. This means that clicking the mouse button produces a copy of the block at the current screen position, and also that sweeping the mouse around with the brush active creates a long series of the chosen area. Drawing a line with a custom brush like this is pretty handy as a 16-colour screen, although it becomes smoother in resolutions and is nice and smooth-on a hi-res mono monitor.

If you change to a different workstation, the standard brush stays active, so this is a real way of cutting and pasting between pictures.

HyperPaint has the full range of standard features. You can rotate, stretch or reflect any area of screen,

you can adjust any of the colours on the palette and the Lined key contains windows with transparent fills that go wrong. These operations all work quickly and efficiently.

Zooming in

You can work on your screen at 18 magnifications from normal to 18 times. In low resolution and highest magnification this means the screen is filled with only 20 pixels, so it's pretty detailed! The reason for the massive zoom is that with 1MB files you might be editing a 100 sub-pixel image destined for a 32P (jack) slot and output to a laser printer. The high resolution editing is a major advantage of HyperPaint.

One annoyance is that when working on a zoomed screen you can only draw in pen-mode. The other pen-ops items can't be accessed as the menus are so large on the screen. It would have been nice to be able to use the enlarged view to crop a block very accurately with the free-hand red tool.

The word

To put text on a picture, you click the text tool, choose a font and type. A selection of fonts are supplied on a separate disk, and a utility program lets you add any other GOSL fonts you may have from DTP, word processors, PD editors and so on. GOSL is simply an extension to the ST's GEM operating system, which among other things allows you to access a variety of new fonts.

Once you've tested your text, it isn't immediately fixed on the screen. Instead, the text becomes the cursor brush like a brush so you can accurately position it for change your mind and use a different font before clicking the mouse at the required insertion point.

Conclusion

So does HyperPaint offer anything new to the ST art community? To the person who wants to knock up a colourful screen, probably not; it doesn't offer the range of colours that Spectrum 512 or Quantum Paint does, although it certainly has all the features of Degas.

Where it does score is in being

able to handle GEM-format 1MB format files - this makes it the best paint package for taking input from other programs for scanners and video digitisers. The high magnification zoom lets you edit 300 dpi pictures intended for high resolution laser printing.

With this extra facility, and pitched at the same price as Degas, HyperPaint looks a very good buy.

HYPER SERIES

The other packages in the Star Hyper series include Microsoft Word and you may also see HyperDraw (drawing package) both due in November and HyperChart (presentation graphics manager) due in December. These will all be able to share fonts and data.

QUARTS AND PINT POTS

HyperPaint is a brain-GEM paint program, which is to say it can display 16 colours in low resolution mode, 4 in medium and 2 in high. Compare this to Spectrum 512 with its 512 colours, or Quantum Paint with its staggering 4096, and it looks fairly humble.

However, unless you are into art for art's sake, there is only a limited point in using a package with so many colours. Because the ST's hardware only directly supports 16 on screen at once, you can't display the resulting pictures (outside the particular paint package). Having more than 16 colours is useless, if you are producing images to export to other software.

Getting those extra colours is extremely difficult. Consider how a picture is displayed: a frame of minimum scan lines and down the screen; you frame consists of 200 lines of pixels, and 50 frames a second are sent to the monitor. That means one complete line of pixels is shown every 1/10000 of a second (every 100 microseconds). The trick that these clever programs employ is to synthesise themselves with the scanning speed of the display. You can only have 16 colours on screen, OK. But when the electron gun reaches the end of one line it flies back to begin drawing the next line down, so there's a very brief period during this flyback (a few microseconds only) when nothing is actually being drawn. The secret is to change the ST's colour palette during the flyback. So, one palette of 16 colours is being used to draw one scan line, then an entirely different palette can be used for the next and other screen lines. You can only have 16 different colours per line, but you can change which 16 they are for every line.



■ The variety of shapes available to you is displayed on a selection submenu, rather than as a series of visible icons on the main drawing screen



■ Any part of the screen can be pinned up and used as the drawing brush. This can create interesting patterns like this

for

- Handles Macintosh, Degas and IMG formats
- Simple animation between 10 screens
- Brushes can be any screen block

against

- Can't read Amiga PIF files
- Maximum 16 colours
- No font editor supplied

features

performance

ease of use

manuals

format value

format value



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The bright
eye of this
character
class.



Real ST

Control through
simple commands
and menus.

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CHERRY GRAPHICS TABLET

Mice are nice, but graphics pads are better. Or so Cherry would have you believe. The company has now produced software drivers for ST and Amiga. Simon Williams doctors his mouse.

CHERRY GRAPHICS TABLET
 £632.50 ■ via HB Marketing, Brooklyn House,
 22 The Green, West Drayton, Middx UB7 7PQ (0895 444433)

The computer mouse is a great step forward in controlling the software on a computer. It circumvents many of the long-winded typed commands that used to be essential for operating programs on micros, but there are still some areas where the mouse falls down. One such application (bearing in mind you need to copy an outline or line drawing, a mouse is of no real use. This is because the mouse obscures the image it is over.

To the rescue

A graphics tablet gets over this problem by providing a pad, or a pencil, which can be accurately positioned on the paper and made to follow a line. The Cherry tablet, first released on the IBM PC, connects to the serial port of an Amiga or ST and takes the place of the mouse in any cursor-control operations. The pen or pencil has a button which by a dip switch sits back on the pad in moved around a large tablet with an A3 working area and a large plastic surround.

The tablet itself works on an induction principle, with small coils embedded in the tip of the pen and the pencil barrel producing flux changes which can be translated into x and y coordinates via driver software. The pad has a higher resolution than a mouse, in the sense that full screen movement of the cursor can be mapped onto the entire pad, allowing more precise positioning of the cursor.

The tablet has a series of selection areas set into its surface, labelled 'copy', 'lay', 'copy', 'pan' and 'file. These are a remnant from its initial purpose as a IBM PC peripheral, and refer to one of the main CSD programs available on that machine. There is currently no ST or Amiga software that supports them, which is a shame as it expands its potential.

A general manual is supplied with the pad, but the only extra documentation is a single photocopied sheet for ST installation. Documentation files are provided on disk, but at the price it's not too much to ask for a



■ The Cherry tablet with power supplies to fit any socket

supplement to the manual.

The Cherry pad is certainly good, but it will probably be outside the price range of most people. For non-drawing functions the mouse is more natural to use anyway.

ST AND AMIGA DRIVERS

The ST driver takes the form of a GEM Desk Accessory available from within any program supporting GEM, so you can toggle between the mouse and the pad at any time. The driver runs happily from within graphics programs like MacDraw and Degas, though we did have some trouble switching between the cursor screen and drawing screens in Degas. There's also a slight niggle in the driver when you first set up the application, as the operating system automatically reverts back to the mouse for cursor control. You have to establish the pad driver to switch back again.

The driver for the Amiga is a program which sets up a small separate task desktop of its own control window for adjusting the sensitivity of the pad and its priority as a task. This can be accessed at any time through the Amiga's operating system, so you can make adjustments while running painting packages and the like.

When running any Amiga program you need to use both left and right mouse buttons. The graph pad pencil only provides one, which can be switched, so it's not too bad that the pad control task runs continuously. However, it will obscure the control window which lets you control the function of the pencil by button from left to right mouse buttons.

The pad itself works well on the Macintosh and from dPaint II and the pencil contains several modes for drawing and marking that the mouse, for general work, though the mouse was still better.

for

- Ideal for tracing drawings or other artwork
- Both pen and pencil supplied as standard
- Inevitably precise use of pad and mouse

against

- Single button on pencil is problematic in Amiga programs
- Takes a lot of space on desk
- Very pricey for home use

Features

1 2 3 4 5

performance

1 2 3 4 5

ease of use

1 2 3 4 5

comments

1 2 3 4 5

format
value

1 2 3 4 5



INSIDE INFO

At the heart of a computer is its operating system, the bit that determines how flexible the machine really is. Commodore are soon to release Workbench 1.3, and Atari are working on a new GEM - Mark Evans looks at the past, present and future of it all.

A BOOT UP?

Waking up in the paper phase that computer begins, use to mean starting the computer (loading). Far from being a complex technique, it is a relic of what passed for genius in the early days of computing. To be able to run programs, computers had to load a special program containing the operating system - reminiscent of the phrase "pulling yourself up by your bootstraps." Hence booting.

Ever since the days of large, mechanical tube-driven computers there have been operating systems - often very simple ones. Basically, an operating system can be described as a computer program which does the housekeeping on the computer's hardware. It checks for key presses, displays the mouse cursor, stores files to disk, sends the screen and so on. In most cases, every time you switch your computer on it starts running its operating system (O/S).

In early "home" computers, the operating system was usually combined with a BASIC interpreter, so you could directly type and run programs. This had the advantage of giving a user an "up-and-running" system as soon as the machine was switched on - necessary because of the usually scarce and expensive disk drives.

WIMP v CLI

Back in the good old days, people did not really worry about how "user friendly" their O/S was, as most tended to be hardware hackers. Because memory was scarce (8K was a luxury!) these operating systems users were often faced with just a flashing cursor for a screenful of O/S's of the period had a simple "Command Line" where the user would type in their commands, and the machine would act upon each of these appropriately. Hence the name "Command Line Interpreter" or "CLI" came into fashion.

As necessary became cheaper, system designers could do more and more with fancy graphics. WIMP (Window Icon Mouse Pointer) environments became available in the early '80's, developed by Mark Arnes at their Palo Alto Research Centre and purchased commercially by Apple Inc. on their Lisa range (named after the boss's daughter). The Lisa could only be described as a "concept computer" - the user was strongly discouraged from typing, and thinking of disks and files, but instead brought into a more interactive relationship with the machine. Programmers ran for the hills, but businessmen ran for the doors.

In fact, the Lisa was not a phenomenal success, eventually being redesigned and relaunched as the Apple Macintosh. Despite its relatively high price, the latter managed to get quite a grip on the market and the imagination of other manufacturers. It still leads the field four years on, especially in Desktop Publishing. The latest Macs Mac II series includes stunning speed from a powerful 68020 processor and built advanced graphics.

GEM and Workbench

GEM - Graphics Environment Manager - was developed by American software giant Digital Research Inc. and was modified

around other WIMP systems of the time, notably Apple's. So clearly was it modified that Apple used GEM over the early versions of GEM for string management of copyright. GEM was, of course, adopted by Atari for use in what was at the time their then 68000 based super-machine, the Atari ST.

However, GEM is only part of the ST's O/S, because GEM is designed to run on PCs, STs, and any machine you care to name, it can't handle the bare metal running of the hardware. The second part of the ST's O/S system is to do files - IOS ("The Operating System" is depending who you believe, "Managed Operating System" after the Atari Corp's president Jack Brennan.) IOS was actually rapidly based upon a much older 68000 operating system, CP/M68K.

Commodore's O/S on the Amiga really consists of several parts parts - "Kickstart" is the system software, which is held in ROM on the 68000 and 42900, but needs to be loaded from disk on A1000s. This is the equivalent of IOS in the ST.

In addition is the high-level general operating system with the multi-tasking control, equivalent to GEM on the ST. Finally, "Workbench" is an Amiga program, just like any user program which controls the user user interface, equivalent to the Desktop program which characterizes GEM's familiar user interface.

The reason Amigas have the bulk of their system on disk, is to allow easy fixing of bugs and development of upgraded versions - see the box for details of proposed future improvements.

ST multitasking

When it comes to multitasking (see box), the ST falls down because GEM doesn't support it directly. However, there are third party O/S's available for the ST that allow multi-tasking and multi-user situations. The most notable are Sahara Software's Allego and Microware Systems



■ The Amiga 500 - a top-selling machine of today which relies on the 68-year old CP/M operating system. Shines but glitters.



■ The IBM PC - or clone systems, it introduced PC-DOS to the world in 1981, a small breaking (or should that be usually, breaking) 16-bit OS.



■ Your old friends - IBM and Amiga! aren't that new really. They have roots going back to the early days of minis.



■ The Apple Macintosh - maybe Gates did the research, but Apple were the first to make MSW systems commercially successful.

Computers, OS-9. Both these only had software written for their specific OS - you can't have 'off-the-shelf' IBM or games OS software running on them.

The Amiga, as well as its own custom multi-tasking, can also run third-party OS's. Amiga is fast runs as quite a few systems, including Hurd, PkKard, Strata, Slog, Planix, Ultima, MicroVPS, Genesis, Genix, Atari ST, Commodore Amiga and other 'computer-to-tablet' systems.

Apart from its multi-user-tasking facilities, Amiga also offers a host of other features, such as its small

workspace, the need for very little disk storage, networking via MIDI and RS-232 or ST and Amiga and the ability to run software on a variety of computers without re-compiling it.

OS9 is similar to Solaris's Amiga in many ways, and is available in many forms, and even as a ROM based system for Mega ST's.

The female Unix

Unix is one of the businesses' associated with operating systems at the moment. Unix is a massive and very powerful OS capable of creating a full multi-tasking and multi-user environment. It was originally written by



■ The Polytechnic architecture, a network of computers running Parthenon's ultra parallel processing operating system of tomorrow.

THE FAMILY TREE

The operating systems of the world are of widely divergent, although this has been around for some time on larger machines, OS/M was the real microcomputer ground-breaker back in the 70's, developed by Gary Kildall, founder of Digital Research.

The first 16-bit micro was the IBM PC, for which IBM employed Microsoft to write PC-DOS. Apparently they wanted to use a version of OS/M on the PC, but they went to the wrong company to request. CP came Microsoft didn't let on.

CP/M was eventually evolved into CP-MS-DOS for the 486/500 micro, and inspired Atari's TOS, which looked up with OS/M on the ST.

AmigaDOS comes from a 68000 multi-tasking command-line system called Tapes, developed at Cambridge University, England. This was finally adopted for the Amiga when a previously patented open ring system failed to materialise.

Date (1997) (multi-tasking)

CP/M (70)	single-tasking		
PC-DOS (81)	CP/M 86 (81)		
MS-DOS (87)	CP/M 68K	Apple Mac (83)	
	TOS (84)	OS/M (84)	

Tapes (83)
AmigaDOS (85)

Amiga Workbench

two researchers at Bell Labs (America's version of British Telecom), and given away free to universities, which explains its prevalence. It's usually only run on main/minisize sized machines, but now that 'micros' like the ST, Amiga and IBM PC are coming along with several megabytes of RAM and superfast processors, micro-Unix is becoming feasible.

Atari are planning a Unix workstation to be released in the near future, possibly at Comdex in Las Vegas in mid-November this year. The system will run Unix release 3, and will have the following hardware configuration:

THE DOSH FACTOR

If you're interested in Wang or IBM, by the following for 1987:

■ **IBM** - Computers/26, Data 175.6, IBM Workplace Line (models 917, 927, 937, 955, 9000). Cost is \$497 to \$5. (4) but includes 4-drawer, it's engineering fit to.

■ **Wang** - Series Software, Ltd 5-11, Broadway Business Center, 46-71 The Landing (code 540) (52 61-73) 20000, 230 95 includes a screen editor and other good fits.



■ Dennis Blatch

- MC 68030 processor running at 20MHz
- Risc-standard graphics, but in 16M bit color
- 4Mn RAM
- 2 x RDT32 ports
- 5 x Parallel port
- MS2 (local) with 32bit
- VM computer bus
- Commodore are also planning a Unix system based around the Wang.

MULTI TASKING, MULTI FACTS

One of the main claimed advantages for the Amiga over the ST is its ability to "multi-task" - this means running more than one program at a time.

In theory, all computers can multi-task using time sharing techniques. These sharing systems a computer performing certain tasks for pre-determined time intervals if done fast enough - one slice at a time fraction of a second - this gives the illusion that the machine is actually carrying out more than one task at once. In fact, every computer ever created multi-tasks, although it is usually only with functions such as keyboard scanning or refreshing the video display.

The Amiga allows user programs to be run concurrently too. However, this is only with a simple multi-tasking environment, nowhere near the complexity of systems used by larger machines. For example, on mainframes, if one program crashes it doesn't affect the rest of the machine, on the Amiga the whole system tends to go down with tremendous regularity.

NEW VERSIONS OF WORKBENCH

By the time you read this, Workbench 1.2 should be available for the Amiga - although it's been "out a little while ago" for several months now. At the time of writing the development version consists of the actual Workbench 1.2 disk, nothing unusual as in itself the just complete source code. This little bit is packed into the floppy disk(s). WB 1.2 has been delayed because it has coded up as a merger between the originally planned v1.2 and some of the features of the next planned version, v1.4.

Commodore plan to offer users the upgrade of a fairly modest cost - like \$10 for the disk set and a good sized manual (with even an explanation of the OS in it). If you have a hard disk you will need to replace your Kickstart ROMs as well as Workbench disk, so that will work out a little more pricey.

Looking ahead

Speculating on what will happen in the micro computer industry is always a dangerous thing. History apart, operating systems are not likely to change dramatically in the next few years. But after that?

One recent development is the Lisa computer system which allows a user to communicate with the machine completely by writing commands onto a special pad. The machine is fully portable, very user-friendly, and requires no keyboard at all. In fact of a standard QWERTY keyboard can be called up and may key proceed with the display. Because of its rugged nature its fully moving parts, the machine is very useful for "litter-free" work such as nursing or construction applications.

Voice recognition has been speculated upon for many years, but there is still no system available for use in an everyday environment. Major with the advances in parallel processing and artificial intelligence, a system that can understand the spoken word might appear. At the moment, you can train a system to one person's voice, or recognise different voices, or even the same person with a cold, or even on separate.

As for the hardware for these new operating systems will run on, you can bet a lot of machines will be switching to multiprocessor but still primarily single user systems. The Amiga already has this in some ways - it's graphics are effectively handled by a coprocessor for speed.

In the final analysis, the truth is always strange than fiction. We'll all get here to end and see.

NEW VERSION OF TOS

Alan are set to launch another version of TOS, v1.00, fairly soon. Alan's OS 90 already have the year, and it is just a matter of time before the end-user will be finding themselves with the new ROMs found. Presumably this every cause the obvious (but not upgrade v1.0) old is by involving incompatibility between versions.

You'll be able to fit the new ROMs in to your old STs to upgrade them - but only recently made machines. Those made since October last year will be able to handle the new TOS set due to a change in chip structure. Expect to see versions around next year.

■ Improved disk copy functions, including single-step "hover" function. This will allow a user to copy and delete all in one. Copying will be speeded up, by using more of the ST's memory as a transfer buffer to its own or disk cache.

■ Use the format is closer to proper MS-DOS standard used by MS-DOS. There should be no need to use automation programs when transferring data between STs and PCs.

■ No HD file limit. Previous STs will not allow more than 400 files in any one disk.

■ Use of "Hot Keys"

■ All state operations are now "I"

This should provide a much easier to use, and "cleaner" TOS

SWALK

Not all operating systems are as efficient as one might think. Some developers have been a touch rough in the past by re-opening little "messaged" holes deep in their machines. Read the most famous example is the Amiga the Amiga Corporation programmers being a bit short for the G of Commodore, who bought them out but other machines, less similar things. The Apple IIe II has five digital pointers of the about covered ports a ROM - but then to be changed.

but with a much more powerful processor line of present - probably a 68030 again. Like the Alan, the machine will also run the latest version of Unix, release 3, and have a strong graphics flavour.

Hello Helios

One of the most exciting operating systems to be proposed recently is the Helios system by Perkin Software. Unless you've had your head in an armchair for the last six months, you can't have failed to notice that Helios is the intended O/S for Alan's Axxo transporter workstation now called the AXX rather than Axxo. It promises to be the first

operating system to really take advantage of transputers, primarily their multi-tasking and multiuser capabilities. Transputers have the ability to multitask by virtue of their custom-designed processors, not just jolted on software. You can have several Transputers in one machine, each can either run an individual task or multitask several on one processor, and the speed of the whole system multiplies as the more transputers you have linked together.

Helios takes advantage of all this, allocating tasks to between however many transputers happen to be around, and will probably become the equivalent of Unix for transputer based machines.

STARGLIDER 2

Wah!



A little more desirable than "FOUR CALLING BIRDS" don't you think?



VEENINATOR

CORRUPTION



Game of the year

NAME ADDRESS POSTCODE



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MUSIC

SAMPLE CITY

Forget noises made by the ST's and Amiga's sound chips — they just don't deliver. What you need is something that can record and replay everyday sounds. The sonic equivalents of video digitizers are sound samplers. Richard Monteiro listens to the best of the latest bunch and provides tips for getting decent results from such packages.

MONEY FOR JAM

Datal provides an extra program with the sampler software, in the form of Jammer. You tell you use Datal's limited sound files of various pitches. Compositions can be created using any of four computer-held in memory. Meanwhile chords are allowed, together with a drum track. Best results are obtained when the samples are very short — a single piano note, a blast from a trumpet, a drum beat or even a screaming human voice.

The beeps and squeals offered by most recent sound chips (ST and Amiga included) are laughable. This is why musicians and game programmers have turned to alternative methods of sound production. You've played games that scream and groan, listened to demos with robotically sound tracks, and used talking educational packages. Now you're going to find out how it's done. Or not.

The kit that grabs everyday noises is known as a sound sampler. There's no magic to it: analogue sounds that's sounds on a recording medium like record or tape are shunted through a piece of silicon called an ADC (analogue to digital converter). You don't need to worry about the mechanics of the process, suffice to say that sound waves are translated into numbers. Once in this form, the computer can perform all

sorts of operations on the sound — speed it up, slow it down, play it backwards, cut and move portions, add echo effects, filter certain frequencies.

There's plenty that can be done to digitized sound. Enough waffle though, find out what particular packages offer and decide which is best for you.

PRO SAMPLER STUDIO

£99.99 Amiga only ■ Datal Electronics ■ 0782 744707

Although Pro Sampler can replay samples on two separate channels, all three input sockets — microphone, line and CD — are mono. True stereo sampling just isn't possible. But what you can do is sample a drum beat on one channel and add miscellaneous

effects on the other.

Rather than using frequency in kHz to measure sampling rates, Datal uses something called DMA playback. The non-standard measurement ranges from 124 to 998 and increments in steps of two. Low values of DMA signify high sampling rates. Sampling rate is actually the DMA number divided by 3,500,000. Maximum and minimum sample rates are 28,560 and 3,640 respectively. Why make things difficult, Datal?

The software looks good and performs well. All the usual record and replay features are present — a slash rate — one per channel.

Block operations allow you to copy, cut, move and save portions of sample data, though you can't load blocks. Oddly, samples load into the start of the sample buffer regardless of block number positions. This effectively prevents you adding one sound



to the end of another.

Functions other than track manipulation, recording and replay are controlled from a software menu. Available items include Octave, Phasestaff and Mix. Octave lets you choose the number of octaves saved from the sample in memory (using multitrack files onto disk space needed). Phasestaff, which can be used to create pseudo-stereo from mono signals, works by moving the left channel waveform 128 bytes forward in memory. If you copy the same waveform into both left and right channels and then use the phasestaff function, one channel will be delayed very slightly giving stereo-like sound. We would hesitate to copy, except that one waveform is combined with the other. This can be used for adding reverberation or for giving the impression of several instruments played simultaneously.

A three-dimensional display of the waveform in memory can be called up - totally useless, but interesting to look at. More useful are the functions providing an oscilloscope trace of any incoming sound, sample editing and sound monitoring. Most important facilities are present, with the exception of envelope mixing and sample merging. No complaints with the price.

features	4.0
performance	4.0
ease of use	4.0
manuals	3.0
format value	4.0

PRO SOUND DESIGNER
 £49.95 ST, £59.95 Amiga
 ■Power Computing/
 Edenet ■ 0234 273000

All Pro Sound's ability for converting analogue sounds to the digital equivalent is situated in a micro-processed box - impressive (compared to other manufacturers' offerings) which house the same technology in a unit four or five times the size. The sampler fits in the micro parallel port and draws its power from there. ST Pro Sound has an additional way for converting into the parallel port as the Atari printer port lacks power lines.

Replay need not wait in the 1.2Mbit Williams-style socket, used for hardwiring to audio sources, embedded in the Pro Sound box itself features full equipment and microphones feature the larger 6.3mm 1/4", in case you're wondering why it's not.

The software is the most visually

attractive of all sampler software with metallurgy icons representing options. Two windows also exist one for displaying the incoming sound signal which produces an oscilloscope pattern when active and the other for loading the sample in memory.

Several decisions must be made before capturing a sound, the length of the sample in memory format, sampling rate and - for the Amiga version - whether the sample is mono or stereo. A grabbed sound can be played backwards, have conditions cut, copied, moved and merged, replayed at any rate and played in a continuous loop.

Amiga and ST versions differ. Amiga extras first. Due to the Amiga's powerful sound processing hardware, up to four samples can be played simultaneously. The output is software mixed when the Amiga is connected to a HiFi. Sampling rates range from 1440 to 2880, with playback between 1440 and 2880. Eight samples can be held in memory, four if stereo sampling is selected, and each can use any amount of memory. Antialiasing circuitry in A5080 and 82080 computers can be switched off to give a greater audio range. Samples can be compressed to half their original length and replayed at half their original playback rate. The resulting sound loses little quality, but takes up a lot less memory. An additional package is required for incorporating the samples into your own programs.

Two versions of the ST software exist: monochrome and colour. Both are present on the same disk. The colour version includes a sound chip editor while the mono version sounds similar compression techniques to the Amiga software. Sampling rates and



■ Pro Sample software looks lively and works well. Left and right channels are completely independent - allowing the sample rate for one channel well after the other.



playback rates for both packages range from 360 to 2880. Features are present for adding samples to your own BASIC, C or assembler programs.

AMIGA	
features	4.0
performance	4.5
ease of use	4.5
manuals	4.0
format value	4.0

ST	
features	3.5
performance	3.5
ease of use	4.5
manuals	4.0
format value	3.5

DESIGNER EXTRAS

Pro Mail and Pro Light are available for the ST. Both cost £19.95. Pro Mail Plus and a Programmer's Toolkit are coming soon for the Amiga. Each will cost £14.95. Pro Mail allows samples to be used in multi-instrument programs on MIDI keyboards. Pro Light simply allows users to time to sample and music. The Toolkit lets you incorporate digitised sounds into your own programs - something ST Pro Sound can do without a software package. All four sets are available at Edenet.

MIDI KEYBOARDS AND SAMPLED SOUNDS

Simply in popular format, sampled sounds played across a MIDI synthesizer keyboard do not emanate from the keyboard itself. MIDI is used simply to transmit play note and this pitch messages between one MIDI instrument and another - in this case between MIDI keyboard and computer. Pressing a key on the synthesizer causes a sample held in the computer memory to play at a pitch relating to the key pressed. The sound comes out of the computer's speaker.

There are several packages for playing sampled sounds across a MIDI keyboard. The only (and this is the Amiga title available from Edenet) is 0072 273000 is one. Several libraries of samples, ranging from the cry of the Blue Whale to Bulgarian bag pipes, come on the disk. The software allows your MIDI keyboard to be divided into a number of segments with different sounds allocated to each segment. The Amiga version is four-note polyphonic which means four keys on the synthesizer can be struck to play four different sound samples.

April 1988, £54.95, available from 88 market-arg (0895 444422) and Omega Music Computers Ltd, £69.95, from Electronics Arts (0752 494422) allow samples to be played from a MIDI keyboard as well as providing full composing, editing and MIDI control features.

If that Sound Play is a £29.95 value for use with samples created by Edenet's ST sampler.

Relatively lacking sample filtering, fading and pitch-bend effects add to the software's attractiveness. Even a two-note polyphonic mode is possible. It Mail is certainly more powerful than Edenet's Pro Mail, but lacks brightness.

Digipod ST software already has features for playing samples across a MIDI keyboard - so need to speak out extra cash.





SAMPLERS GALORE IN STORE FOR THE AMIGA

Along with Music Master and MIDI have joined an forthcoming 32 sound digitiser, three other Amiga samplers are due for release. The Converter System of 8 Lines Music System, features, most notably, 807 975 will be offering the CD 4-32 sampler for the hefty sum of \$18. An extremely scarce unit cost 425.

MIDI - Advanced MIDI String Sampler - from Microdeal is due around December. It will be an 8-bit stereo sampler with two inputs, microphone input and MIDI IN, OUT and TRIG ports. The software is promised to allow left, right or stereo sampling, sampling rates up to 19200, dual real-time auto-tuners and spectrum analysis tool, pads, and mix, stereo pan and freeze/processor capabilities. Frequency shift and equalised audio are promised to go the MIDI side.

Real Time 16 Bit Sound from Adapt, Switzerland, might be distributed by the Amiga Centre Scotland. This professional piece of equipment offers over 60 quality sampling (16140 maximum) and sits in Paul's socket. Please mind be mixed into the new board. Its price as yet, but it ain't gonna be cheap. More from the Amiga Centre Scotland on 031 9574262 or Adap on 010 8123 22810.

DIGISOUND

£89.99 ST only ■ **£1m**
Software ■ **061 228 1833**

What a whopper! The Digisound hardware, that is. Mounted in the image of the ST casing and almost matching the Atari colour scheme, the sampler's only other distinguishing features are a 3.5in socket for audio input and an interface for connecting to the ST's cartridge port. Opening the sampler reveals little more than metal on gold lamin circuit board. That's because a 'professional' version of Digisound is due later this month which will use the empty bits of the board. More on the upcoming model in the image.

Unless you pay several hundred

pounds, even thousands, it's unlikely that the sampler hardware will contribute much to the outcome of the digitised sound. Generally the software provides the perks.

The software doesn't look impressive, but boy does it perform. Options are picked in several GEMDesktop fashion, although special icons located at the bottom of the screens allow quick selection of more common functions.

Sample rates are fixed: 5, 8, 10, 16, 20, 24, 32 and even 40kHz - an odd restriction. Before sampling takes place, a responder pops up informing you of the maximum sample length (measured in seconds) that fit in memory. You decide how many seconds of sample you need.

There are plenty of effects and editing features for performing on grabbed sounds. For instance, quantising or stretching enables irregular pitch changes to be made; sounds can be forced to repeat over and over again; slowing tempo effects can bring the sound alive by controlling the decays time, loudness and length; parts of a sound can be copied, cut and even mixed; sections can be faded in or out to remove defects; volume can be increased or decreased and the sound can be played backwards. All these effects can be applied to all or part of the sample. If you have a MIDI-equipped synthesiser attached to your ST, you can play sampled sounds across the keyboard's range.

The Digisound software is good, not easy to get to grips with quickly, but it has many excellent features. Effects can be added in real time while the sound is being grabbed or

after. Most edits for the three highest sample rates can only be made during sampling - fairly surprising as the ST must work over-time to record or replay at these frequencies. More expensive than similar offerings, but then the software really is worth the extra.

features	4.5
performance	4.5
ease of use	3.0
manuals	3.5
format value	4.0

IS DIGITISER

£69.99 ST only
■ **InnovatedSoftware/**
Chips ■ **0903 700804**

Like most ST sound samplers, IS slots into the computer's cartridge port. The hardware offers audio and audio-out phono sockets. Everything else of interest is supplied by the software.

Sample rates range from 10K to 110K plus an extra 48KHz. Anything sampled at 48KHz cannot be replayed through the ST's monitor speaker as the mono output root lines simply can't handle such high speeds. Remember, 48KHz translates to 48,000 samples per second. Indeed a DAC (Digital-to-analogue converter) on the IS circuit board sends 48KHz samples to the audio-out phono socket. By connecting an amplifier and speakers to the phono socket, high-quality samples can be

PROFESSIONAL SAMPLING

Digisound Professional, which should retail at £1,39.99 when it comes out later this month, offers all the same features as Digisound basic.

Logarithmic Sampling - special hardware expands the dynamic range while reducing noise and distortion. **Internal Real Time Mixing** - two separate input channels can record from a cassette deck, tape recorder, CD player and so on and into an unprocessed source simultaneously at the same time.

Playback Through External Amplifiers - sampled sounds can be replayed through the monitor or through a separate output jack on the sampler.



■ Icons towards the bottom of the Digisound screen allow quick selection of commonly-used functions. From left to right: recent playback, play with pitch change, rate, tempo, decays, cut, paste.

Weird Dreams

ddRRRRRR ring

RAINBIRD

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Atari ST screen shots

T'R I A 'D



V O L U M E • 1



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16 BIT HITS FOR THE ATARI ST & AMIGA

£29.99



COMING SOON TO AN ST NEAR YOU

First, meet the new Creative® **Playpro Editor Version 4.0**. All the original features of **Playpro** remain: **real-time** and **high resolution** screens, **16-bit** to **24-bit** sampling and **replay**, **output** to **monitor** speakers or **Playpro** output, **mixing**, **cutting**, **copying**, **reversing**.

New features include **proper stereo control** (panning and direction) **mono reduction**, **stereo sampling frequencies** at **50kHz** and **44.1kHz** which can only be **replayed** through the **Playpro** **50kHz** **FM** gear, **real-time multitracks** with **three** tracks, **selectable waveform display style** and **up to ten preset samples** per **one-track** **reel**. **MSB** is **also** supported. **\$79.99** for the **new package**, **\$39** and the **old package** is **upgrade**. **More information** from **Microsoft** or **CVT** **486/486**.

Now to **EdiTrack's** **second** move, **Music Mixer**, the **most** exciting **sampling** **board** yet for **ST** owners, **just** **meant** **making** an **appearance** in **this** issue. **Still**, **don't** **miss** **these** **facts**. **But** **make** **sure** you **visit** the **most** **affordable**.

- **8-bit** stereo or **more** sampling up to **44.1kHz**.
- **Up** to **four** channels can be **replayed** **simultaneously**. **Each** up to **24.1kHz**.
- **Samples** can be **replayed** at **12-bit** resolution. **Again** up to **44.1kHz** and **again** up to **four** channels at the **same** time.
- **Separate** volume control on **all** playback.
- **Software** in **ROM**.
- **MSB** compatibility.

■ **Library** of **12-bit** sampled sounds.

Now will the **2279** or **2293** with a **keyboard** **Amiga** owners **wait** out for a **version** which **will** **sample** on **eight** channels?

The **Microsoft** **Sampling** **System** mentioned in **last** issue is **still** going ahead, but it's **unlikely** **EdiTrack** will **sell** the **final** product. Instead **parent** company **PCOL** is **likely** to **set** up **another** company to **look** after the **product**. The **reason** is **that** **EdiTrack** are **not** as **leading** the **entertainment** market, **rather** than the **professional** market as **which** **MSB** is **aimed**. **Exactly** **what** the **system** will **contain** is **unknown**, but **sources** say **it'll** **probably** offer **16-bit** sampling, **MSB** and **open** architecture for **expansion**. **It** **is** **still** **well** to **set** out **with** an **Amiga** version **following** **fast**.

FILE FORMATS

Obviously there is no standard Amiga TT file format for stereo digital samples, however, **IFFSDSP** is supported by most Amiga sample software. Also it uses a file format which is binary data with no header information.

either an **AC00** or **A2000**.

The software has two authorized meters which look up and down according to the noise level. In Amiga PCM.com files if the level gets too high, there are two meters because **SD** has dual inputs for stereo sampling. Sampling rates range from **50kHz** to around **12kHz**. That's for stereo sampling. Mono sampling can



■ **Amiga** **SD** shows sampling software with hardware (right). The hardware features two phase inputs which can accept either low or high level sound inputs.

be up to **50kHz**. It's all you will be taking big numbers, but the Amiga can only really count up to **32kHz**.

Amiga sound hardware requires sound data to be in the **512B** **Amiga** known as **CBP** memory. Expanded machines normally use **RAM** memory which can be used for programs and **RAM** disk operations, but not direct memory access as required by the custom sound circuitry. **FRCT** memory can be used for recording very long samples, but not for replaying them.

A **Creative** **Four** **Quadrant** **Transform** of a sampled sound can be computed and viewed in graphic form. Unfortunately it's not that accurate, as the computer will come back with an extraordinary error for all but the smallest of samples. You can forget fast, too - the calculations involved on a **14** sample will keep you waiting more than **30** seconds.

(Envelope control is required. And

the results of altering the envelope can be really spectacular. The volume and pitch of a sound can be shaped for other effects. Amplitude modulation (AM) varies volume while frequency modulation alters pitch (FM). Like sound samples, envelopes can be tied to data.

A good selection of routines are provided to incorporate samples into your own programs in **Basic**, **C**, **Modula-2** and **Assembly**. The **SD** software features just about everything you might want except data compression routines and a monitor option. Prices compare well with the competition.

features 4.5
performance 4.0
ease of use 3.5
manuals 3.0
format value 3.5

SAMPLERS SAMPLED: THE FACTS

	Digibound ST	88-Digit ST	Pro Sample Amiga	Pro Sound Amiga	Pro Sound ST	Super SD Amiga
Price £	59.99	69.99	69.99	59.99	69.99	149.95
Sample rates kHz	3 to 40 †	3 to 51, 48	3.4 to 24.9	3 to 29	3 to 30	3.0 to 23
Sampling resolution	8-bit	6,7,8-bit	8-bit	8-bit	8-bit	8-bit
Filters		3 filter	hardware	software		
External output	yes/no	yes	yes	yes	yes	yes
Microphone input	yes/no	yes	yes	yes	yes	yes
Compositing						
Echo/reverb	yes	yes				
In-built MIDI software	yes					yes
Mixing	yes	yes	yes	yes	yes	yes
Connectors	2 (stereo)	phone in/out	3 (stereo, etc)	2 (stereo in/out)	3 (stereo in/out)	phono + 2
File format	Digi/stereo 1	1	IFFSDSP, raw	IFFSDSP	Pro Sound	SDP, IFFSDSP
Cardless/yes	yes	yes	yes	yes	yes	yes
Music/envelope editing	yes	yes	yes	yes	yes	yes
Monitor	yes	yes	yes	yes	yes	yes
Reverser	yes	yes	yes	yes	yes	yes
Fields in/out	yes	yes	yes	yes	yes	yes
Undo	yes	yes	yes	yes	yes	yes
After volume wave	yes					

- † Sampling rates in kHz are 3, 6, 12, 15, 30, 20, 50, 40.
- ‡ Data files compatible with Amiga and NeXTware computers.
- § Available at a price.

AMIGA **HAMMERSOFT** **AMIGA**
AMIGA-AT Mail Order Specialists

Product	Price	Product	Price
Amiga 500	£149.95	Amiga 500	£149.95
Amiga 500 Plus	£179.95	Amiga 500 Plus	£179.95
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Amiga 500 Plus 512K	£219.95	Amiga 500 Plus 512K	£219.95
Amiga 500 Plus 1024K	£239.95	Amiga 500 Plus 1024K	£239.95
Amiga 500 Plus 2048K	£259.95	Amiga 500 Plus 2048K	£259.95
Amiga 500 Plus 4096K	£279.95	Amiga 500 Plus 4096K	£279.95
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Amiga 500 Plus 16384K	£319.95	Amiga 500 Plus 16384K	£319.95
Amiga 500 Plus 32768K	£339.95	Amiga 500 Plus 32768K	£339.95
Amiga 500 Plus 65536K	£359.95	Amiga 500 Plus 65536K	£359.95
Amiga 500 Plus 131072K	£379.95	Amiga 500 Plus 131072K	£379.95
Amiga 500 Plus 262144K	£399.95	Amiga 500 Plus 262144K	£399.95
Amiga 500 Plus 524288K	£419.95	Amiga 500 Plus 524288K	£419.95
Amiga 500 Plus 1048576K	£439.95	Amiga 500 Plus 1048576K	£439.95
Amiga 500 Plus 2097152K	£459.95	Amiga 500 Plus 2097152K	£459.95
Amiga 500 Plus 4194304K	£479.95	Amiga 500 Plus 4194304K	£479.95
Amiga 500 Plus 8388608K	£499.95	Amiga 500 Plus 8388608K	£499.95
Amiga 500 Plus 16777216K	£519.95	Amiga 500 Plus 16777216K	£519.95
Amiga 500 Plus 33554432K	£539.95	Amiga 500 Plus 33554432K	£539.95
Amiga 500 Plus 67108864K	£559.95	Amiga 500 Plus 67108864K	£559.95
Amiga 500 Plus 134217728K	£579.95	Amiga 500 Plus 134217728K	£579.95
Amiga 500 Plus 268435456K	£599.95	Amiga 500 Plus 268435456K	£599.95
Amiga 500 Plus 536870912K	£619.95	Amiga 500 Plus 536870912K	£619.95
Amiga 500 Plus 1073741824K	£639.95	Amiga 500 Plus 1073741824K	£639.95
Amiga 500 Plus 2147483648K	£659.95	Amiga 500 Plus 2147483648K	£659.95
Amiga 500 Plus 4294967296K	£679.95	Amiga 500 Plus 4294967296K	£679.95
Amiga 500 Plus 8589934592K	£699.95	Amiga 500 Plus 8589934592K	£699.95
Amiga 500 Plus 17179869184K	£719.95	Amiga 500 Plus 17179869184K	£719.95
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Amiga 500 Plus 137438953472K	£779.95	Amiga 500 Plus 137438953472K	£779.95
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Amiga 500 Plus 549755813888K	£819.95	Amiga 500 Plus 549755813888K	£819.95
Amiga 500 Plus 1099511627776K	£839.95	Amiga 500 Plus 1099511627776K	£839.95
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DISK

DISK EXTRA

ST Amiga Format's unique dual format disk gives you the best of both ST and Amiga worlds! Whichever your micro, load up and get stuck in to demos, utilities, games and goodies galore.

ST



34 COLOSSUS CHESS X

Possibly the strongest chess game there is... CDS's newest combatant certainly gave the Format team a good hiding. Check out its features and strategy in this tempting demo.

34 CHEATS!!

Who and *Center Command* may have baffled you in the past, but these papers with lay those levels open at last. Highfive some high scores!



36 MIDI SEQUENCER

So the ST's got a MIDI port, but what can you do with it? At last we've found a program worthy of the Format cover disk with this real gear killer of a sequencer. Transposition, quantising and up to 32 tracks make this a must for all MIDI musicians.

36 DIAMONDS

Oh, more monitor users, that we've forgotten you do you? Not

as many! *Diamonds* is a great 3D Boulderdash type game that even includes its own screen designer... and for more users.

36 ACCOUNTS

Get the better of your Bank Manager at last. *Accounts* is a simple but full-featured money management program that will let you see at a glance the state of your wealth!

36 FORMAT II

Let's face it, the ST's 320k maximum disk capacity is puny compared to the Amiga's whopping 800k. With *Format II* you can make Amiga owners jealous and make disks with over 800k on a double sided disk and 450k on a single sided.

AMIGA



35 PERFECT SOUND

Get involved in the latest craze to sweep the music world with the *Perfect Sound* editor. *Perfect Sound* lets you cut, paste, reverse and perform a whole host of window operations on standard 16 sound samples.

35 SLIDESHOW

Does a program exist on the Amiga that requires no annoying setting up and no complicated



mouse selection? I sure did! Enter *Slideshow*, a program that gets the *Format* prize for ease of use.

37 AC-WINDOWS

AC-WINDOWS is destined to become one of those programs that no Amiga600C programmer would ever be seen without. Start using this program and you'll wonder how you ever copied without it.

37 HANDY ICONS

Load all your important programs without ever having to click on an icon or type a single character. Not possible you say? It is with *Handy Icons*. *Handy Icons* adds an extra menu to the standard *Workbench* screen.

**WE'RE PAYING
£800!
FOR GOOD SOFTWARE
ON OUR COVER DISK**

If you're looking for good quality software to fill our cover disk each month, if you're a witty programmer you could earn big bucks from our library - games, business applications, utilities, or anything of general interest.

Write to the end of this section for more details on how to get your software onto the *Format* cover disk.

**THE FULL
VERSION**

So what's missing in this stripped-down version of Colossus? Well, obviously the full game has no limit to the number of moves for a player. The opening book has been removed too - usually the program has a library of hundreds of standard openings, which adds variety to the game. On the other hand, if you make a particular opening more the computer's response will be the same for every game you play.

You can't save or load a game, nor can you specify a particular opening position (handy for practicing new openings) (these features) as you can in the full version.

For more details contact 005 Colossus, Berkeley Road, Bournemouth, Dorset BH2 5AB (0142) 201144.

'endgame' phase. The endgame happens if you spend of your moves fruitlessly capturing pieces so that there are only a few left on the board, but that's unlikely to happen in the draw.

To move a piece, click on it and click on the square it is to go to. Alternatively, drag it to its destination. It is possible to win within 20 moves.

One nice feature is the ability to view the board from any angle. Using

the right mouse button, just drag the board to the viewpoint you want and it'll be redisplayed for you.

After fun exploring the menu - you can have soothing background music playing, make the AI read its moves out to you, set your legal moves, have a simple 2D display, change the set pieces to medieval, oriental or futuristic styles, or even play backward.

CHEATS

Colour SAs

FilenameS: VRUS.TOS, CCMCHEAT.TOS
(Chris Kingsley); LOADS.CDR (D. Morgan)

Oh, so you've been playing Virus, Career Command and Fate for a couple of months now. You've done the obvious thing. Nowhere can you do it. But it's time to indulge in some underhanded fun - loading in get these cheats to work and get that highscore table rolling.

For Virus and Career Command, run the appropriate .TOS file by double-clicking on it, or by making the appropriate choice from the CLIO, MI, menu program. Follow the prompts and your cheats are instructed. These cheats don't alter the game disk, so you can play the uncheated version at any time.

LOADS.CDR is a special saved game file that fills your loadS of credits. Simply run the game and use the Load option to load SADS.CDR. Carry on playing with the extra credits.

For full instructions, see this month's Shareware's page.



SLIDESHOW

Shareware - see margin note
All Amigaos
FILENAME S: SlideShow.

It looked impressive. The look, to find a program that is so strikingly useful but so simple to use that even little Agnes can operate it with ease. It was fancy, but we did it. Enter SlideShow, the program that gets the Amigaos price for ease of use.

SlideShow, as you may have already guessed, is a program designed to display ten resolutions. 87 pictures with up to 32 colours. Nothing special there, you may say, but the wonderful thing about SlideShow is both the way it displays pictures, and how easy it is to use.

SlideShow also employs a novel method of display perform. Most other programs of the type display

a picture, blank the screen then display the next but SlideShow uses a slide-alongway system of operation. Similar to those found in commercial desktop presentation packages such as Page Layout, Camera Action required last month. Files are available in all to give your slideshow that professional look.

All the pictures you want to display must be in the same folder as the SlideShow program. Simply double-click the program icon and it automatically searches through its directory for any low resolution 87 pictures and displays them. Once a picture is displayed, clicking the left mouse button will make the slideshow advance onto the next frame and the right mouse button moves back a frame. After you reach either end of your slideshow the screen will lock. There you're still sitting, pressing Q will end the program.

Full instructions are available in the SlideShow draw.



load. Perfect sound can also be run from both our cover disk menu program, Click_Me, and by directly clicking on the Lucanille recorder-like icon on the Workbench. Instructions can be found within the Perfect Sound draw.

SHAREWARE

The long program SlideShow is the first shareware program we have ever put on cover. The Shareware in Public domain has a difference - you can freely copy and distribute shareware, but after downloading it, you feel it is useful then you are asked to send a donation to the author. We will return your donation to make you a member of the program and send you a thank you note.

Please read the SlideShow documentation for details of the author's wishes. We tend to be strict, but there is no need to pay for the first 1000 copies and send him some money - only if you think program useful though.



From Strawberry Fields Forever... SlideShow (Share) provides a superb variety of slides and picture fades in a simple to use program.

ST

DIAMOND Public Domain More STs only FILENAMES: DIAMOND.PRG, DIA- MOND.DOC

If you've got a monochrome monitor attached to your ST and feel like a change from the usual boring Word processors and Spreadsheet, then look no further. Diamond is an excellent arcade game which defies an unmistakable influence from the past.



■ Bringing more ST owners in from the cold - Diamond is a feature-rich version of an old favourite

to Commodore 64 game Bubblestick.

The aim of the game is simple. Using a joystick is preferred, you must control our little hero by guiding him around a variety of different screens collecting the gems that are scattered randomly about. To make life

harder, the ground in which you are digging is filled with huge boulders that if dislodged will come tumbling down upon your head. As if this wasn't enough, you can only dig underground for a short time before the air runs out and you suffer a terrible death by suffocation. The odds are stacked against you, but yours is the only one who can do it...

Those of you with colour ST systems can of course still take advantage of this great program by first naming the files in the same program as we featured on your test disk. Full instructions are included in the Diamond folder. Right, stop reading and get digging!

ACCOUNTS

By M. Wright
All Colour STs
FILENAMES:
ACCOUNTS.TOS,
ACCOUNTS.DOC

If you're just one of those people who, at the end of every month, always finds themselves with an overdraft larger than the national debt of Mexico then you'll no doubt be pleased to hear about this great bill-money management program, Accounts.

Accounts is a feature packed money management package that lets you keep a close watch on the old liquid assets without having to bother your bank manager. It provides for up to 24 transactions and 9 monthly payments such as mortgage and bank loan repayments.

Accounts automatically stores all transactions in a file called RECORD.BAT which is read into the program when it first loads. If the file

does not exist, the program offers a whopping 32.

MIDI Sequencer offers a wide range of features including real-time recording and full playback control. To take advantage of this power packed package requires a MIDI compatible device, preferably a keyboard of some description. If you've been considering moving into the exciting world of computer music, then perhaps now is the time!

Don't worry if the program seems complicated, just take a look at the five pages of on-line instructions for a full description of all MIDI Sequencer's features.



■ The ST MIDI Sequencer drafting its staff



■ Look after the pennies and you'll soon be broke - unless your ST gets to grips with Accounts

does not exist, let it work the first time you use it. It will ask you if you wish to create a new file. All the features within Accounts are accessible through a nice friendly menu.

All Accounts' features are fully self-explanatory but for further information read the file ACCOUNTS.DOC.

FORMAT 11

Public Domain
All STs
FILENAMES:
FORMAT_11.ACC, FOR-
MAT_11.DOC

Every time the ST was first released, the major complaint of most users was the rather unimpressive disk capacity on single sided systems. As seasoned readers will be aware, we have already published a disk format for on most one's disk so why another? The answer is simple: we were so impressed by the increase in disk space available when you format a disk with Format 11 that we are sure that you wouldn't want to miss out on the real gems of a program.

Format 11 increases the available disk space on a single sided disk to over 400K, and if you have a double sided drive then you'll be able to store almost a full Megabyte on a single disk. Format 11 works by increasing the number of sectors from the usual nine to eleven, hence the name.

Format 11 is an accessory program and therefore cannot be run in the normal point-and-click fashion. To load Format 11, copy the file (FORMAT11.ACC) to the top directory of your boot disk (A:) by dragging it on from the Format 11 window to the DRIVE A icon. Once the file has successfully copied, reset your ST with the boot disk in drive A and Format 11 will automatically be loaded. Once the desktop screen appears, drag the mouse pointer to the Desk menu at the top left hand corner of the screen and a menu will drop down containing a menu item called FORMAT_11. Select this and Format 11 will run. Further instructions are included in the Format 11 folder.

MIDI SEQUENCER

Public Domain
All STs

FILENAMES:
MIDI.PRG, MIDI.DOC

like all Format pride ourselves in bringing you the best programs for your ST and with MIDI Sequencer we think we've succeeded ourselves.

A sequencer, in case you don't know, is basically a computer tape recorder. By connecting a MIDI compatible instrument to the ST's built in MIDI interface, it is possible to control it directly through your computer. Many top musicians including An and the Beat Shop have used computers for this very reason. If you were lucky enough to see Jim at his recent Distribution Desktops' event, you would have witnessed a very cool example of the power of MIDI sequencers.

The MIDI sequencer featured on this month's cover disk is a real gem. Many of its features, such as transposition and quantizing, you would normally expect to find in professional packages such as the hugely powerful Pro-24 and its Pro-KC. This instrument even features the king of sequencers Pro-64, the number of tracks available. Pro-24, as the name suggests, offers 24 tracks where in our

AMIGA

AC-WINDOWS

By D. Marsh

All Amigas

File: AC-WINDOWS, AC-WINDOWS.DOC

Calling an AmigaBASIC program that As you will all know, WIMP based programs are a very nice fit for the user but can be a real pain to set up for the programmer. No matter how many calculations you carry out before hand, something, be it a window or gadget, always seems to end up in the wrong place. Other programming languages on both the Amiga and ST feature what are commonly known as Source Code Generators which let programmers design their screen displays ahead of time then draw them and then have the finished screen saved as ASC source code ready for inclusion in their own programs. You too can play the generation game with AC-Windows.

AC-Windows is a full-blown

AmigaBASIC source code generator that will churn out the BASIC code for your program. Just design the window and gadgets, you wait your program to generate by using the menu, then select 'Generate' from the pull down menu and your screen display will be saved as a stand alone subroutine that only needs to be merged into your program and called using the SOURCE command.

You can load AC-Windows by clicking on the AC-WINDOWS icon on the Workbench. AC-Windows will not run from our cover disk menu.

Once AC-Windows has loaded, a blank screen will appear. A full tutorial detailing a sample work session with AC-Windows is included within the documentation but for those of you who are too impatient then here's a brief run down of what to do:

- Decide on what screen resolution you want your screen to appear in. The default resolution is medium but by selecting screen from the PROJECT menu the screen will change to low resolution.

- Place a window on your screen and then size it to your specification.



● AC-Windows takes the pain out of AmigaBASIC programming

By using the two menu items SOURCE-TITLE and TITLE from the WINDOW menu this can be easily achieved.

- Once your window is positioned to your liking, select color from the WINDOW menu and your window is set in place. AC-Windows will now let you place both standard window gadgets and custom gadgets into your window.

- The final step once all your windows and gadgets have been placed is to format what you have designed into suitable source code for inclusion in your own programs. Select SOURCE from the PROJECT menu, enter a filename and your screen display will be saved to disk as source code.

HANDY ICONS

Public Domain

All Amigas

File: HANDYICONS, HANDYICONS.DOC

Contrary to what both Atari and Commodore would have us believe, WIMP based systems can often be more confusing than the conventional command line interface as used by lesser IT machines such as PC computers. Before you know it, the screen soon becomes extremely cluttered and trying to find a particular window can become an almost hopeless task. Wouldn't it be nice if you could tell the Amiga to remember a list of handy used programs that could be recalled from the Workbench menu? Well, you've guessed it, Handy Icons will allow you to do just that.

Handy Icons adds an extension to the standard Workbench menu which will let you run programs by selecting them from a pull down menu. The number of programs which can be entered onto the menu list is limited only by the current font size and screen resolution. Using the standard Workbench resolution freedom now it is possible to have up to 32 items within the menu list.

To add a program to the menu, click once on the

HandyIcons icon and then, while keeping the right mouse button down, select items from the HELIX/ESC/IN menu. If you're using a single disk Amiga, you will be asked to insert your Workbench disk and after a few seconds* the screen, a full screen window will appear somewhere within the disk label line and a cursor will appear at the beginning of the line. You must type the filename of the program you wish to be added to the menu including it's full directory path. For example, if you wished to run the spreadsheet on the monthly disk you would enter MONTHLY/DISK/SPREADSHEET/SPREAD and press RETURN. You have now added a program to the menu list. Repeat this process until you've added all the required programs. I the menu and then select the orange icon gadget. Once this is complete it's time to run HandyIcons by double clicking on the HandyIcons icon.

If you are now completely baffled by the last paragraph then you will be pleased to know that full instructions are included within the program in HandyIcons.doc.



● Handy Icons (Amiga) puts your favorite programs into a menu. Double click icons for exact. On the left is the menu editing screen - use the .DOC file directly to install your applications, then you get the modified Workbench screen on the right.



HOW TO USE THIS DISK

DISK DOCUMENTATION

Many of the programs on ST Amiga Format disks are Public Domain in such cases we've simply placed our own standard Documentation file unchanged, as is required by the FS code of practice. Some of the pricing is "obscure", that's ok, so please don't blame us for mispricing!

The ST Amiga Format cover disk is a special format disk which both the ST and the Amiga can read. Even if you are a seasoned computer user, please read these instructions carefully or you could permanently damage your copy of it.

The first thing you must do is make a backup copy of the disk. Because of the special format, the normal disk-to-disk copying methods, as recommended in the Amiga and ST manuals, won't work. Instead you will need to format a blank disk and copy the files individually. Don't panic, this isn't at all difficult.

ON THE ST

Assuming a single drive machine

1. Take a blank disk and format it in the usual way.
2. With the blank disk still in the drive, double click on the A: drive icon to open up the standard contents window.
3. Now drag the icons for drive B: into the open window of drive A:. This will copy all the files on B: to the master disk to your new disk. Make sure that the master ST Amiga Format disk is write protected (the writing tab should be back to the hole is open) and put it in the disk drive when asked for disk B:.
4. You will now be prompted at various times to insert disk A: and disk B: while copying takes place. There will be a lot of copying to do on a single drive ST Disk B: should be the master

disk, disk A your newly formatted copy.

If you want to cut down on disk swaps, you can use a RAM disk program like the Virtual RAM disk program available on last month's disk as an alternative step.

ON THE AMIGA

Assuming a single drive #5000

1. Start your Amiga up with your normal Workbench boot disk.
2. Take a blank disk and initialize it in the usual way.
3. Make sure that the master ST Amiga Format disk is write protected and put it in the disk drive. Double-click on the disk icon that appears. Drag any icons you use in the contents window onto the "RAM disk" icon.
4. When the disk activity light has gone out, put your newly formatted copy disk in the drive instead. Double-

click ME.PRG, if you know enough about GEM you can click directly on the icons for individual programs. These normally end .PRG with their documentation files having the same names but with .DOC. Helpgen users need the documentation before running the program.

ON THE AMIGA

Most of the programs on the cover disk are run from the Workbench, which must be loaded first from your normal startup disk, as described in the Amiga manual. Once at the Workbench, put the ST Amiga Format disk in the drive and double-click on its icon to open it.

You should find on the disk an icon for a program called CLICK_ME, do exactly what it says and after a few seconds the cover disk menu program will have loaded. If you own a single drive Amiga then your

HAVING TROUBLE WITH THE DISK?

We have done our best to ensure that the programs supplied on this month's disk are simple to use, error free and have no known viruses. However, we cannot accept responsibility for any consequences of using the programs.

If your ST Amiga Format disk is faulty - and out of 40,000 duplicated disks are statistically bound to be - you should send it back for a free replacement to:

ST Amiga Format December Disk, DiscCopy Labs, 85 Geyser Close, Brentwood, Northampton NN4 3DY

Please remember if your Amiga refuses to accept the disk, try using the IBMPC's file utility or our Commodore Workbench disk to recover it before sending off for a replacement. See our special INSTRUCTION file on page 87 of issue 1. Don't worry if your disk gives you a "hard error", this is the Amiga being unable to read the ST software on the disk.

WE WANT TO GIVE YOU MONEY!

If you've got any programs for either ST or Amiga which you think other readers would find useful, interesting or amusing, we'd like to know. There's lots to be gained from securing international fame for your self!

1. Only send in programs on 5.25" disks, we cannot accept printed manuals.
2. Make sure your disk is clearly labelled with your name and address and the program name(s), and a contact "ST" or Amiga.
3. Make sure there's a documentation file on the disk called README.
4. Enclose a clear covering note explaining what the program does, and if you possibly can please also send a printout of any useful documentation file, remember your address and telephone number. Include a computer return envelope for the disk if you want it back.
5. THIS IS IMPORTANT: there must be a signed statement that the program is yours and that you are prepared to assign publication rights to ST Amiga Format. Get the following wording:
"The program is written by the title listed in the information for publication by ST Amiga Format magazine. It is my own work and has not been submitted for publication elsewhere."

Signed _____
If we accept your program, we will get in touch with you before publication to agree terms and payment rates. We will evaluate all submissions by a batch once a month, or please state up to 40 days for return of your disks. We will only send back disks with adequate return postage and packing.

If you send in a disk with a virus on it, we reserve the right to send around the money made in the usual form and do appropriate things to your own convenience. Seriously, since we've already supplied your title programs in issue 11, do check your disks carefully.

click on the RAM drive icon to open its window, and drag program icons from that onto the new disk icon. This copies the files one by one.

The programs may not all fit in the RAM drive at once on an #5000 - do whatever will fit, then after step 3 delete icons from the RAM disk by clicking once on each and holding the right mouse button down, selecting discard from the PopUp's menu. Discard steps 2 and 3 for the rest of the icons.

Using the programs

ON THE ST

When you turn the ST on and put your working copy of the disk in the drive, you will see a window opened with the contents of the disk displayed.

One of the icons is called CLICK_ME.PRG - just do what it says, double-click to run it. Up comes a list of the disk contents. Type the number of the program you want to run, and you are asked whether you want to read the disk help file or not.

You will now be asked whether you want to run the program or not. As an alternative to using

mouse will prompt you to swap disks a couple of times before the items is loaded. Just follow the on screen responses and everything should load fine.

Most of the programs on the disk can be executed from CLICK_ME by selecting them from the status and choosing either to view the program's documentation or load the program. If a program fails to load from this menu this condition happens through shortage of memory on unexpanded systems, you can load it from the Workbench instead, by clicking on its icon.

To load a program from the Workbench, you first find Click opens the drawer which contains it. For detailed comments, from the program's author click on the .DOC file icon in the same folder to run the program-click on the main icon.

When you click on a document icon file, a new window is opened and the text is displayed a screenful at a time. Press any key to move from one screenful to the next, or click on the close gadget in the top left-hand corner of the window to cancel the display.

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POOLSWINNER with FIXGEN 88/9 (see back)



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COMIC SETTER

£59.95 ■ Amiga only, requires 1MB ■ Gold Disk, HB Marketing, Brooklyn House,
22 The Green, West Drayton, Middx UB7 7PQ (0895 444335).

CLIP ART

If you want a quick way to do comic creation, there are three disks of Clip Art available at £29.95 each. These cover Science Fiction, Super Heroes and Fantasy Figures. They all have a selection of backgrounds, characters and effects for you to reuse. Of course, you'll have to draw your own in the end if you want to be original, but these disks show you what elements you need and how to draw them. It's great fun and to see a potential of disembodied superheroes leap

There are many excellent art packages available on both ST and Amiga, but they all have the same basic flaw: it's after spending hours drawing a masterpiece, you change your mind and want to alter the background or enlarge one of the characters, then you're in for a painstaking session of repositioning.

The problem is that art packages treat the whole screen as just one amorphous mass of pixels - there is no way to make the software recognise a scene with a tree, a dog and a cat, for instance. It would be nice to be able to instruct the program to 'move the dog' and let it do all the hard work for you.

Comic Setter is the first art package to tackle this by taking an 'object-based' approach to what is drawn on screen. Don't be fooled by the name - although the marketing pitch and the clip art supplied are firmly of the comic artist community, Comic Setter is a powerful general art package.



Bitmap graphics

Comic Setter needs a megabyte of memory to run in. All work is in medium resolution, which means you have 16 colours to play with.

The drawing screen is based around the concept of panels and objects. Before you can put anything onto the screen you must define a panel to contain it; panels are rectangular boxes which limit the size of any

graphics in it. The panel can then be moved around, and all the items within it move together.

You can create two different types of object: 'bitmap' graphics and 'structured' graphics. Bitmap graphics are the good old pixel images that are conventional art package province. You can either import bitmap graphics from existing picture files or create them from scratch within Comic Setter.

To import a bitmap, you first select a panel for it, then open the full picture file in a separate graphics editor window. The graphics editor shows you the size of the Comic Setter panel into which the graphics will go - you position this over the area of the image you want, and click the mouse button to clip and copy the sections. Alternatively, you can use a special polygonal clipping tool - you draw a series of straight lines around the area to be clipped by clicking on points around it. There's no limit to the number of points you can define, so you can accurately clip a character out of a background by tracing around it.

If you import a bitmap bigger than the panel you've defined, you can further clip or scale it within the main part of Comic Setter.

Structured graphics

If you've ever used a CAD-type drawing package, you'll already know the basic principles of structured graphics. In a nutshell, Comic Setter provides polygon, rectangle, circle and curve drawing tools. Normal art pack-



Comic Setter's main editing screen. You can see that although the page is split into panels, objects which burst out of their panel can still be seen, allowing you to break the borders quite effectively. The speech bubble has a dotted rectangle around it - this means it is the 'active object'. You can edit the text in it or alter the bubble shape. The graphics were imported, not created within Comic Setter.



Editing a (linear) curve (a structured object) in Comic Letter. First, click on the curve to select it and show its control points, second, drag one control point to its new position. Finally, release the mouse button and the new curve is drawn.

again (or have these, but once you have drawn a polygon, that's it; it just becomes a set of points on the screen which you have to edit by conventional point operations). Comic Letter stores the shapes as objects, and you can't draw a polygon on screen, you can come back to it later. Little "handles" appear at each of its corners and you can use the mouse to alter its shape by dragging a handle to a new position.

The shape editing facility can be invaluable with curves, which are notoriously difficult to draw freehand. Comic Letter uses "knotter curves" - the sort of place to go into the mathematics of Bézier curves, but in practice they are curves defined by four (or more) points. Two points fix the ends of the curve, and the others define its curvature. You can alter the control points by dragging to "knotter curves" around until it looks just right.

In addition to drawing circles and squares, there are a number of other CAD-type operations; you can collect several objects into a group (so they

you want. Once again, you can use the composite as a pure template and then reimport it. This might sound a stupid thing to want to do, but screen updates a much faster when working with a single letter than a complete group of structured objects.

Paying the price

The value of all the sophisticated point structuring is that you've got a tremendous amount of flexibility on the page. You don't have to get it right first time, when you move something, the background reappears, rather than leaving a hole that you've then got to fill.

However, there are a couple of drawbacks to Comic Letter. Most significantly, some of the basic point drawing functions (based in packages like Deluxe Paint) are really lacking. You can stretch and reflect bitmaps, but there are no rotate or shear functions. There is no concept of the editing "brush" that most things art packages have, when you can clip part of the screen and use it to draw with

be permanently "ghosted out" (so unavailable on our review copy).

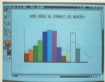
COMIC FEATURES

So why is it called Comic Letter? Apart from straight drawing functions, there are of course a whole host of features of special interest to the comic artist.

Most important are speech balloons. Comic Letter comes with three special custom text fonts - most come hot in thick capitals, and the fonts look best used that way. Font sizes range from 10pts to 36pts, as bigger headlines (Post-Explosion) have to be created as bitmaps.

You can have six different styles of speech bubble, ranging from circular to capsule-shaped or undeveloped balloons are structured objects and can be edited, so you can drag them to any shape you like and edit the text inside them. Background colour and the thickness are adjustable. When you create a new page, you can arrange for a default initial grid of panels to be set up for you - 4 four by four set as an A4 page, for example. Comic Letter lets us estimate itself for your printer when you start a new page by making its screen resolution match the printer's as defined in your Postscript. Copies may not look identical on screen, but they should when printed.

The clip art provided with Comic Letter (and the three extra disks available) is of straight cartoon material. Incidentally, Gold Disk draws a big part on the back for printing the clip art in the manual - you can see what you want without spending too many working disks.



Comic Letter's structured graphics system is much more than comic art. Each of the bars in the graph can be dragged up or down to change their size (the dotted white one is currently selected) and a "filler" colour can be freely filled over the top by trial and error.

all move around together), or clip them to suit their size or colour line up. Objects can also be locked onto the page to prevent accidental movement.

There is no direct link between structured graphics and bitmaps either. You can't use the bitmaps "fill" function to colour in the interior of a structured graphic. However, one colour (you choose what) is deemed transparent, so it is easy to get any effect you want by laying a bitmap directly over a structured one and making it showing through the parts

very handy for adding textures to backgrounds.

You can work at varying magnifications, full page view up to 200% size, but this still isn't big enough for accurate proofwork. The features it does have are really geared to touching-up imported graphics; you still need a specialised print package for major work.

One final approximation to the "undo" command. This is a potentially invaluable way of recovering easily from mistakes, but for some reason the relevant menu option seemed to

The punchline

Comic Letter is an ingenious art package. Its structured drawing features are an excellent innovation, and we can all hope that they'll become standard in new graphics software. The flexibility in independent positioning and sizing is fantastic. Despite the drawbacks in the conventional point-drawing functions, it should certainly appeal to a much wider community than just comic artists.



for

- Elements of picture are discrete objects
- Object shapes can be changed after drawing
- Good cartooning clip-art/fonts

against

- Weak on conventional drawing functions
- Screen updates is felt slow
- Only medium resolution (16K-colours)

features

1 2 3 4 5

performance

1 2 3 4 5

ease of use

1 2 3 4 5

flexibility

1 2 3 4 5

value

1 2 3 4 5

format

1 2 3 4 5

value

1 2 3 4 5

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MUSIC

AI AI O

Tired of keying notes on your MIDI synth or letters on your computer keyboard? Nobody to play along with you? Both these problems can be taken care in software, by the new wave of "intelligent" composition programs. Chris Jenkins pits his wits against the best.

SEARLY INTELLIGENCE

Music produced by machines or other "artificial" systems is not that new. There were a number of Victorian inventions, hand-cranked around music boxes of various tones, which contained their melodies with rows of keyboard-actuated pins that were raised or lowered. Now, though, the same ability to enter notes on a screen is modern software-composition programs like

When computers and other electronic musical instruments first appeared, it was a common complaint (especially from traditional musicians) that these reconfigured instruments would put them out of a job. When they realized that someone still had to program and operate the instruments, though, many breathed more easily. But now, with the universal acceptance of computers and MIDI in music making, it looks as if we might see again have to face the idea that computers can indeed make music without much help from us!

This is due to "artificial intelli-

gent" realizations which are now built into many affordable music software packages. Perhaps music, after all, consists of a generally accepted scale of notes, which can be grouped together into familiar progressions or chords, and played in certain rhythms. Teach a computer these basic rules, plug it into a MIDI synth, and you'll soon feel it making as much as it by itself!

In Harmony

Perhaps the most accessible of the auto-composition programs is *Studio 24* from Comus software. Distributed in this country by Soundcity/Musicsoft, it's a good general-purpose sequencer for the ST, and costs \$1.99.

Studio 24 has some similarities to the industry standard sequencer, *Sequencer Plus-24*. It displays 24 tracks of music, each with Record/Play/Mute options across the top of the screen, and has a tape-transport-style control panel which you use to start, stop and edit MIDI recordings.

Each of the 24 tracks can record eight-note polyphonic music data, but tracks 23 and 24 also have special functions. Track 23 (labelled 'C') can be used to store a series of chords of up to four notes, while track 24 (labelled 'M') can store a single-note melody. The clever bit is that given a monophonic melody, and a series of chords, you can use *Studio 24*'s Harmonize function to automatically generate a series of three complementary monophonic melodies.

Selecting the Harmonize option from the pull-down menu displays a dialogue box where you can specify the range of the harmonies (within one octave, or spanning almost any width on the scale). The results will be different each time, and it's quite strange to hear your MIDI instrument playing music your computer has invented. *Studio 24* also features music display and print-out to help

you analyze what the computer has generated.

Strike up the band

The same idea is taken to greater lengths in *Big Band*, another Comus product at the same price, £199. *Big Band* can work as a standalone program, or as a desk accessory to *Studio 24*. The major difference is that instead of just two tracks being reserved for special purposes, eleven are put aside, while the remaining fourteen are used to store the results of your calculations.

Big Band can generate variations from all sorts of inputs: monophonic melodies, accompaniment lines, bass lines, four-note chords, even drum patterns. Styles available include Rock, Funk, Slow Rock, Raggae, Blues, Samba, and dance styles such as Bossa-Nova. You can select what you want calculated: chords, melodies, countermelodies, riffs, basslines, rhythms, or everything at once. It takes a few moments for *Big Band* to do the work, after which it returns with all the required data tracks full of music.

If you play the whole lot at once, you'll normally get a terrific drum but when you start to mute, edit and assign the lines to different synth-voice, you'll find that *Big Band* has created an entire accompaniment section for your original tune. It's huge!

Keeping in key

Another new program with auto-composition facilities is *Keys from C to F*, for the ST and Amiga. This is primarily a musical notation package, and at £79.95 may well be the cheapest on the market.

Keys is written in GEM Basic, and doesn't use GEM, so at first sight it appears as a complete mess of grids, boxes and labels. Underneath it all, though, there's a straight-line composition program capable of creating



■ *Big Band*, from Comus



■ *Keys from C to F*'s intelligent offering which should also be available for the Amiga

pieces with up to 9999 events of eight-note polyphonic music. The resulting music can be played on the ST's sound chip - only three voices at a time, of course - so you don't actually need a MIDI instrument.

The AutoComposer functions let you enter values which define the type of changes the computer can make to your recorded music. Certain parameters can be 'masked' to leave them unaltered, while others are left open for the computer to play with.

Key Change Freeplay works with the Scale Type selection (major, minor, fourth, Mix or harmonic) to create chord progressions. Harmonic Sequenator varies the spread of notes in a chord, while Polyphony Monitor sets the number of notes per chord. Note length variations, MIDI effects, tempo and MIDI velocity changes can be set on the main composition page, and computer-generated tunes can be saved to disk as SEQ files which are fully compatible with the popular Dr F Keyboard Controlled Sequencer program, available for both the Amiga and ST.

Later on this year we can expect to see Synthesist from Dr F. This is an advanced algorithmic composer, which hopefully will be a machine-code program using GEM, rather than a GFA Basic effort.

The M Factor

If, at £120, is probably the most powerful and interesting computer composition package yet. The main display has five sections. The Patterns box governs musical recording, while Note Manipulation is used to edit the results. MIDI Variables lets you choose the sounds and velocities you're going to work with, while Title lets you name pieces and control the overall tempo and synchronization. Westmountain is the Cycle Editor.

Use Big Band, the first thing M does is create music to work on. These patterns of notes and chords can contain up to 8000 notes, and a variety of different time signatures. They can be recorded in real time or step time, but for some reason real time patterns can't be edited. You can also record patterns specifically to control drum machines.

By Ming a block in the Cycle Editor you can change the duration, articulation and accenting of each pattern as it repeats. You can also introduce a percentage chance that a pattern will play backwards, that an individual note will change to a random note within a given range, or that a note will not play at all.

You can define six sets of parameters, each of which can be saved as a Snapshot. By switching from one to another in real time, you can change the style of your computer-generated music as it is playing.

The main point to remember

about M is that it uses no musical algorithms or the MIDI data, merely mathematical probabilities. You'll find it great for generating 'Jarry Rilly' or Philip Glass-like pieces, but it's unlikely to write Kyle Mingus's best smash. The good thing, though, is that it can be used for live performances, rather like the huge string arranger sequencers most favoured at Tangierne O'Leary and Klaus Schulze in the 1970s.

M can save patterns, or live performances 'traces' in standard MIDI File format, or it's possible to transfer M files to more conventional packages like Dr F's Keyboard Controlled Sequencer.

Future days

Next year we should see Hybrid Arts' contribution to the auto-composition market. Looking, as it's charmingly named, can generate music from absolutely nothing; you don't have to enter anything from the keyboard, just define the parameters you want, using the mouse.

Looking arranges music in eight tracks, each one of which has its own set of composition algorithms. These can define the type of chord, range of pitch, string, note duration and so on. The MIDI data is stored in a buffer which Looking can use to play your MIDI synths. Alternatively, data can be saved as a song file which can be edited and played using a Hybrid Arts sequencer such as ST Trace or MIDItrack. Using the Interpretix multitrack program utility, you could even have Looking in memory at the same time as your sequencer program, so if you ever run out of ideas, you can just play with Looking until something good comes up, then shift the data back to your sequencer.

The important thing to remember about all these packages is that despite the tag 'Intelligent', they depend entirely on the musical sense of the operator to come up with anything useful. It will be a long time before we actually hear a computer



■ MING - one month to make your music



■ MIDIflow from Intelligent Music converts your drunken doodles into symphonies

writing a symphony based on its own notes.

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DISK FODDER

Would be interested to see programs designed to allow an input of intelligence, whether it's chess, poetry or writing, for possible inclusion in the cover CD. Music programs should be self-contained, or at least have the option of playing back through the author's own sound files, as well as using MIDI.

DRAWING THE LINE

One of the most unusual MIDI programs yet produced has to be MIDIflow, at £29.95, from Intelligent Music. It's hard to say whether it qualifies as an example of computer composition; let's just say the music you get out doesn't bear much resemblance to what you put in. MIDIflow actually allows you to draw on the ST's screen, using a mouse-controlled cursor, and to translate the scribbles into MIDI data which plays your synths.

The drawing screen consists of a blank square in the middle of the main display. Drawing on the plays notes in the MIDI pitch class and falls up and down left and right, volume as you move up and down.

Four buttons let you alter the results. The Pencil option has a box for specifying the MIDI channel, synth program and velocity of the MIDI data, together with the duration and velocity of indi-

vidual notes. You can switch volume on and off and change the rate of which notes repeat.

The Delay panel lets you introduce an echo effect by repeating notes at variable delays and pitches, while the Recorder stores sequences and repeats them at different speeds and volumes. Finally, the Interpreter looks at the entire screen, and plays its version of your performance, again with variable note duration, volume and so on.

You can control which notes are actually played using the Tonality menu; these eight commands allow you to define which notes in each octave (or which notes over the entire eight-octave range) can be played by the synths. You can translate even the most meandering drawing into a beautiful melody. Your performances can be saved to disk, and the files are compatible with Intelligent Music's other algorithmic composer, M.



SCREEN PLAY

All the hottest news, views and reviews of the month from the ST and Amiga games scene - and after all, you wouldn't trust anybody else, would you? Mark Higham dons his white coat and administers the crucial testing in the Format laboratories.

PREVIEWS

PUFFY'S SAGA

US SOFT ■ ST & Amiga
£24.99

Puffy's Saga combines arcade action, exciting gameplay, digitised voices and has incredible fun with both characters, Puffy and his girlfriend Puffin. Just as you don't think US Soft are sexist, you can choose to play as either Puffy or Puffin. Trapped in an alien world you must travel through mazes facing various enemies and try to solve clues which will make you discover weapons and escape deadly hidden traps.

TURBO CUP

LORENCE ■ ST & Amiga
£19.99

Lorence's answer to Outrun, Turbo Cup was written with the speediest intention of simulating a real race as closely as possible. The view of your car is an unusual one - you don't spend an entire race staring at the exhaust pipe, but nor are you looking at it from a bird's eye view; it's somewhere in between. You can take your view through various cameras to get the feel of the controls before driving

into the track.

Lorence have sponsored the famous Porsche Rally driver Rudi Metz (whose ya mean, "Who's he?") His famous (I) in the Amiga Turbo Cup and may well give away a model of his car with the game - the price may change if this happens.

GALACTIC CONQUEROR

TTG ■ ST & Amiga
ST - £29.99, Amiga - £24.99

Brilliant graphics and an addictive shoot-'em-up gameplay make up to make this an impressive Christmas release. In a remote corner of the galaxy, Galton's surveillance units



■ GALACTIC CONQUEROR

have detected what appears to be a small enemy invasion. Little do you realise just how dangerous this invasion could be. To protect mankind a defence must be launched, and guess what? - you are the only hunter capable of handling a strategic conflict on a galactic scale. Your mission: kill anything that moves.

OUTLAND

MADBOX ■ ST & Amiga
£19.99

Despite a plot involving a Titan Satellite, peace talks between Earth and the moon and two 88-10R type fighters, there's no escaping the fact



■ OUTLAND

that this is another vertical scrolling shoot-'em-up. However, with brilliant scrolling backdrops and a range of additional action weapons this game has the addictive qualities which have made its forerunners such a success.

THE PEPSI CHALLENGE MAD MIX GAME

US SOFT ■ ST
£24.99

Advertising gets everywhere these days, don't you? Just 'cos Coke swiped the Olympics, Pepsi have hit back with Mad Mix. The action takes place in 10 pulsating levels which comprise the labyrinth of the Pepsi Village, a city where anything can happen, and normally does. As Pepsi mad Mad, sporting a wide 80 gm, you venture through the maze and your goal is to convert jigs in a bid to kick away your enemies.

Throughout the maze you can pick up various Jollyland-Pepsi toys which give Mad the ability to change his persona into five different characters.

FRIGHT NIGHT

MICROCAL ■ ST & Amiga
£29.99

Accessorised Fright Night should be able to make the Christmas shelves, and in fact it Santa doesn't get carried away saying it and accidentally crush the brains out of his resident Fright Night is actually two games - the arcade and the adventure game. The adver-



■ PUFFY'S SAGA



■ Turbo Cup



■ FRIGHT NIGHT

ture is QEM-style mouse-and-mouse game giving you screen after screen of competitive advertising and digital madness.

In the arcade game, the vampire lets back as you play the role of an inter-neighbor Jerry Danbridge who wakes up for just before dark and bloodsucking hours. You have until 5am to vampire everyone in the rooms of the Fright Night house, if you don't succeed they'll send your coffin and stake you out.

THE MUNSTERS

AGAN AGAN ■ ST & Amiga
\$29.95



■ THE MUNSTERS

Agan Agan is a relatively new label, but the Munsters comes from the team responsible for Tennessee, Paganini and Masteroids. There's panic at the Munster mansion because Marilyn has been spirited away to Creepy Château. Lily is worried, but before she can rescue Marilyn she must first release Fernan. And he can't be found without first locating objects hidden around the house and neighboring grounds. Supported by the whole Munster family (and a dragon under the stairs) in 3D moving sprites as well as backdrop lovingly adapted and colored from the original TV series.

THUNDERBLADE

SCAM ■ ST & Amiga
\$29.95

Scam's great retro conversion looks set to see its debut on the 16-bit scene sometime in December, New printers.

Your mission begins in a heavily defended city. Move through and the skyscrapers as you endeavor to avoid the enemy bombardment. Once through the war from city the real test begins, as you fly out to sea



■ THUNDERBLADE

attacking and blasting a huge, heavily armed military ship. Gunships constantly fire at you, their only aim is to send you spiraling down to earth in a cloud of black smoke. Life's hard for superheroes, isn't it?

F-16 FIGHTER ATTACK

DIGITAL INTEGRATION ■ ST (November) & Amiga (New Year)
\$24.95

F16 fighter simulations are nothing new, but Digital Integration have written a version which doesn't fly like a



■ F-16 FIGHTER ATTACK

brick. With a cockpit based on the latest specifications, laser-targeting, tandem target recognition and a selection module to enhance navigation, the intention is to produce an near-life-like simulation as possible.

But this is more than just another flight-simulator. With eight different squadrons, each covering an area of 20,000 sq. miles and a potential of 1000 targets, each mission is different. When you're off flying around you can just zap the enemy.

SUPERMAN

TYROSOFT ■ ST & Amiga
\$24.95

Fight a whole host of parademons, negotiate eternal and Rhydonia storms, rescue Lois Lane and Governor Lyle held captive by her-



■ SUPERMAN

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etc. All this and more continues to make an action-packed game which will be enjoyed by all named Superheroes.

The storyline was written in the States in conjunction with Superman's creators. DC committed promises to be as near to the comic strip scenario as possible. The game comes complete with Superman T-Shirts and a giant A2 poster.

LASERTRAIN

BIG APPLE ■ ST & Amiga
\$19.95

Big Apple are releasing a host of 125 games this year. Lasertrain, scheduled for release in November, has you at the controls of the train of the future, navigating a system of randomly generated tracks and tunnels which inter-link eight space stations set in the stratosphere. Also attack is imminent, of course, and 'The Safety Of The Earth Is Up To You'.

ALMOST - BUT NOT QUITE

If you're a heavy reader this month, Format columnist what a pleasure to see the 300th copy of the magazine. In the past - you can always find the last games. You get a 300th issue copy. Well, as the old saying goes, if you can't get it, you give it away.

We'll release this month for the ST, and 3D on the Amiga. As ever, only the best merit a mention in our (discovery) pages.

Donnie made the decision less difficult by sending us the blank discs, partially labeled Spinning Image and Future of the Job - well, they should be great when the real things take on.

Especially nice was the more than 100 games list at the end of the day by Barry (and his most recent column - better look out Cyberman II, due for release in the New Year). Barry Thompson's Super Challenge game (available in the Format office store) will game with all the previous releases, and despite the fact that the slightest justice of Barry Thompson were great as reported it on health grounds. Space Baron and Abuse from Loriciel just didn't make the grade when the other three were done.

Despite all the noise and hype, nothing should be far from expectation. Filled with square bytes it is to the Superhero attack (and more) than the previous (I) was in a whole new. Steve Blaine was as subjective as all other game, but it's been done so early in many times before that the 16-bit version was a worth reviewing.

Finally, the Action Business and Job of last month's Escape Sequence might make a good reading tool, but as a game it fell far short. At the end of the day lots of digital rooming and 'Driller' just don't make a good job.

AMIGA
£24.95

FUEL FOR ENTERTAINMENT



Two Olympic events include Long Jump, Shotput, High Jump, Javelin, Sprint, Judo, Table Tennis, Tennis and Fencing. You will need all your skills to build up what you hope was, an impressive medalist, and so it is necessary for all the right colours your programme has to make the most effective preparation for each event is how vital - a decisive victory can win or lose your place on the podium. How can you and your computer companion, win a Daley Thompson medal when all his talent and human hard through to make a brilliant and exhilarating game play. All of the training is for the Olympic Challenge!

1988

CELESTIAL



Your plane has ditched on a mountainous plateau somewhere in Deepast Tibet. You and your companions are alone. A large shape moves toward you, you roll your eyes in disbelief: a Dinosaur - where are you ... and when? Surviving, means traversing 3D graphics and 4 way scrolling, give that '80's cinema mood as you learn not only to survive, but also that your companions are not all they first seemed!

1988

CELESTIAL



From the SNK state the coin-op smash now for your home micro. This multi-level, vertically scrolling arcade thriller throws you deep into the jungles and ruined cities of a cruel oppressive Freedom is your only ... Gemilla We is the means!

16 BIT STATE



POWERDROME

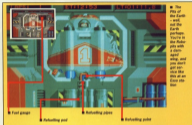
ELECTRONIC ARTS



BT - Joystick or mouse. Reviewed. \$24.95

Amiga - disk and Jan-March. \$24.95

When the coffee machine starts dishing out hot water with strange ectoplasm floating around on the top and you get notes from Santa politely informing you that your request for a Mega BT has been turned down, you know it's time to go in search of the perfect racing machine. Powerdrome offers just that. Hop into your Typhoon, and fly around the track. With pit walls flying towards you at the speed of light all your troubles will soon seem like little ones.



■ The pits of the Earth - well, not the Earth per se. You're in the floor pits with a dam, aged wing, and you don't get service like this at an elite station.

■ Fuel gauge ■ Refueling pit ■ Refueling pole ■ Refueling point

GRAPHICS AND SOUND

Powerdrome might not win any prizes for its sound effects, but with amazing graphics you soon forget any faults in this area (shouldn't a lot like a John McVie James concert - Ed). There is no opening music, and only the annoying rattle of an engine which sounds as if it came out of a 1990 Volkswagen Beetle accompanied your lap around the track.

However, the main graphics effects are high quality. The stars you fly through have a lot to be desired, especially the snow-dome which looks exactly as if the brightness level has been turned up so far it's gone off the scale. But that aside, even with super-fast and super-smooth movement you'll be surprised at just how quickly everything moves. Switch to the afterburners and camera screen as you to quickly its frightening. Powerdrome doesn't just move two walls and a floor at you with lightning speed. Bridges, doorways and all manner of levels, bars, and hills keep Powerdrome alive with electrifying movement.



▲ Flying road from car's cockpit could even give an armchair a train-wreck



▲ For popping hills!

AIM

Powerdrome gives you the opportunity to enter the electrifying world of the Typhoon pilot. Like a normal out of test you can race again four of the galaxy's most outstanding pilots to win the coveted Cybernetic trophy. What, you've never heard of the Cybernetic trophy? It's the one achievement which all great space racers long to get their hands on. Everybody knows that.

Don't expect to pick up the joystick and win the race on your first lap round the course though. Commanding a Typhoon is no easy task. The spectacular-looking powered flying-car is almost as easy to control as a Lamborghini in the windy, hazy outskirts of Bartmoor. Flying beneath bridges and between the rounded walls of the course is punctuated with more crashes than in an entire series of *Stiles of Hazard*.

The game is divided into three sections - practice, qualifying and race. The practice session gives you time to get acquainted with the track and adjust your Quad boosted turbo-impulse Typhoon so that you can get the most out of the different available settings. With six different tracks and five planets to compete on you regularly need to change filters. Attention is brought to controls, several warning bells and the joystick box are all essential if you're going for survival long enough to get round one lap.

In qualifying you are competing with the other pilots for the best position for the start of a race. You need to push your Typhoon to the limit if you're going to get a good place ready for when Pando's box is opened as the flag goes down and the race begins.

Competition for the Cybernetic trophy is fierce. Only if your Typhoon has been tuned to the optimum balance of speed and endurance will you survive. A Powerdrome race normally lasts for between 20 and 50 laps or between 40 and 180km depending on which track you are racing.

You regularly need to enter the holoports to repair what your Typhoon suffers damage, your engines near melt-down point or you run low on fuel. Time spent in here is time away from the track and so you can soon lose a race if you don't bring your pit routine to be strictest.



▲ Take this corner steady...



▲ Must be a woman driver!

STRATEGY

Controlling the Tachoon is fraught with difficulties. In fact, the mouse offers a better degree of movement than joystick control - but one slight slip and your Tachoon soon learns the true meaning of Aikido's strawberry jam. Horizontal movements control the roll whilst vertical movements dictate the pitch. With a test oval as one of the tracks, you are given as much time as you need to practise controlling the Tachoon, and believe me, you'll need it. An option to hold your pitch - the distance at which you fly above the track - gives you time to learn how to regulate corners. You'll need to disengage the pitch-lock facility and still get round in one go before you wander onto the track proper because you won't so much as collide in a race.

Powerdrive isn't like the usual 'time-lies-than-pseudo game', in theory you could race round the track for as long as you like provided you make regular stops in the Pitstops for refueling, and to repair your damaged Tachoon. Any injury you incur

appears on an indicator panel. This panel displays an aerial view of your Tachoon and suffering areas change from green to red.

With subtle warnings to inform you when the Tachoon tears the wall, and displays for engine temperature, thrust and rear view it's pretty easy to imagine that you really are seated behind the windscreen of a futuristic space racer. And boy, do you soon wish it had an autopilot!

One nice feature is that your racing adventures needn't only be the computer's domain. With a data file provided, a second Tachoon can be a fellow competitor - Powerdrive may be listed either to an ST or an Amiga computer making competition for the Cybersports trophy a true grudge match. With other racers shooting past you as you take regular stops into the wall it can soon become disheartening but perseverance will undoubtedly reap rewards. Like maybe an intergalactic SUPA membership.

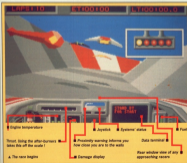


▲ The race control panel, from which you direct your drifting grand!

CONCLUSION

The mouse control takes hours of concentrated play to master. There's no pulling this game from your Christmas stocking, loading it up and shooting round the track with after-burners blazing. It takes a lot of effort learning to master the controls no matter how experienced a game-player you might be.

Despite a gameplay which is incredibly addictive, at the end of the day there is still the feeling that Electronic Arts could have made better use of the Powerdrive effects. Admittedly it's filled with graphics likely to have our systems rolling around in their sockets for a fortnight, but in the final analysis, Powerdrive is still just a racing game. But it's definitely a great racing game.



3D graphics	0 1 2 3 4 5
moving graphics	0 1 2 3 4 5
sound effects	0 1 2 3 4 5
background interface	0 1 2 3 4 5
overall	95%



ROCKET RANGER

CINEMWARE/MIRRORSOFT



Amiga - \$29.99. Joystick only. 2 disks. Reviewed

ST version - \$24.99. Christmas/New Year.

You don't need a face like a walnut to remember Rocket Ranger, the hugely popular Saturday-morning sci-fi series upon which this game is based. The hard work's been done by the guys who created Defender of the Crown and if you enjoyed that then you'll love Rocket Ranger. It's got the same blend of adventure and graphics sequences which have made Cineware products such a phenomenal success.



■ It all starts here in the War Room - but you'll get to find your agents and direct them to the action elsewhere around the world.



■ Takeoff might look easy...

Rocket Ranger is one of those games which has not been aimed at your average football hooligan. For most you don't need the IQ of a cheese sandwich and the usual responses of an SAS team in order to enjoy this game. Admittedly, if you have serious opponents then you might not appreciate the fair points of IQ, especially since the main objective is to obliterate the German war machine.

One of the first problems you encounter is landing the rocket sequence. As HQ tries along the grass runway you have to press the fire button each

time his foot hits the ground. As soon as a landing indicator that you've reached the required speed you must push the joystick forward for takeoff, mess the up and HQ soon learns the meaning of disaster. Assuming that you've got the correct amount of fuel into your rocket park (get it wrong and there's a water tank for you in mid-air) and you don't run into any Dopplegänger along the way you usually end up at your destination in one piece.

The first stages of the game are based locating your few agents and waiting for them to respond with valuable informa-

tion about the location of rocket parts. You have to acquire all five pieces of your rocket and 500 units of Luxembourg fuel, then bring it all back to Fort Dix for assembly before you can take off for the moon. This is no easy task, especially as the interminably evil General Leimweider's Nazi soldiers are out to get you.

There's no place for wraps in this game - if you think you can give the hard work and just hang around Fort Dix while the world goes to rack and ruin then you're likely to be arrested and dragged off to prison. Once there, you remain incarcerated until you're the usual buffed.



■ ... but the American backyard fuel tank is heavy stuff

AIM

The Nazis have accomplished the impossible by landing a Dopplegänger smack bang in the middle of Washington DC. This subtle operation was arranged to kidnap America's top scientist Otto Barnstorf (so why's he got a German name?), and his daughter Jane, then whisk them off by secret rocket to the moon to force them to help Hitler in his conquest of the world. And guess what? - it's up to you to

rescue old Otto and his daughter.

This might seem like a pretty straightforward task for your old HQ, but never fear, with few agents at your disposal the task becomes considerably more. These agents can infiltrate countries and organize resistance. At intervals throughout the game they report back to you with valuable information about the state of Hitler's army and the loca-

tion of rocket parts. You need to build your own rocket to follow Otto to the moon.

Once on the moon, it's plain sailing, it's more matter of outer-space footcuffs overpowers the killer legals, and the world is safe. The main challenge in the game is deftly assembling your rocket - apart from some stunning graphics sequences the true action is just end-play.



■ ... only to be disturbed by a giant thing moaning



■ Well, these Nazi zombies have built a nest in the jungle



■ Put 'em up, you sinister bomber - show those Nazi zombies who's boss with a bit of G42



■ It's all up to you now, BO - the Nazi moonbase blows into sight



■ Oh, and Trapped by the evil Lunamander a corner of a million miles from Earth, Jane and BO battle for their lives



■ Stranded in the middle of a jungle with half a million more left? Not. Better vent out an O2.

CONCLUSION

Your average space game might feature millions of galaxies for you to explore but space is space, isn't it? At the end of the day it still looks black. With *Wolfenstein* Bang! there's actually an end, and you've found Hitler and put an end to the war you became a hero and you can feel you've actually managed to achieve something besides the largest high score number a computer could possibly think of.

Repeated disk accesses make it slow at times, and having to swap disks if you've only got one drive is tedious, but this is a common problem with Commodore products.

Those who like a good puzzle and a bit of strategy in between finding lead to the Nazi will find it compelling.

GRAPHICS AND SOUND

If you're used to playing *Defender of the Crown* then you'll know what to expect. Armed with a battalion of small touches to make each time you play slightly different, BO easily earns its place in the Format Gold gallery.

The 1940's Hollywood atmosphere is religiously maintained with the hand to hand combat routines looking as false as they ever did in the original film. Exchanging blows with the offending Nazi could be improved by a little foot move-

ment - at the moment BO looks as if he's permanently glued to the floor, which is fine until you consider making a fee below the belt knee-jerk.

Flying through the sky and shooting at a volley of decreed Dussan fighters armed only with your pitiful return gun is an experience to be highly recommended to anyone with a kamikaze instinct. Looking up BO's trouser leg as he soars through the sky might not appeal to everyone but the 3D effect is

superb.

The sound effects lack imagination - the theme music crops up with an alarming regularity but even here there are enough small changes to make each game different. Digitised speech gives its head in the conversations with Otto and Jane, not a very fortunate addition for anyone suffering from heart trouble - Jane sounds like she's just come out of a screen test for a particularly tedious *Star* film.

GAME LAYOUT

The game is set out in a series of chapters. At the start of each one, a silent movie-style subtitle screen tells you all about BO's location and the current state of Jane's brain. Her grey matter might not seem particularly entraining to you, but old Adolf wants to carry her off to the moon with Otto and then subject

her to a brain drain machine. It seems to be designed that dumb blunders in movies are always called Jane - depressing if you're called Jane.

If you are fortunate to catch sight of Jane before her brain disappears to the back-end of an electroencephalogram, then you can conduct a conversation with

her. You select a phrase from a speech table, and then the answers you accordingly. The right word fine but if you give the slightest impression that you're either a male chastened pig or a Nazi boy come to tell them then Otto roars, moans, breaths you and drags out his gun. Then it's bye, bye BO.

skill graphics



moving graphics



sound effects



loading interval



overall 90%



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SDI

ACTIVISION

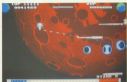
SDI - \$19.99, joystick or joystick and mouse. Reviewed.

Assign - Score three away

Based around the Reagan Strategic Defense Initiative, SDI is supposed to be a preview of how warfare will be waged on tomorrow's battlefield. Great idea but it suffers in the light of recent disarmament plans. Nevertheless, being a conversion of a classic Space arcade smash, it's still certain to be a hit.



What if there did have to be a nuclear war? How do you get it off the ground?



Getting hit by fighters while trying to defend those unprotected cockles back on Earth

AIM

Your mission is to defend your country from the enemy's space weapons and save the planet from imminent devastation. Sound familiar? It's a glorified version of Missile Command, but that's unlikely to deter anyone with a fetish for space games. You are commanding a roving satellite which you guide through 12 offensive stages, each one becoming progressively more difficult. Should you fail to destroy any of the oncoming missiles you are forced into a defensive mode and have to protect your base from attack by destroying anything in sight (There's a change - but should you fail at this point the game ends, irrespective of any lead you may have remaining).

GRAPHICS AND SOUND

SDI boasts over 200 different sprites to vary the game for hours of play. These would be perfect if they didn't all slow down when there are lots of them onscreen at once. Played against a background of revving planets with smooth horizontal and vertical scrolling as well as a parallel scrolling starfield, SDI is more than just another spacegame - it's an old man's dream. The seven different tones on offer tend to become monotonous, especially if you choose to have them playing throughout the game, but at least they make a welcome change from white noise.

STRATEGY

Controlling the satellite requires a strong collaboration between mouse and joystick which is easy to manage until a whole squadron of enemy weapons decide your day has come. At this point it's a good idea to get a second player to take command of the joystick.

In between each stage of carnage, you can collect tokens which give you extra speed, firepower and lagging lasers. Unfortunately their appearance is usually accompanied by a line of satellite-seeking fighters which makes retrieving them pretty damn difficult.

Should you destroy everything in an offensive wave, you receive a perfect score. Along come thousands of bonus points, a darning blue duck and a trip to the next offense.

Each stage is fraught with missiles and frenzied fighters. Collaborate with the fighters totally you, but at least you only lose one life. If you're unfortunate enough to let a single missile through, then you're bound for the defensive phase. Up comes a parade of your base - a grey blob with a bad attack of teenage acne - and down come the missiles, fragments of the wrecked thing, armed with more ammo than the Libyan embassy. Moo one of these and it's straight back to the main menu.

CONCLUSION

There's loads of fun accompanying when used with a 5.25 512. You start being your high-scores being taxed to dust when you know you've achieved something major, but when screens are taxed is between each phase it becomes increasingly annoying. However, it's nowhere near as annoying as being returned to the beginning of a phase when you've spent five minutes negotiating with a wretched group of fighters and ended up in O/S.

SDI is filled with brilliant graphics and is so addictive as it over was in the arcade.



Earth - the final frontier. Prey on by our enemies armed with every conceivable weapon, the future looks bleakish. But we are advised not to Reagan's SDI as maybe we stand a chance after all.

On second thoughts, the world would probably be better off in your enemy hands.

with graphics

1 2 3 4 5

moving graphics

1 2 3 4 5

sound/music

1 2 3 4 5

testing interest

1 2 3 4 5

overall 85%

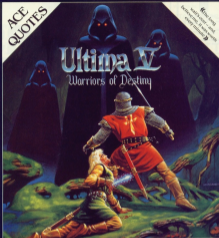
ULTIMA V: WARRIORS OF DESTINY

ACE
QUOTES

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ULTIMA V: WARRIORS OF DESTINY



GAME BUSTERS

When you lose control and your engine starts stalling; when the drum roll ends and the curtain starts falling; where ya gonna go? **Gamebusters!** More intimate shots than 'A Friend Of The Family's'.

HACKER II

■ Amiga

The object of the game is to secure four numbers from four filing cabinets. The numbers, when put in the correct order, make up the combination of the mail containing the 'Tomorrow Papers', when you have the document, have them through the main doors. However, at the end of the hall.

Run up to the cabinets to gain access to them. When presented with the prompt 'MRU command, Type ROK', you will be asked for a code. The four codes are: Red 7, Blue 1, White 4 and White 10. One for each cabinet. Filing cabinets are in room numbers 31, 33, 35, 37. Room 28 is a safe room.

The 'RQ' or 'Tomorrow' Guidance system shows you your location within the building.

Because of the Guard, he can see you if you enter the top of the corridor he is in, however, he can't see into any of the rooms. The rooms around the side of the building are safe and you will remain undisturbed if any of these. There are some rooms you cannot enter.

The order in which filing cabinets must be searched is left for you to discover.

Michael Stephenson
Barnsley, Warks



PIPE PANIC

■ ST

Following are level codes for the monster game 'pipe' away or issue four:

- Round 10 - JP
- Round 20 - PQ
- Round 30 - RP
- Round 40 - RP
- Round 50 - RZ

Steven Dignan

Huddersfield, West Yorkshire

BMX SIMULATOR

■ Amiga

It is hard to get through with the one player option selected as the green computer rider is better than the yellow computer rider. Choose the two player option and make sure the green guy gets through. If you can get the yellow player through, so much the better. Courses are: only brake on the last corner of the first lap for a very fast time. Course two: let the green.

Course three: don't overtake your computer opponent immediately.

Course four: let the accelerator hard at the beginning of the race and you shouldn't have any problems winning.

Course five: same as course four.

Course six: start well and race the computer rider to the

first corner. At this corner you must overtake him on the inside. The computer opponent crashes before and if you stick to the saddle you should be able to lap him.

Course seven: Don't crash during this course. Don't brake on the first corner, but instead brake on the fourth corner. Repeat five times. The computer file crashes once - you must overtake him when he hits the dust.

Guy Allison

Edmond, Surrey

UNINVITED

■ Amiga

Light the fireplace in the first room with matches from the pantry and place the box in the fire to get the pentagram.

Operate the amulet on door

MEGACHEATS FOR THE ST ON DISK

No longer do you need to worry about the Bombers, Mustang and Bombers in View or the amazing amount in Career Command or Code. Anything from before that you need cheat routines that will allow you to be successful.

Inside the GAMBLET folder you will find three files: GAMBLET1.DSK, GAMBLET1.TOE and GAMBLET1.FOO. Double click on the GAMBLET1.DSK file to load the GAMBLET1.DSK file to load the GAMBLET1.TOE and GAMBLET1.FOO files into an PROGMAT if you want to use it. View or run GAMBLET if you want to be longer in Career Command. The cheat files can also be executed from the main program.

The two cheat programs are written to work a way that they do not alter your original game files. Just follow the prompts and choose the options you want activated.

SUPERSPRINT

■ ST

Here's a handy way of getting into of points. Start the game and turn 180 degrees so you are facing the opposite direction. When a drone passes, accelerate and push it into the bottom wall. Crash into the wall. When you re-appear move up again and into the next drone. Repeat doing this until there are no drones left. Then collect as many spammers as you want.

Stephen McLaughlin
Glasgow

LIVINGSTONE

■ ST

Type ORAM while the title screen is showing for credits list.

■ Henderson
Liverpool

MICKEY MOUSE

■ ST

During the game, press [down], type the numbers 62113688 and press [down] again. Hitting T3 then moves you to the top of the tower on each level.

Asash Masabaki
Kingwood, Surrey



Get in the maze. Stay the course. Unleash the mad scientist's "Molecular Microwave" outside the temple to scare off the dog.

3 Wings
Exotic, Items

SORCERY PLUS

■ ST

To become invisible, reach the plan part of the game and be able to open any door, drain space and use GARDIAN WHEELER LEVITICUS GREAT - include the game between words.

Golden Quest
Prize, Desert

FLIGHT SIMULATOR II

■ ST

It is possible to take off and fly without any fuel. Switch the Engine on in the Realize menu so that keys 1 and 2 on the keyboard operate the magneto.

Pressing 3 causes the magneto to turn. It momentarily reads "fuel" before flipping back to "off". If you get a "fuel" message, press 1 to go back to "fuel". By repeatedly pressing 3, the engine can be raised into the engine room and then into the fuel-tanked machine deck. With each start of the 2 key the engine RPM increases then goes back to 0.

If you set full flap with enough Up elevator while taxiing away at



the 2 key, making sure the magneto box never reads "fuel", the RPM will increase above the 2000 mark. Although fuel tanks read empty, oil temperature and pressure gauges will show normal readings allowing you to build up enough speed for takeoff.

Slowly reduce flaps, and when you get high enough raise the

ailerons/flaps, to full extent. When you get tired of pressing, the 2 key, glide down and land again.

Start pilots by this. In the Lear Jet mode with Auto Control off, select full right rudder, a lot of left aileron to load the wings level and raise the elevator until the nose is level. You'll find that you can fly in very tight circles.

Anthony Shepherd
Barnsley, Yorks

EMPIRE STRIKES BACK

■ Amiga

Hold (HELP) while typing (EMMC) (SECRET). Let go of (HELP) and will read the words "Great Mode" appearing on screen. Pressing any key between 1 and - will play one of the following speech samples:

1. I want that ship and not yours.
2. Oh, thank goodness we're coming out of the Asteroid field.
3. Defeated.
4. You are beaten.
5. We must fight the imperial warships.
6. I'm not sure what (COPS) is saying.
7. He could destroy us.
8. He will join us in die.
9. That's it the rebels are here.
0. The force is with you - Luke don't give in to fate.

For pictures of Luke, Vader and (COPS) press L, D and C (map).

twice, hit return to resume normal play.

Paul Kelly
Woodbridge, York

STARGLIDER

■ ST & Amiga

Run into aliens rather than shooting them - you get nearly double the amount of points. This practice doesn't do much for your shields though.

John Costello
Dublin, Ireland

WINNERS AND THINGS

Game Masters needs just a few more tips, facts or maps for any ST or Amiga game that you read there in. Share your knowledge with other contacts with a little bit of generosity. Come on it's not money, it's respect - a collection of the best and funniest games. Don't wait around. Send your stories to: **Winners and Things**, ST/Amiga Format, 4 Queen Street, Bath, BA1 1JL.

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Send **AMIGA-TV** your special prize of £50 plus a couple of ST games for its marvellous Virus and Cancer Command codes.

STARGLIDER II

ST & Amiga

Listed below are the nine items required to manufacture the Neutron Bomb, and their respective locations:

- 1. One of nuclear fuel is located on Atlas planet surface.
- 2. Lump of mineral rock, obtained by exchanging 100 points at main desk on Apsis.
- 3. One of Cadambars, Exchange purified tree at depot 2 on Cadros.
- 4. Bag of Nucleon Wire, Exchange loading hall at depot 1 on Cadros.
- 5. Liquid Nitro-nucle, Located on Vela Planet surface.
- 6. Neutral Asteroid ball located between planets Angaris and Wilbey.
- 7. Hot Diamond, Exchange Egan mechanical while found at main desk on Quares.
- 8. Cluster of Nucleus located on Dorco planet.
- 9. Professor Nelson Tapan, that the main desk at Broadway and won't be told that he is not Nelson's father in his home 3. Just collect the whole set using your tractor beam. You'll know if you've got the right one as Tane would either tell you for reliable on your weapon indicator.

Nuclear objects can be obtained by shooting the Private Ships you encounter and collecting their cargo with your tractor beam. As for the purified tree, loading ball, Egan mechanical while and Egan stick, they're not so difficult to find. Building the Neutron will give many invaluable clues.

Once located, all objects should be taken to depot 1 on Angaris where the Neutron Bomb

will be constructed. If time is not on your side, then destroying the Egan projector beams on the seven moons of Wilbey will also slow construction of the space station.

All that remains is to destroy the station's defenses in which consists of seven projector beams (2 green) and eight min cannons. Once accomplished the Neutron Bomb can be launched and your career will display the message: "Congratulations hero, Space Station destroyed, Neutron is safe for use!"

RAY GOMES
WINDSOL, KENT

Go to any of the moons around the planet Wilbey to get the "Fire and Fuel indicator". The vehicles are stored in tunnel deposits. Hit land to land through the tunnel until you find a junction, turn right if there is an energy gate in that direction. If you keep going you will eventually come to a depot containing the missiles.

Asteroids provide the most useful means of refuelling. Fly them in your tractor beam and your energy will slowly be replenished. It is frustrating to use Starlines between

Wilbey and Angaris as asteroids keep getting in the way. However an asteroid never gets in the way. In world these space rocks pull the ship upwards until the planet you are landing for disappears off the bottom of the screen. As soon as this happens push the ship's nose down until the planet leaps off the top of the screen. Keep doing this until you leave the asteroid field.

MR. BISHOPSON
O'DONN, NEW FERRY, IRELAND

And use the ultimate tip. Load the game as normal and play a game. Press F for fixed targets, stop the ship and press the backspace (left facing arrow) if you have an Amiga or the (Delete) if you own an ST. This will pause the game. Now type (HELP) ON a (MAGNETIC) (HELP) (ON) making sure to include the spaces. Now hit 1 on the main keyboard, you will know if the cheat has been utilised as shield and energy levels will drop to a fixed level. Simply press 8 to automatically get every type of weapon - that includes the Neutron Bomb. Press 4 at any stage to top up your weapon store.

GORDON BISHOPSON
GLASGOW



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PACMANIA

GRAND SLAM ENTERTAINMENTS

Amiga - Reviewed, Joystick or Keyboard, £19.95

ST - Also out, Joystick or Keyboard, £19.95

The coin-op version of Pacmania was responsible for denting the financial status of many arcade goers. At least Grand Slam's version won't cause any problems in that area, but with the same addictive qualities as rampant as ever it's certain to prompt a few late-nights.

PRE-PACMANIA

Humanised since dubbed their spins on the earth into two phases, these phases came to be known as BC and AD. As mankind developed he learnt to become the master of his Universe. He created such miracles as a machine with revving blades which could be used to cut away the hair on his face and a device to walk him up in the morning. But by far his greatest achievement was the creation of a piece of plastic. Med with things called chips and buttons. A very special game was creat-

ed and a new era in the realm of mankind was formed. It too was given a name. Once again man split his spin into two phases, these were known as BP and AP - before and after Pacman.

For anyone who's spent a century with their head up the back end of a chicken, Pacman was the game in which you observed a bird eaten around a table, sitting up the dots, and being chased by ghosts. If you ate a power-pill you could run after the ghosts, eating them and taking your revenge.



■ The ST version of Pacmania - a nice change, or just better graphics?



■ I don't know why but I'm bored resurrected more times than Jesus (Amiga screen)

■ The Amiga version was never like this (Amiga screen)

AMIGA VS ST

There are very major differences between the two games. The ST version does not have the colour graphics screens downloaded from the original game and the pills on the ST are black or a grey shade instead of yellow, which makes it extremely difficult to distinguish them. The musical tracks accompanying play are also not nearly as impressive as those in the Amiga version. Whereas the entire screen is scrolled on the Amiga, no such benefits are offered to ST owners, who'll have to live with a smaller window too.

PRO-PACMANIA

If the gameplay of Pacmania has changed very little from the original version, it's in the graphics where the changes have really been made. Instead of looking down at the maze as in the original versions of the game, in Pacmania you're looking at the Pacman from a front-on 3D view. This feature comes at a price - you can no longer see the entire maze which means that you don't realise you have the 9th variation of ghosts on your tail until they suddenly engulf you.

GrandSlam boast that the Pacman has been created using 18 shades of yellow. This might seem like overkill but the resulting image looks very solid. A little more effort could have been made with the ghosts but this is only a minor fault. The mazes in the Amiga game have actually been downloaded from the original coin-op version, so they look excellent.

There are soundtracks playing throughout the games as well as gobbling sounds each time the Pacman eats a pill or a lamp of fruit. These last-mentioned can grant double point scores for eating ghosts or make your Pacman move faster.

CONCLUSION

Just when you think Pacman has finally died a death, up comes another version like a dose of gonorrhoea fever. Sometimes you wonder if anyone can give it a decent burial. However, Pacman was a phenomenal success in its day and the Amiga's graphics and sound offer enough variation on a hardware theme to make it an even greater game and almost more addictive than the original, if that can be possible. Well yes, the ST version fails to add much to original Pacman - and only rates it a 55% overall.

3D graphics



moving graphics



soundtrack



testing interest



overall 80%



BATTLECHESS vs COLOSSUS CHESS X

BATTLECHESS - ELECTRONIC ARTS

COLOSSUS CHESS X - CDS SOFTWARE

Amiga - £24.95, reviewed. Mouse.

ST - £24.95, reviewed. Mouse.

BT - No version planned

Amiga - £24.95 version due in the New Year

Finding even a half-decent chess-player in the Format offices is about as easy as tracking down the genuine Santa Claus. To get round this problem we considered playing *Battlechess* off against itself, but were worried that this might cause the Amiga to question its treasured superiority complex. Then *Colossus* appeared for the ST and a worthy opponent was found.

GAMEPLAY

There was a time when chess games were about the same as another - whether your defeat was greeted by a strange hissing noise or digital speech, the end result was still the same. *Battlechess* has put an end to that illusion. If you're playing chess as an excuse from the boss and gone of 16-bit arcade adventures, then forget this one. In so far as it is a game, the chess board into a fantastical battleground. Strategies maximize the playing of a full-scale war, rather than the innocent movement of odd little horses and castles.

When it comes to playing a good game of chess, however, the similarities of *Battlechess* mean little. *Colossus* may not offer any startling new graphics, but it does play a far better game. It almost reduces its rival to tears with moves, which would upset many a Russian grandmaster. One superb feature of *Colossus* is the way it learns from each game. With an opening book of more than 11,000 moves, extending well into the middle and end game, the traditional wisdom of older programs is becoming a thing of the past.

FEATURES

Battlechess plays an intriguing game, with each knight on the King putting a Lager on opposition knights and the Queen being sacrificed fingers to liquidate the game. These comic scenes occur at every encounter between pieces. Unlike some other chess variants, you have no control over the battles, but can only watch as pawns, knights and bishops are pulverised in front of your eyes.

Battlechess might play a more humorous game, but it is severely hampered by constant disk accesses which make it extremely slow. When it comes to making a move, even at the lowest level, the wait almost gives you pins and needles.

Colossus on the other hand offers a far more realistic challenge. While you're considering your move, *Colossus* is busy ahead, but already decided your probable moves and is considering its own responses. This sort of approach is fast and efficient, but it does introduce a few bugs and lousy ideas and you could be sitting opposite the great Spanish.

In addition, both games offer a range of odd features, from playing fantastical *Colossus* to playing over a modern *Battlechess*. These gimmicks might appeal to a kind telegraphist, but they have little use for the average chess player.



▲ With scores like this, the ranking of *They was 2000's play (great) 800 needs those business Grand rules by 80 rules*



▼ *Colossus* usually smother the competition



CONCLUSION

Battlechess is a fine program with attention paid to every detail, from the full-scale side of a chess game to the odd bits and pieces of its design. But give it a decent opponent, and you'll soon realize its shortcomings. It might well beat the brains out of your average player but when the chips are down, *Battlechess* crumbles. *Colossus* - lacks impressive graphics but its gameplay is unbeatable.

Will chess ever be the same again?

Colossus

art graphics 5.0
moving graphics 5.0
soundtrack 5.0
testing interest 4.5
overall 87%

Battlechess

art graphics 3.5
moving graphics 3.0
soundtrack 3.0
testing interest 4.5
overall 85%

COLOSSUS CHESS

X



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SPEEDBALL

IMAGEWORKS

ST - Reviewed, Joystick, £ 24.99.

Amiga - Joystick, £ 24.99.

Xanon was an astonishing success when it was released by the Bitmap Brothers and Speedball looks set to follow the same course. Far from being just another sporting game, Speedball is a futuristic version of American football, played with a solid steel ball. With the US going head over heels trying to negotiate rights for the game, it looks as if they too see this as the direction in which American football is heading.

STRATEGY

The player nearest to the ball is handed by four sensors. You can use them either to take the ball away from the red team, throw it to other of your team members or run with it up to the goal. This technique might seem like a good idea but it takes a lot of practice to learn how to manage your team, especially when control is transferred between players at inopportune moments.

Along the way you are advised to collect running teams which can be placed at the end of a match to do everything from blocking the side to protecting yourself from being tackled.

AIM

Played in a circular arena between two four-side teams, Speedball is one of those games which would not be debut in Channel 4 if it ever became a reality. It's labelled as a 'body contact sport' which is a nice way of saying that you go into the ring fighting and breathing to get hold of the ball and don't stop until you've scored a goal.

There are two levels of play - league and

championship matches. In a league match each of the opponents have different ability levels which might be alright if you could distinguish one player from another but they all look like jobs from the same news broadcast. The knockout championship has the players becoming progressively stronger with each match making an already difficult game almost impossible towards the end.



■ (Miles) says this was just a game?



■ The team. Not a very attractive looking bunch



■ Solid steel balls make for an interesting game

CONCLUSION

With digitalised sound and effective graphics, Speedball might seem like the perfect game but it has its limitations. The layout of the screen means that you cannot see the entire arena at any one time. Consequently, this makes knowing the ball is often team members not only difficult but damn near impossible. Also, the way control switches between players can become annoying, especially when the ball nears the goal. But with an unusual variation on the football theme, it is certain to prove a hit.

GRAPHICS AND SOUND

A third eye view of the arena is the only one provided. As players move up and down the steel pitch the screen is effortlessly scrolled, responding nimbly to your movements.

Speedball graphics have transformed the traditional football game out of all recognition, with solid 3D effects ranging from moving boxes set in the floor of the arena to the individual movements of each player. Speedball looks startlingly realistic. The steel ball can occasionally be thrown up out of the arena with such incredible force that

you almost have away from the monitor when you see it heading towards you.

With clever manipulation of the joystick you can have players performing sliding tackles, punching, diving and jumping. From an arena view it is often difficult to tell the difference between a sliding tackle and ordinary running. There is also little variation between the jumping, standing and punching effects but with the end result being that you capture the ball you can usually tell if your strategy has been successful.

static graphics



moving graphics



sound effects



loading times etc



overall 86%



ZERO GRAVITY

EAS SOFTWARE/LANKHOR

Amiga - £19.95, reviewed. Joystick

ST - £19.95, also new. Joystick

Zero Gravity is one of those incredibly addictive games which always looks boring (at somebody else's house) but starts playing so regularly, it might not offer any major advancements in the field of computer technology but it will keep your fingers vibrating on the old joystick for hours on end.

It's very much like a 3D coin-

oper tennis game, viewed from behind the ball. The screen is split in two horizontally, so you can see the 'court' from both ends at the same time. As you move your button around the playing area you hit the ball back into your space. With practice you can also put spin on the ball and increase your score by aiming the ball at the sides of the court. Points awarded



■ Do wish the ball treated you anyway?

If this is what happens to you when you play games of sub-square pitch it then it must be good... mustn't it?

for this vary with the position you hit the 'spide walls'.

The graphics in this German creation are impressive, if a little unimaginative, and the sound effects are punctuated with a range of mumbles, rather than true speech. At the start and end of each game the Amiga comes alive with music which might not go down particularly well at Dinghiesdown but would be enjoyed by an audience of Space travellers. The game could have been enhanced with the use of shadow, especially since learning how to reel the ball takes almost as much time as finding an armable's brain (not an easy thing to do since it tends to go into hibernation).

Zero Gravity is one of those just one more 'golf' games. It's the small details which make or break the type of game and here they've not been forgotten. It may never make the top ten games lists, but it will definitely hold its way into Santa's sack many times over the Christmas period.



■ Is this it what those space invaders do on their day off?

still graphics 3.0

moving graphics 3.0

soundtrack 4.0

loading interest 4.0

overall 75%

DRILLER

INCENTIVE

ST - £22.95, reviewed. Joystick, mouse and wheel.

Amiga - £22.95. Joystick, mouse and keyboard.

When Driller was originally released on 8-bit machines to use of FreeSpace made the game quite a graphical achievement. FreeSpace is the effect achieved by filling in the areas between wire-framed images with colour, obtaining solid 3D graphics. It benefited the start of a new era in games software, because here now released the 16-bit version with FreeSpace as impressive as ever.

Before you can play Driller you're expected to acquaint yourself with a 32 page 'Federation Briefing', 23 pages of which could be summed up in one word - waffle. Section 2 of the manual - the

origin (entirely - incoherently) assembling a 3D model which might well be more at home on Blue Peter. By the time you get as far as playing the game your brain is confounded by useless words and your fingers are covered in glue.

The graphics has not suffered from the old 8-bit version. The objective is still to plant oil rigs on various planets of the Midgal moon and so rid the area of a gas build-up which promises certain destruction. Along the way you must gather Rubicon crystals to ensure your survival as well as destroying the laser beams and scanners. Playing Red Rider on 16



sections of laser beams certainly has some appeal, but the additive qualities of the old game have been lost somewhere in the conversion.

All else, FreeSpace makes the scenario look impressive. However, the sound effects have changed little from the 8-bit days. Far more could have been done with Driller to warrant a conversion, but these possibilities seem to have been largely ignored.

■ Driller's FreeSpace system comes to the ST

still graphics 4.0

moving graphics 4.0

soundtrack 3.0

loading interest 4.0

overall 70%

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PRINTS CHARMING

Most people's second purchase, after their micro, is a printer. There are many reasons for buying one, and as many printers to suit, from program listings to acceptance letters for HM's garden party. Here is a good cross-section of 9 and 24 pinners.

DON'T DISCOUNT DISCOUNTS

The prices quoted in this survey are the manufacturer's recommended retail prices (MRPs), including VAT. Dealers can be bought less by discounting and you can normally expect to pay as little as 50% of the MRP. We have been through target prices by mail order, at which discount shops might be able to supply. (Don't buy direct from the manufacturer unless you're not retail anyway.)

After your initial purchase of an ST or Amiga, the next piece of hardware on the list is nearly always a printer. It's of very little use to have fancy text and graphics on the screen, but unless you can transfer them to paper, you are severely limiting the uses of your machine.

Which printer, then? There are hundreds out there - it really depends what you want to use it for, and also how much you can afford to spend. A 9 pin printer is more than adequate for printing letters (and will save paper, N.B. fonts is also suitable for the occasional letter).

If your main interest is in writing per se, then you will probably be better suited with a 24 pin printer, which can print letter quality at 10 dots per inch (the average 9 pinner, and normally comes equipped with three or four different fonts which add variety to your copy).

9-PIN PRINTERS

Citizen 1200

■ RRP £229.

Typical £135

This is the cheapest 9 pin printer in the survey and the slowest, but the output is of a good quality, thanks in the main to a carbon ribbon which gives a good dense print. The printer is distinctive and looks a bit 'out of' at the back behind the plates. This is partly due to it having only a pulfed tractor which clips to the top. The plates, paper guides clip to the tractor mechanism to guide the paper out of the printer and prevent the feedback. Jet a start up after that, the as

lateral problem of adding paper feeding itself back in and jamming the tractor.

The printer is supplied with a separate interface cartridge which plugs in at the side of the machine and includes the Centronics, or serial socket into which you plug the connecting lead. There used to be a cratty wheels connected by printer suppliers where they would sell a printer of this type at what looked like a bargain price, but without any interface card. The printer is, of course, useless without an interface, unless of you want to print in the diagnostic test line! Thankfully the 1200 is now priced with the Centronics cartridge.

Controls are pretty simple, with three spring buttons providing on/off line, line and form feed, but the printer does do a neat single sheet feed where the sheet is automatically gripped, fed through and aligned with its top at the print head. The manual is an elongated affair which you may have trouble fitting in your bookcase, but it's comprehensive with plenty of examples (though most are in IBM BASIC).

The 1200 is pretty Epson compatible, and produces a decent graphics dump as well as responding correctly to most of the character style escape codes. It's a good budget printer at a reasonable price and may be available at further discounts as it comes to the end of its warranted life. A new model, the 1202 is scheduled to replace the 1200 in the near future.

Citizen 1200

features	3.0
speed	2.5
ease of use	3.5
manuals	3.5
format value	3.0

those are the two you can do with a depressed text

IC 4-p-p-ars-ol-and

Emphasised text

Doublestrike text

Underlined text

XXXXXXXXXX and ..

Vertically enlarge



■ Slow but sure - good print samples from the 95 pin Citizen 1200.



■ The Citizen 1200



■ The quiet LX800 8-pin printer

Epson LX800
■ RRP £279,
Typical £210

Epson compatibility is a big plus in both the ST and Ariga printer worlds, and the LX800 offers a decent package at top of its well-known name. It's fairly compact, rounded lines house a good mechanism which can produce nearly 30 cps in NLQ mode, though only 111 cps in draft. The printer offers two NLQ fonts, approximating to roman and sans serif characters.

The LX800 has a shelf at the back to guide paper over the main and Electronics plugs, both of which project from sockets at the back of the printer. It also has a reasonable sheet feeder for single sheet paper, and a ribbon pull-feed tractor, though these two can't be fitted at the same time. The single sheet capability is improved by an auto-feed feature which takes in single sheets and aligns them at top of form. All in all, paper handling is well thought out for a budget printer.

The three touch buttons which make up the control panel of the LX800 hide more sophistication than first meets the eye, for they are, in fact, the only external manifestation of dot-type. This is Epson's 'control everything with combinations of three buttons' system of setting boldface and certain type effects like condensed mode and side type. You can select 11 different text effects, though the key sequence takes a while to remember. They're well covered in the manual, which is neatly laid out and details all important elements of the printer's operation.

Print quality is fine, with the NLQ font having large, well-shaped letters. Reverse and double-height text is not supported but just dumps from the ST are more than adequate with good grey tints.

The LX800 is a good solid machine with some handy sub-added features, and is worth considering for more than the Epson name.

OK, let's start with After that, the as

These are the two you can do with a Compressed text
 EE-CC-pppp-cc-cc-cc
Emphasized text
Doublestrike text
Underlined text
 the-pppp-pp-pp-pp and ...

■ Good NLQ mode and two quality fonts put the LX800 in the middle of the budget 8-pin class.

Epson LX800	
Features	4.5
speed	3.5
ease of use	3.5
manuals	4.0
format value	4.0

Star LC-10
■ RRP £298,
Typical £195

The new range of Star printers confirms their place as one of the leading manufacturers in the budget and mid-range market. The LC-10, which can also be had in a colour version called the LC-10 Colour (essays marketing thereof), is a smartly styled 8-pin with a list of value-added features.

To start with there are several it features that any printer user would not you are needed, but which no other manufacturer has thought to incorporate. How about a frame switch at the front of the printer, where you can reach it? How about a Cartridge port at the side where it doesn't foul continuous paper? How about being able to lock the front and side selections, so that software can't override them?

Front panel controls are used in bizarre combinations (This is Formset, not Form - Ed) to control paper feed, style selection and paper parking, which takes continuous paper out

OK, let's start with After that, the as

These are the two you can do with a Compressed text

EE-CC-pppp-cc-cc-cc
Emphasized text
Doublestrike text
Underlined text
 the-pppp-pp-pp-pp and ...

Overnight express
Just back from my
LOUD MOUTHS PRERE
The really classy

■ Extra fonts give the LC-10 a lot of added color - a 7 colour version is also available.

of the way so you can use single sheets.

Print quality is good, with three distinct fonts: Courier, Sans Serif and Draft. In addition, the Draft font can take two forms, using either upper and lower case letters or large and small capitals. The speed tests show the printer to be quite quick in draft mode, though slower than average in NLQ mode. Compatibility is reasonable, though double height again follows Star's own codes which aren't 8-pin standard. The test graphics dump came out very clearly, though not that fast.

The Star LC-10 is a good, modern 8-pin printer, with the added advantage of a cheap colour version for those who need it. The omission of the Epson LX printer, an Ariga user's should be able to install the LC driver for dumping. We'll be looking in more detail at this in a future issue.

Star LC-10	
Features	4.5
speed	3.5
ease of use	4.0
manuals	3.5
format value	4.5



■ The Star LC-10 8-pin printer

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MPS 1500C



MPS 1200P

MPS 1200P

The Commodore MPS 1200P printer prints the size of the set it does most printers, with all the features of a printer that handles much more. The MPS 1200P is designed to be the most versatile one. It can be used with any system, as well as the help of a serial, it can be used with an IBM compatible printer with IBM binary 814 character set (United Kingdom) support. It can be used with all the features available with the Amiga in the Amiga workstations. The MPS 1200P is capable of all the printing features you would expect, as well as extra additional features you may not expect.

MPS 1500C COLOUR PRINTER

4 TECHNICAL CHANGES

- PRINTING TECHNIQUE Impact dot matrix (variable print head)
- DRAFT MODE matrix 7 horizontal lines (14 horizontal lines - print speed) 10 dots, a 100 lines
- REGULATION SPEED 1 dash
- PRINTING DIRECTION bi-directional, with optional bi-directional motor
- PRINT PAPER 80 character (character) programmable form line, and to 800 LPI mode
- LINE FEED 10 lines (12 lines, 180 LPI) (variable) 100 lines (100 LPI) (variable) 100 lines (100 LPI) (variable)
- CHARACTER SET 480 characters and special characters
- MAX. PRINT LINE LENGTH 4000 characters, according to paper type selected

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Citizen MSP15E ■ RRP £344, Typical £226

A wide carriage version of Citizen's mid-range 9 pin printer, the MSP15E is low to the ground but big in width and depth. There seems to have been a conscious effort to keep everything as flat as possible on this printer. There are no paper guides for single-sheet paper, but there is a capacitor for insetting and outgating paper and a couple of smoked plastic covers for good effect.

Continuous paper is fed via a push tractor which is quite adequate in the forward direction but screws up all too easily if you try and wind paper back out. Its release with single sheets, for instance, friction feed is also supported, but there is no autoeject - alignment of A4 or A3 sheets is up to you.

Drop switches, for all the normal setup configurations, are secreted under the top cover and you have to take the printer apart to get at them, which is a pain. The kind of jelly was

designed out of most printers several years' back, but the MSP15E has been around for several years, so the 1985 copyright notice in the manual discloses. The manual font is very similar to the 1200's, though a rather more conventional shape. It does its job without any particular flair.

Print effects are largely compatible with the Epson standard, though the sequence for double height characters is different from Canon's and the Citizen has its own sequence for reversed text, a feature Epson printers don't support. Our test file confused the MSP when switching from reversed text to double height and produced a weird result, but both

OK. Let's start with After that, the

Those are the two you can do with a
Expanded text
Expanded text

This text should be
and this

Double height, equal size and
expanded text are special features of
the MSP15E.

double height and expanded double height effectively equal size text printed on their own without problem. The internal printer software is clever enough to figure out how to wrap text within a line and will default to standard line pitch with a single large letter in the top line. You can make use of this to produce simple dropped capitals.

A graphics dump produced from the ST Desktop had a peculiar dotted effect within the grey shading of the background. This could have been

problems with a pin in the particular printer supplied to us, or some minor glitch in the printer software.

It's hard to get excited about the MSP15E. It's an adequate printer but has fallen behind on some of the intelligent paper handling features of its more competitors.

Citizen MSP15E	
Features	3.0
Speed	3.0
ease of use	3.0
Manuals	3.5
Format value	3.0

24-PIN PRINTERS

NEC P2300 ■ RRP £454, Typical £315

This is an unusual printer in a number of ways. It's high and solid, uses a 24 pin font and has more paper paths than Grandpaper in an episode of Star Trek. NEC has for many years been known for its Sonneters in cross between a daisywheel printer and a giffball typewriter than for dot matrix machines. Recently, though, they've made serious moves into the dotmatrix field, producing only 24 pin machines but pricing the entry level printer, the P2300, very competitively.

The P2300 is a 10" carriage printer with tractor and single sheet feed. The tractor is push feed. The tractor is pull feed. Paper enters from the back. Paper enters from the front. All the last four statements are true, making the NEC machine one of the most versatile on the market. The tractor system is ingenious, a single pair of pinchers positioned behind the platen can be persuaded to engage the paper on top or underneath. If you feed paper under the wheels then they effectively form a push-feed system, while feeding it over them gives you a pull-feed.

Both these methods of feeding continuous paper take it in from and deliver it to the back of the printer, but the P2300 has a further surprise. Flipping up a flap at the front and sliding it away like a garage door reveals a paper guide and a second entry path for paper, single sheets this time. A quick tab at two buttons on the front control panel and the pre-fed paper slides out if the way, but remains at the printer while the A4 sheets are printed - very clever.

Print quality itself is very good, with four PLU fonts as standard and a fifth available through a plug-in cartridge. Details of the chosen font and other character attributes can be printed out in comprehensible English



■ The wide carriage Citizen MSP15E

TRICKS OF THE MATRIX

It must have been some flexibly lateral brain which led to the idea of printing characters on paper by firing a series of pins of a typewriter ribbon, rather than using a complete character set, as in a typewriter or daisywheel printer. Inevitably, the mechanism that proved extraordinarily effective and the same quality of the dot-matrix printer has improved dramatically in the last couple of years.

The earliest dot-matrix printers had only 7 pins, arranged in a central line above the print head, and used a 7 or 8 matrix of dots to generate each character. This led to a number of restrictions, the most apparent of which was the lack of true descenders in their character sets. Descenders are the legs of letters like j, p and q. They couldn't produce crispness either.

The next innovation was the 9 pin printer, quickly followed by the 12 pin, which is still the lowest standard for dot-matrix machines. 9 pins offer the chance of true descenders and underlines on printed text. Not content with this, though, the ingenious Japanese led on the idea of overlapping the initial line of characters, the second line offset from

the first by half a pitch width horizontally, thus "filling in" each character. This was termed "near letter quality" (NLQ) - not even the Japanese had the nerve to claim any more than that!

The third stage of development also came from Japan, and was a result of the higher prices consumers being to address than home market and produce printers which could reproduce their own large characters from a computer. A 9 pin font is not up to the task, and going for more and more, over their own pins finally led to the 24 pin font for the dot matrix.

In the first the need for kerning is a lot less pressing, but the extra resolution could well be put to good use in printing high quality true letter quality characters in a single pass.

All these developments have led to the production of the daisywheel printer in all but the few specialist applications, as most computer users are happy enough with the output of 24 pin printers. Those that aren't happy look with envious eyes at the falling price of laser printers



■ The NEC P2200, 24-pin office

OK, let's start w/
After that, the st

Those are the two
you can do with a
depressed text

Overnight express:
The photographer's
cheque this one of
A little moment

■ The four distinctive fonts resident in the P2200 make a nice change from the standard Roman and their font effects

and then adjusted via a system of five-to-six push buttons on the front panel. This uses a bit of paper, but keeps the operation completely self-contained.

Open compatibility is good, though double-height characters are filtered through a non-Epson code. Refresh screen dumps from the ST using the (Alternate)-(Hold) key combination come out severely squashed as the paper needs on advancing by a pin for rather than a character line each time. This seems to be a general problem with many 24 pinners, as the LC2240 exhibits just the same failure.

The P2200 is a well-constructed printer with a novel approach to paper feeding and configuration which set it apart from otherwise similar machines. The price is good, leaving the NEC machine a strong contender in the 24 pin market.

NEC P2200

features	4.0
speed	3.5
range of uses	4.5
manuals	4.0
format value	4.5

Star LC24-10

■ RRP £459.

■ Typical £339

This is Star's main entry into the 24 pin printer market and it is some way the big brother of the LC12. For a start it's the same size as the 12, though bigger in all dimensions, and has the same sensibly placed sockets and switches. It also offers a paper parking system which takes continuous paper out of the way while you're printing single sheets.

There are four ribbon fonts to the left, though it's hard to think of a suitable use for the handwriting style 'Script'. You can print in double height and with or quad height and width, giving you limited scope for page design using just the facilities of the

printer. Paper can be fed forwards and backwards by increments as small as a single dot line and a 'User mode' prints characters in two columns rather than one, taking twice as long and sounding like quite a substantial error.

An interesting innovation is half-type mode, whereby the LC24-10 feeds the last line of text for enough up that it can be read like a teletype. It stops then when the flow of data stops, and waits for the paper to continue where it left off as soon as a revision more data. Apart from removing your friends, it's hard to think of this as an essential feature.

The LC24-10 has a slot at the front for an additional font card or a 2K RAM buffer expansion which should speed the results of limited to your memo when printing long lists. You can only add one font at a time, but with four internal ones, this is not unreasonable.

OK, let's start w/
After that, the st

Those are the two
you can do with a
depressed text

Overnight express:
For really classy
LOUD MOUTHS PREFER
Let the lines glow

■ The four internal fonts supplied with the LC24-10, though it's a bit cheeky to describe the varieties of Brother as separate fonts.

GETTING GOING WITH YOUR PRINTER

A. ON THE ST

The ST leaves it up to individual programs to control whether printer you have, but normally everything is assumed to be Epson compatible as there's no trouble.

If you need to do screen dumps to your printer - by holding down (Alternate) and pressing (Print) - you may find that the dump runs off the end of the paper at a 27 carriage return. You can alter this from the 'Control' menu, necessary. To get it to make sure your font disk has the disk directory CONTROL.400 or if copied from the master Language Disk supplied with the ST) and choose Control from the Disk menu.

Change the 000-per-line setting to 80, and the dump should fit. If you want to save the modified printer setting, use the 'Save Settings' function from the (Options) (Print) menu.

We found that the 24 pin Epson LC240 and the NEC P2200 could not print screen dumps properly at all.

B. ON THE AMIGA

The Amiga, in contrast to the ST, takes all control of printer operation away from its programs and allows its printer operations on your font disk in a sub-directory called PRINTERS in the STVE directory.

The version of Workbench bundled with version

Amiga 1.2, which has no 24 pin printer drivers. This is really annoying when doing graphics work. There are, perhaps, the soon-to-be-released Workbench 1.2 routines file, but you needn't wait: these recent programs will already have the 1.2 printer drivers - as should just up your program and look in Workbench to see if 'Printer' is on the list of supported printers. If so, it's 1.2.

If you only have the 1.2 drivers, all the printers have already work with the Epson (Star) driver.

If you have the 1.2 drivers, always (usually) do all 24 pin printers, and (usually) do 9-pinners. The NEC Printer has a specific driver.

If you want to copy the 1.2 drivers from a new package's font disk to your own 1.2 Workbench font disk, just copy the file with the name corresponding to the driver you want from the STVE-PRINTERS directory at the 1.2 disk to the same directory on your 1.2 disk. You'll need to use the CLI for this, eg

copy your 1.2 drivers disk to DPO1

copy STVE-PRINTERS*.drv to myfont

copy your 1.2 disk to the drive

copy myfont*.drv and other resources

Note when you install you should use the (Epson) driver on your preferences list.



■ The Star LC24-10

The LC24-10 is an effective 24 pin printer with a lot going for it. The current trend is to add as many peripheral features to a printer as possible, and Star will certainly take some beating. In their case, though, they're not scrimping on print quality or speed to achieve this.

Star LC24-10	
features	4.0
speed	4.0
ease of use	4.5
manuals	4.0
format value	4.5

Epson LQ850
■ RRP £758,
Typical £512

This is Epson's top of the range 24 pin printer (their lower priced LQ500 was unavailable for review because of a warehouse stocktaking check) and it's a big solid machine complete with sheet feeder, push tractor and cooling fan. The control panel uses a variant of Epson's SoloType to select font, pitch and condensed mode type and there are also controls for paper feed.

Like the Star and NEC printers, the LQ850 can print continuous paper out of the way while dealing with single sheets. It also has a semi-automatic loading feature which takes

paper from the supplied sheet feeder and feeds it up at top of form. The printer has a second tractor, using friction rollers, to help the paper out, and takes the novel approach of stopping printing while it clamps paper between the two.

The print quality is OK, though draft print is a bit more wiggly than most. There are two resident PLQ fonts, imaginatively named Roman and Sans Serif, but there's also room for two font cartridges which can carry any of four others. It's quite speedy in both draft and PLQ modes, but suffered the same problems with 57 graphics dumps as the NEC. It would be interesting to know why this is?

Text effects like double height are included, but like other Epson printers, no reverse text mode is supported.



■ The greater result of an 87 screen dump on an Epson LQ850 - the NEC P2200 has a smaller setting



■ The Epson LQ850, its fully featured brother the LQ500 has much the same printer mechanism, but not such sophisticated paper feeding options.

ed. All in all, though, a good office-quality 24 pin printer with very robust mechanics which should last years in normal use.

■ In a future issue of Format we'll be looking at colour printers - which are the best buys and how to get the best out of them on your ST or Amiga

Epson LQ850	
features	3.5
speed	4.0
ease of use	4.0
manuals	4.0
format value	4.0

SPEEDS AND SPEEDS

It won't have escaped the notice of the observant reader that the print speeds in our comparison table bear little relation to the manufacturers' quoted figures (often fast being lower). This is because our test and suppliers are keen to show their products in the best light and have their machines printing a single line of text, usually 16. No carriage returns or other non-printing characters which might slow it down are included. Our tests take in typical line of text and repeat it 20 or 40 times (2000 characters, a more solid test, we feel, of typical use).

Based on a combination of price, speed and features, here are the printers that the Format team reckon are the top buys:

BEST 9 PIN PRINTER
Star LC10

BEST 24 PIN PRINTER
NEC Prowriter P2200

(Highly commended: Star LC24-10)

PRINTING SPEEDS ON TEST

	Draft (lines)	Text	PLQ (lines)	Text
Oliver 1200	120	95	95	70
Epson LQ800	105	110	23	18
Star LC10-15	100	87	35	20
Oliver MP-100	100	100	40	20
NEC P2200	140	91	47	37
Star LC24-10	147	100	47	38
Epson LQ-850	120	105	70	42



PD UPDATE

Do programmers never rest? While most of us have only just got over *Don't Rest Night*, the ST and Amiga PD libraries continue to grow at an astonishing rate. Jason Holborn searches the new disks for the latest and greatest.

Swimming through the public domain libraries can be a strange experience, sometimes you feel like crying at the unorthodox clock accessory past up onto your screen but every so often you find a real gem of a program which really makes the effort worthwhile.

Hidden among the plethora of desktop calculators and spreadsheet demos, a treasure trove of software is just waiting to be discovered. If a software file appears within these pages that you can be sure it has passed our strict tests and is a medal for your own collections. If the file has been awarded our coveted PD Platinum award then it's just too good to miss.

UNIQUELY UNIX

As the world's leading among you, here's a quick overview of those rather popular Unix commands that seem to pop up everywhere these days. **DD** - The standard Unix Word Count utility takes a standard ASCII text file as its input and counts the number of words within the file, being input of **DDY** - Difference - Reads two files as its input and then compares them. Any differences found are then reported. **DIFF** - Global Header Expression Search and Print It - The reference flag from read labels is flexible and an ASCII pattern and reports all instances of that pattern within the file.



ST-TOOLBOX

MSX systems like GEM on the ST are of very nice but can often seem limited compared to the list of facilities that are available through the more conventional command line based computers. Amiga owners of course can fall back onto their machines standard Command Line Interface (CLI) but the solution is not so clear cut for ST owners.

ST-Toolbox is a fully featured command line interface that contains some powerful facilities. As well as

```
del - delete a file or directory
dir - list files and directories
edit - edit files
find - find files
grep - search for text
install - copy files
mkdir - create directories
rm - remove files
rmdir - remove directories
sh - shell
tar - archive files
unzip - extract files
```

■ ST-Toolbox is added, displaying a list of all its commands.

the more mundane commands, to copy, rename and delete files, ST-Toolbox features several Unidisk commands, such as **MC**, **DIFF** and **DIFF**. If you're a hardened Unix hacker then these should make you feel instantly at home.

What makes ST-Toolbox so special is that it allows for the creation of batch files. A batch file is best described as a program written using DOS commands to carry out a series of tasks by entering a single command. For example, if you wished to clean up a disk by erasing all .BAK

files and then copy the remaining files to a hard disk, a batch file could handle this quite nicely. The example batch file would probably look something like this:

```
*****
erase /s /q *.*bak
copy /s /v *.*
*****
```

Once you've created your batch file, it can then be executed like any other program by simply typing its filename and pressing **Return**.

SECOND ST MANUAL

Whether you're a die-hard of programming or you're still trying to figure out how to match-up your ST the Second ST Manual will earth everything. Although not a program as such, it contains lots of solid information that will help you uncover the hidden secrets about your ST.

The Manual was written as a companion to the standard system guide that was bundled with your ST. Topics covered start from What the Salesman didn't tell you and how to switch on your ST right up to a

ST - BEST OF THE REST

JUGGER - Do you remember the one tedious Jugger game that did so much to promote the Amiga in its early days? Well, you've passed it, the format does has finally made it across to the ST. **JTAG** 800 EMULATOR - A utility must for those of you who still have software written for the 8 bit Atari. Capable to run all standard 800 software. **Labels** - Transforming the software to the right disk format could cost you a fortune. **RESEMBLY** 486-800 - if you're cheap but don't experiment in artificial intelligence, Murray is a rather obscure fellow who enjoys a good conversation. **More** only.



Print labels with Label Expert by Jörg Tröjan

Print Labels

■ Label Expert displaying your finished label as it will appear once printed.

detailed description of using GEM and the Desktop. However, if you're looking for a full review, read *dump of the 8008* or an extensive though open look at the GEM code that you'll unfortunately have to look elsewhere.

LABEL EXPERT

If you've got a large collection of video or audio tapes, then Label Expert will be an absolute boon to

you. Running on a mono ST, it allows you to produce labels in various forms on your computer and then have the results dumped to your printer.

Label Expert produces a large range of different sized labels ranging from cassette video cards, two sets of video cassette labels, and disk labels for both 3.5" and 5.25" disks. Producing your labels in a 50 line fit (ing in a form; just enter text in the

spaces on the label and that's it.

Label Expert works on almost 576 only, but of course if you have the mono monitor by Nick Reed that are published on last 2's cover disk then this shouldn't present too much of a problem. Unfortunately, no documentation is on the disk, but it shouldn't take too long for you to work out the finer details of this excellent utility.

AMIGA

All the programs listed within this month's Amiga PD update were taken from the Fred Fish collection of public domain disks. Most can also be found on other libraries but the disk numbers quoted refer to the Fish library.



GUARDIAN Disk 154

It's almost a year since the first Amiga virus from the now infamous SCA hit the headlines, and even now they continue to seek havoc on the disks of unsuspecting Amiga owners. One of the best Amiga virus killers to date is Guardian.

Guardian only needs to be run once and it then stays within your machine even after a soft reset or a hard from the GEM. Most viruses currently making the rounds on the Amiga only affect the local machine when you boot with the unformatted disk; they then lodge themselves into the operating system and proceed with their evil work. Guardian works by lying in the background checking every boot disk. If a disk has a non standard boot-block, Guardian will halt the boot process and display the offending sector. Most virus programmers cannot avoid the opportunity of booting their eggs and often leave bad messages within the boot-block. If you recognise the error as containing a virus, you can then replace it with a standard AmigaDOS bootblock and continue.

As Guardian looks at all boot disks and compares their boot-blocks with the standard AmigaDOS boot-block, it should be able to trap and prevent Amiga viruses and any future variants. Protected and updated.



■ A sample graph displayed by A68K

angle of elevation of the screen, the wavelength and the thickness of the wing. Using these values, A68K then proceeds to calculate the flow across your wing section and the fuel results are displayed as a rather attractive graph that looks more like a Mandelbrot, while still of great use to the average Amiga user. A68K can produce some very pretty graphs.



DOTIL Disk 70

Along with Workbench clocks, DotIL utilities seem to be all the rage with PD programmers at the moment. Although they stand in themselves, poking one that suits your needs can be tricky. DotIL is one the better offerings which may well be worth a look if the GUI is just too much for you to cope with.

DotIL is a full-featured file management utility that gives you all the power of the GUI while maintaining the ease of use and friendliness of the Workbench. Everything that you would normally only think possible by working through the GUI can be carried out from within DotIL. Many of the early Public Domain disks were useless and therefore only accessible from the GUI, but by using a tool such as DotIL, even the most inexperienced

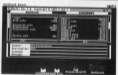
Amiga user can take advantage of their contents.

Together with excellent documentation files, it is a worthy PD Master's winner and a must for all frustrated GUIers.

A68K Disk 110

Thinking about trying your hand at programming on the Amiga but can't afford the price of a decent assembler? Look no further than your local PD supplier. Several programming language compilers and assemblers are already available within the PD libraries such as implementations of Lisp, Prolog, C, but for the purists among you who like your programs to have that turbocharging that can only be achieved through machine code, A68K is worth a look.

8086 is a full Amiga 68000 assembler. A full range of constants such as macros and conditional assembly are available as well as a whole host of other features. While not quite at the same league as DrefPro 2 (mentioned in Page 4), 8086 is a real find for the programmer on a tight budget.



■ DotIL copying files from one disk to another.

AMIGA - BEST OF THE REST

AIRFOOL Disk 190

Airfool was designed to illustrate in a personal form, the flow of liquid across a curved section such as an airfoil wing. Sounds useful I hear you call, but even if you're not intending taking your own jet fighter, Airfool can still be a surprising amount of fun to play with.

Airfool allows you to change the

SPREADSHEET - Disk 82 - A nice little VisiCalc compatible spreadsheet. An ideal program for the money-conscious.
TELEVISION (VIDEO) - Disk 99 - One of the excellent Actionaid games, play between you two - you need the equipment.
VIDEO (VIDEO) - Disk 107 - Review by the editor of the Amiga's outstanding system magazine. If a MacIntosh title is designed as a tutorial on programming the Amiga.
MOVIE - Disk 116 - Real knock your socks off drama! Real show the Amiga at its best. Includes the famous Reader and Submariner. Produced using Script Animator 3D.

THE SUPPLIERS

In the UK, the following companies may be able to supply ST and Amiga PD software. To find their full addresses, just write for information into envelope 113 this month.

When ordering, list the library which disk number you need (Amiga) or just the program name (ST) - and enclose 50p to help offset your board's cost.

Amiga
George Thompson Associates;
Amiga PD Librarian; Software 87

The ST Data Software
Flooziesoft ST; Page 4; The South West Software Library, the UK.



8 INTO 16

Code Masters have long been one of the leading budget 8-bit games houses, but until now they've been slow to take up the 16-bit challenge. At last that looks set to change - Richard Darling and Bruce Everiss talk to Format about the challenge of the ST and Amiga.

WHAT'S NEXT?

Next, recently announced, is the second series of wonder machines. It's been designed by Steve Jones, founder of Super and progenitor of the Macintosh. Dood of the 1000 (4000 CPU), 1000000 (4000000 CPU), 10000000 (40000000 CPU) and 100000000 (400000000 CPU) are all available in a single box set, all for \$2000 or so. John Hayes is still negotiating the Macintosh, and is looking for education and corporate markets. Master is not going to sell the 16-bit games machines after all.



Richard Darling, one half of the Code Masters dynamic duo. His brother David completes the team.

There's a lot in the press about Code Masters being a true family business - how true is that?

The four siblings, the project managers if you like, are David and Richard Darling - they're obviously best selling authors in their own right - Tim Miller and Mark Whelan. We have on our books a technical, say it experts, of 250 technical staff, plus musicians, artists and coders. It's my own guess that we have somewhere round about 100 of those currently actively working for us, usually in groups of two, maybe three.

Why have you taken so long to get into 16 bits as you have?

That, we have moved into it slowly partly because we have been let down by some programmers in the past, but also because we wanted to establish ourselves as firmly as we can doing 8-bit games.

Does the challenge of 16-bit programming daunt you?

The Amiga does that to the ST. The ST does seem to be a lot more straightforward and easy to understand. Then again, from its specifications, the Amiga seems capable of almost anything.

The encouraging thing is that in the last few years people have actually got the old humble rubber-keyed Specials to do some incredible things. I see a demonstration by one of our programmers the other day - not in any game, it would take too much processor time - of sprites on the Apicom which he couldn't produce on a 64, the quality in colour terms, was getting close to something on the Amiga. It was incredible. On the face of it, the Amiga is that much more powerful and once you get that kind of programming effort put into it we'll see games getting better and better. That is true of all machines, the larger that they are popular and the more people that write for them, the more sophisticated software will become. The Amiga's unbelievable is not of itself.

Suppose you were designing a 16 bit games machine, not a console but a machine that will run games, what would you put into it?

Steve Jobs? Next would be very little, thank you. The biggest problem

holding an advancement of computer games at the moment is the delay in getting out CD - interactive CD ROM - standards. As soon as Philips and Sony get their acts together on CD that is going to allow a whole new expansion, an explosion in computer graphics. The sheer size of VCR Megabyte disks is phenomenally useful.

Since you began a few years ago, how has the cost of developing a game changed? And will 16-bit games change that?

It works out at quite a bit. Even a couple of years ago it was not necessary to get professional graphics in a game or even professional music. Now it is essential. As competition increases all games are getting better gradually and we have to try to stay ahead.

In terms of manyears, Shareboard took roughly four and a half months programming, a couple of weeks for graphics and another week for music. During that four and a half months there was always somebody at Code Masters working in development and research.

What about prices? You're famous for the \$1.99 8-bit range - are you going to offer a similar price on 16 bits?

We are actually going somewhere in the middle, \$14.99. For the largest

GOING TO MARKET

"The problem is someone goes into a games shop and there is a wall over there with 250 games on it. They're going to go for the one with the best cover and name. They've got to go for something which they are familiar with already, like 16 Code do with Hercules. Things like Warlord, and now you have caught their attention you can't really do wrong. We've learned from the success of what we did to deliver quality products from manufacturers in a self-organized and we're putting a lot more effort into names and cover art.

Games are pretty expensive to create. Making up commercial levels that aren't made names is much better - 6800 is our classic example. The other model right is to add professional-sounding words into the title. It might be International Rugby Simulator and perhaps it Advanced Football Super and Professional in the name of help."



software we're using at all we will want to be rewriting £1.99 games. They will be converted and completely rethought. Really it's just the title of a license game's title that is being protected - the games are being redesigned.

We know that for a Spectrum game, unless we really screw up, we'll sell 150,000 minimum - which explains the price difference. Even by official estimates there are only 120,000 STs and 405,000 Amigas.



■ **Publicity-caster Bruce Evinco, Code Masters' marketing supervisor, international Rugby Simulator is now being converted for the Amiga and ST. "I was there at Falkenberg (the Eric Clapton band) dressed. It was a great match." And you're sure the Rugby was good too, Bruce.**



■ **Although Code Masters are only just embarking on their main 16-bit effort, they have had one previous success: Pro BMX Simulator. Here's a screen shot from the 8-bit Amstrad (ST) version (L&L) and also the Amiga conversion (Right).**



so if you only sell 150,000 you've got to take the price to recover your costs. And (S&B) development costs aren't as high as they are.

How can you actually make without knowing what it is you are making on the console? How do the programmers interface with artists and musicians?

The programmer would normally decide how big the main character can be, in terms of what is the biggest block of pixels he can move at the speed the game requires, given the complexity of animation. So the programmer produces a game which just moves empty boxes around as to first version.

Once that's done, you just tell the artist the dimensions of the box he's got, he sends you your sprites and you slot them into the boxes. End of game.

That's why James Wilson is so good with the Clowns team. They just try to fit up with their specifications and they get a tape back from James. The team test it and it works first time.

Music is much easier of course, since that runs as a background task, so the programmer doesn't need to know much about it as the codes.

How different do you find the ST and Amiga, is writing for and to sell for?

We plan to sell the ST and Amiga games at the same price. Some companies feel that because the Amiga hardware costs more the software should also cost more. Our attitude is that it takes for money to write it doesn't take that much more effort to program on Amiga game, even though the machine is graphically more powerful, so our price should be the same.

We've just released International Rugby Simulator, which is now being converted for the ST and the Amiga. In the 8-bit edition, we say it's so realistic that the only thing missing is a dice box. Now, with the ST and Amiga versions... she's used it's extra memory, you understand. Erica doesn't appear every halftone though, since in 80 games or so, you'll just have to play it to find out how anatomically accurate she is.

We weren't sure whether it was worth doing an Amiga version because the Germans don't play rugby and that's the main Amiga market. But look at Sports, it isn't our national sport but there's plenty of interest over here. And The boxing

Do you find it hard to recruit ST and Amiga programmers?

No - quite the reverse. Many of our current programmers want to move up, but we have to have a continuous flow of 8-bit products. Our maturity is £1.99 8-bit games.

Next year you'll see a clear run of ST, Amiga and PC releases. We've got 16 PC releases due out.

Finally the ultimate question, which of the ST and the Amiga do you see as being 'the winner'?

I have more confidence in the ST. That's from looking at the moves Commodore make, they seem to make the wrong decisions promoting the Amiga. One thing against the ST is that there aren't many in America, but it has strong points in other parts of the world. That seems to be the situation at our; some areas are predominantly Amiga based while others are ST based.

The Amiga seems to have better software out there, which runs in its favour - if you are buying a machine and there's a choice between buying one that will run Interceptor and one that won't, which do you buy? It's the number one software house, and they produce on Amiga but if all what they are doing will sell a lot of Amiga, that's attention is then lost of American sales.

CODE MASTERING

"We have improved the way we developed games considerably over the last year. A lot of our development cycles months ago was done on the target machine, whereas most of our programmes have been converted over to using PCs with the target more emulated."

The system we use - it's so great! - is P&B, the Programmers Development System. It's just a plug in card for the PC. But allow you to connect two target computers to it. One of the reasons why we haven't done so much Amiga and ST stuff it is because we haven't had Amiga and ST P&B available. There hasn't been a 68000 cross assembler available, it's only been 286 and 38600.

The assembler is very intelligent and knows the target machine and its constraints very well. It also got a split screen feature where you can have a file and a right screen, so you can change it as you wish or edit for the hardware simultaneously. The P&B programmers use the Spectrum and Amstrad at the same time, whereas originally we wrote for the Amstrad and then converted to the Spectrum.

The system's pretty fast - on a powerful PC you can Open PC that you can assemble 80K of code in couple of seconds. It doesn't actually hold objects code on a target machine until we master the game - we just keep moving it on the PC. We can make mistakes though in 3 games, three thousand and the assembler does the hard work for us in a couple of seconds. Using the native Commodore 64 operating system would mean waiting half an hour for the slightest change.

NEW FROM

ROMANTIC ROBOT

MULTIFACE ONE, the MULTIface interface, was a sensation when originally released for the ZX Spectrum four years ago. MULTIFACE TWO, for the Amstrad CPC range, followed 2 years later — same pattern, same success. Now the time has come for the MULTIFACE ST — the BIG brother to the MULTIFACE family. Same pattern? Yes, and with even more facilities! So, what can MULTIFACE ST do to make an ATARI ST owner's life so much easier?

MULTIFACE ST is the ultimate RESPONSE, COPIER. It copies programs, screens, disks — all at a touch of a button. Its most powerful MULTI TOOLKIT lets you study or modify any program any time — just touch the same magic button. How is it done?

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Being a hardware device, it might be thought MULTIFACE can back-up whatever you wish, as many times as you wish. HOWEVER, to prevent any abuse, which is illegal, the MULTIFACE MUST be attached to run programs it saved. MULTIFACE will be available from November 1988, making it an ideal Christmas present for any Atari ST owner.



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TRIAD COMPILATION

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Any game not released will be sent on the day of release.
 These are mail order prices only.
CASTLE COMPUTERS THE COMPETENT MAIL ORDER COMPANY

the editor, lets you examine programs, and memory, execute instructions, and set a trace and trap processor exceptions. Although the debugger is of the beginner variety, changing such things as MMIO instructions and types of memory, it can be used for debugging programs written with any compiler that generates machine code. If the compiler or assembler has the option to dump the symbols into the binary code, then you will see procedure and function names with the code. You will even be able to view your original source code. For truly huge programs, symbolic debugging is a luxury.

A separate screen is used for debugging information, which means anything sent to the screen by the program being debugged will not be lost or corrupted.

Debugging on an Amiga is a hairy process due to the complexity of the multi-tasking operating system - pro-

jected memory locations and uncommitted registers. Decap's debugger does well, but as expected falls down if your program starts eating away at memory. It has no right to or control what system pointers. Similarly it can't single step or breakpoint any code when executing in Supervisor mode. Any odd word or longword access to memory locations 1 to 7 will appear only crash the machine - it seems nothing can be done about that.

The verdict

Editing, assembling, debugging and even program execution from the same place - not feature, but something offered by Decap.

Last assembly screen, powerful directives for optimizing code, extensive conditional assembly options, symbolic debugging. Decap has it all plus a lot more. It is packed with features and has everything machine code program developers could want.

for

- All parts integrated
- Code optimization and conditional assembly
- Symbolic debugging
- Assembled programs can be executed from within editor

against

- Debugger doesn't work correctly with 68010 plus processors. Upgrade promised
- Manual has no glossary or index

format value

As usual say, "There is no competition."

Richard Mankins

FONTKIT PLUS

£8.49 double sided disk, £9.99 two single sided disks ■ ST only, all models ■ The ST Club, No 9 Second Floor, 49 Stoney Street, Nottingham, NG1 1LK (0532 410244)

Fancy a font change? Or rather would you like to alter the characters that your printer prints or your ST displays? If the answer is yes then Fontkit Plus is probably what you're after.

Various types of screen and print fonts can be altered: 8 by 8 and 8 by 16 ST screen fonts, Degas screen fonts, MUG and draft downloadable 9 and 24pin Epson-compatible printer fonts, IBM or 80000 fonts. Fontkit works with IBM fonts up to 160 dots, which is sufficient for editing 200 dot/pitch laser fonts to a maximum of 36 points. A point is 1/72 of an inch, 36 points is three tenths of an inch.

Fontkit's editing screen consists of a large grid split in several places

by thick horizontal lines. These lines simply act as guidelines which mark the character's descent line, baseline, x-height and ascent line. As well as changing individual points in the grid, there is a line tool for rapidly marking edges up.

The character being edited can be moved upwards, downwards, leftwards, rightwards or aligned left, right or centred.

Many effects are available: Horizontally reversed a character from left to right, Vertically turns a character upside down. Mirror produces one half of a character with a mirror image of its opposite half. More specialised effects are:

Outline - outlines a character with a specified point thickness between one

and one dot.

Invert - dots the opposite of the above.

Shadow - draws a dashed outline to the bottom right of a character.

3D - adds a three-dimensional appearance to a character.

Slant - tilts a character by any of five possible angles.

Thickness - increases or decreases the thickness of vertical or horizontal lines in a character by a variable amount.

The main program accompanying Fontkit is a desk accessory called Fontswitch. This allows you to switch the screen font with an alternative font created using Fontkit, alter and access any character from the ST keyboard, and download and select new printer fonts.

Fontkit offers nearly a 10 friendly built help menu and Undo options, capable of performing just about any effect you could want on a character or the complete character set and comes with a detailed manual. Fontkit, like Desktop Publishing, document processors, word processors and any package that makes use of DOS, screen fonts or printed output will benefit.

Richard Mankins

features

0 1 2 3 4 5

performance

0 1 2 3 4 5

ease of use

0 1 2 3 4 5

manuals

0 1 2 3 4 5

format value

0 1 2 3 4 5

ABOUT THE AUTHOR

By day, Jimmy Higgins teaches British history at Oxford and writes, by night for it a freelance programmer. Fontkit grew out of Jimmy's need to display and print Hebrew characters during lectures. Fontkit Plus Pro II will be ready soon and promises to include 8 by 16 dot editing and control several new fonts in the IBM's menu. While, awaiting reviews request edges after loading and centring for long backgrounds or fonts a pretty appearance.



Fontkit lets you design new DOS, ST screen, Degas screen and downloadable printer fonts.

features 4.0

performance 4.0

ease of use 4.0

manuals 4.0

format value 5.0



BEAUTIFUL C

You've had C, writing concepts in incomprehensible cryptic code in C is very easy. With the C-BREEZE, instead of having to reformat the code by hand, large computers often have "C Beautifiers". These are fast beautifiers as source-code formatters. No matter how badly laid out your program is, press one of the four "C Beautifier" buttons and the code will instantly convert it to clean, clear formatting and make for fast. We don't know of any C or C++ beautifiers as fast.

C-BREEZE

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MachPro's latest release is an editor designed with the C programmer in mind. As every programmer will agree, the key to rapid program development relies entirely upon your working environment. A fast compiler, a powerful debugger and a decent editor are all necessary requirements for any serious programming. Several language specific editors are already available for both the ST and the

loop where more than one statement is executed as part of the loop. A dedicated Editor such as C-Breeze can recognize blocked code and therefore make sure it is displayed in the best way on screen so you can see them.

Breeze through it

C-Breeze includes all the features you'd expect to find in any run of the mill text editor, as well as a whole host of dedicated features specifically for C programmers. One particular noteworthy feature of C-Breeze is an online help facility that provides information on C conventions and syntax. While not particularly advanced (but it is doing a displaying a text file, many novice C programmers will find this a godsend).

A LOOK AT THE COMPETITION

Unlike the Amiga, the ST does not feature a standard editor. Most programming languages are therefore supplied with some form of editor. Lattice C, for example, is actually supplied with a ported version of the Amiga's ED. Shocking but true!

C-Breeze's biggest competitors are probably Tempos from EditorSoft and ProEdit from Amiga. Tempos includes features such as String Drive Referencing, an integrated programmer's calculator and the ability to run in DOS environments. One of ProEdit's advantages is that you can run the ST program... such as your computer... these within the editor.

One of the most processor intensive functions carried out by an editor is the copying of large blocks of text. In our tests, we got each editor to copy a large file (the limit - C the results for yourself) (That's enough C pass - Ed)

C-Breeze	Tempos	Lattice C Ed
32 lines	3 sec	2 min 35 sec

Amiga - C-Breeze is the latest contender for your money and is designed specifically at the C programmer.

Most ST users will already own a word processor or text editor to why buy a dedicated editor such as C-Breeze? The answer is simple. Most languages have their own individual and quite distinct source code structures. For example, with the C programming language, the brace symbols, i.e., are used to block areas of code. An example of this would be a

... You can have up to six editing windows open at once, which can be handy for copying and moving chunks of text from your libraries of previously written programs. Another nice and extremely powerful feature of C-Breeze is the extent to which it can be customized. If you previously used a different editor, the transition to C-Breeze can be made a bit easier by configuring the keyboard through a keyboard macro facility. Several keyboard maps are included within the package to provide Emacs and

Calculator command compatibility

Fresh breeze

Other worthwhile features include three different text point sizes, which can be useful for viewing large sections of code on the screen at the same time. Also, when you double click on an opening brace, all code associated with that block is highlighted in reverse text. This is useful when attempting to remove a block of code that stretches over several screens - just clicking on the starting brace of that block and then select "C2 BLOCK".

Once you've finished writing your program, you can run your C compiler (not supplied as part of the price, unfortunately) from within C-Breeze. This has the advantage of speeding up your work rate considerably. No longer do you have to constantly reload your editor each time an error occurs nor during compilation as every thing can be carried out from within a single program.

The manual included with C-Breeze is a decidedly brief but ring bound affair that is best described as adequate for the job. Every function is described in some detail but the absence of any screen shots makes the descriptions somewhat unclear.

Verdict?

So is C-Breeze worth purchasing if you already own a decent word processor or text editor? The program offers several very useful facilities for C programmers, but they alone are not enough to justify having to fork out for another text editor if you already have one. Because C-Breeze claims to be C specific, it would therefore have been nice to have seen features such as a C beautifier or a cross reference utility included with the package. If you don't own a text editor and you are interested in programming in C, then C-Breeze is a good enough tool for the job.

C-BREEZE



features

1 2 3 4

performance

1 2 3 4

ease of use

1 2 3 4

manuals

1 2 3 4

format value

1 2 3 4

for

- Configurable to your own needs
- Automatic marking of C blocks
- Provides online C programming help

against

- Manual needs example screens share
- You can probably get by with your computer's own editor anyway.

A file menu search the option lists the **Block** menu

Multiple windows

File Edit, Search

set up

multiple windows

set up

Use keyboard

print file

of large

of

of file

print file

print file

with

with

■ C-Breeze breezing through the code

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ACQUISITION

Ron Massey gives the run-down on Amiga database with a difference. Forget boring old text - now you can store sounds and pictures, and get a power-user's command language thrown in. Is it worth the Rolls-Royce price tag?

£249 ■ 2 drives recommended ■ Taurus/Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh, EH1 3BN (031-557 3260)

Traditional databases are pretty good at storing and retrieving text, but the Amiga's so-called graphics facilities make pure text operators look a bit lame. Acquisition is a new era database, which in addition to the customary functions allows you to include images and tunes in your stored information.

Acquisition is a 'relational' database, meaning that you can correlate information stored in quite separate files on disk. It also allows a degree of flexibility previously unknown. Gone are the old days of laboriously writing up a list of fields and their lengths - you can edit your screen layout as the data needs it.

Looking through Acquisition's manuals, it quickly becomes apparent that Taurus makes a strong distinction between having a database file and developing a file system as a 'project', where you will most likely link it to other files in a complete information system.

Between the covers

Taurus' current release, 1.5, of their database system certainly deserves full marks for a top-quality presentation, with three disks and professional ring binder. In addition to the recovery Acquisition manual supplied with the program disks, new users can send for a free 140-page manual written in lateral format, which includes several worked examples.

Project development facilities are provided across three system disks called Make, File and Extras. The Make disk is used to create files, trigger data files and create your screen-objects and reports.

The File disk is the maintenance manager for the system and allows entry of data into projects, report design and output. The Extras disk

includes several examples of different types of database applications.

The entire system is built around a modular concept and the system modules provide compartmentalised services with some apparently strange names:

- **'Settings'** - Defining database defaults;
- **'Creating'** - Defining database structure;
- **'Binding'** - Linking database modules by defining the relational link between different data files;
- **'Paging'** - Preparing your screen layout and customised database presentations;
- **'Indexing'** - Database management;
- **'Reporting'** - Defining output from your database;
- **'ACOM'** - Acquisition's powerful assembler programming language, with over 200 commands in its repertoire. Structured like BASIC, commands take advantage of the Amiga's special chip set for graphics, animation and sound.

Easy as A, B, C

Looking at the specification list, a first impression is that everything contains an awful lot of zeros. For one thing, you can have a text size of 30 Megabytes. The program will accommodate ten million fields to a record and ten times that number of records in a file. With some rudimentary mathematics, this means that an Acquisition project can accommodate 1,024 x 10¹⁰ bytes. Put that lot on your floppy! What it means in practice is that the system is limited only by your hardware. The program will run on an A500, but you need less disk-ettes to avoid a lot of swapping.

Making a very welcome choice away from rigid structuring concepts adhered to by more conventional methods of information processing, you are provided with a dynamic record system in which record fields

expand to accept as much sound, graphics and/or document data as you may want (10s for central of the upper limit of 10 Megabytes for each field, though).

Graphics, in standard BIT format, and sound files may be linked to records. One of the device examples supplied on the Extras disk illustrates the point: there is a complete 'tree' can written using the ACOM command macro language. Apart from textual questions it displays lovely graphics for you to identify and even play you tunes for you to identify.

Making tracks

The best way to writing up your own database is to set up from the system's Make-disk which will also format a new disk, onto which the system will build file structures. Next, select the 'Creating' icon from Workbench.

The Creating screen is headed by a number of icons and dialogue boxes which can be used for input. Alternatively most of the input for the design can be made by typing text directly into one of the five columns.



■ Guess who? You can even store pictures of your favourite cat in Acquisition's records.



■ A complete 'tree' Query written using Acquisition's powerful data fields and ACOM programming language.



NEOPHYTE NOTE

Record—a record of data, analogous to one card in a cardfile.

Field—one entry in a record, e.g., a person's name.

Database—either the program or the data. In this article, the term database refers to the data stored, depending on context.

Relational database—a special kind of database program which allows you to use data in one file to refer to data in another. For instance, one file might contain a company's list of customer names and you could add their height, another file holding a list of company products available. The two could be used in a relational system to search out how much money a given customer had spent.

Although the field lengths are flexible, you are asked to give an initial "user age" length for each field item.

Select "Quit" and, from Workbench, click on the "Printing" icon. The section of the program defines how a database relates to its other modules.

If you are developing a customer tracking system, you may wish to be able to connect records to each year and enter "Setting" (rather) "between" files will allow you to do so.

Once you have selected your printing options, return to Workbench and click on "Printing." This allows you to alter the default screen position "Create" has defined for your fields and to customize your record card design to make it more friendly. You can even use one of the graphics programs to make special backgrounds for your file presentation. You can also add a limited range of graphics from within Printing, such as lines, boxes, circles, more informative screen field label names to provide more visual appeal or for additional file information or prompts.



■ A printing-looking screen, but simple to use... you can file to specify that two databases (eg. "Suppliers" and "Parts") should be listed on a "year."

Type away

To begin entering the data, click on "File" from Workbench and select the name of the customized card layout from the menu.

Enter relevant data in each of the fields. As each record is completed, you can either click on the "Save" icon, select "Save Record" from the menu or input a "c" from the keyboard.

The next section to run is "Reporting." The report editor requires only that you build a sketch of the content of your report. Typically, the format for building a report consists of positioning the actual field names in the report in the same way and order they are to appear in the final product.

Any number of individual "break" files can be saved for future use. Report files can also be edited for on-off use.

What's the use?

With all this processing power, you might reasonably ask what it can be used for that any other database can't.

If you only want to organize your records of mailing patterns, responses and other similar relatively simple documents affairs, then at an MSRP of £295 (although you can pick it up from discount shops) for much less.

you would probably be best advised to look at something a bit less sophisticated.

But if you have a mountain of possibly inter-related data which you need to use in a variety of unpredictable ways, Acquisition will provide you with a flexible and powerful means to process it.

From all standard applications, there are few broad areas which Acquisition will adequately satisfy for most business requirements. For a database system which are, almost literally, unrestricted by considerations of size or content, typical applications include financial modeling, statistics, personnel records, membership subscriptions, postage and mail label preparation, theories, logs, calls, budgets, even educational and stock option agencies.

On the home front, a developing trend for home-based employment in areas once restricted to centralized access of office facilities makes the prospect of having a system like Acquisition quite attractive. With improved control systems, processing data at home is becoming practically more feasible (BT, are you listening?).

Conclusion

There can be little doubt that Acquisition is among the most powerful database systems available for any of the so-called "home" users, although it's unfortunate that not many home users will be able to afford the asking price.

If there is any room for complaint, it must be said that Acquisition's manual is unfathomably not paginated, and so irritatingly tedious either initially, finding specific entries in the 200-page manual and/or the 140-page tutorial manual, requires a pretty good memory. Default, however, "Screen" does not mark for a powerful product which is presented very well.

ACQUIRING THE LINGO

Initial planning for the structure of a database using Acquisition's sophisticated features can often present a larger headache than simpler systems.

Relational databases, by their nature, complex layouts. Effective use of your information requires that you have a clear concept regarding how your data interrelates before you start.

Acquisition supports three types of relational entity: **ONE-ONE-MANY** where a Parent file exclusively relates to one or more Child files. **Polymorphic (many-to-many)** records are an example of this type of structure.

NON-POLYMORPHIC (ONE-MANY) whereby fields may linked from a Parent file to one or more Child files but may not link to Child files of other Parent files. This type of structure might be used in recording manufacturers and distributors each manufacturer might have many distributors, but distributors aren't allowed to work for more than one manufacturer.

MANY-MANY allows Parent access to all Child records and vice versa. An example of this is an parts inventory where a particular part may be supplied by one or several different manufacturers, and each manufacturer makes many different parts.

Another aspect of defining relational entities is that you can also specify access order of Child records as First or First Out (FIFO), Last in, Last Out (LIFO) or, Last. The Sort option may be specified as Ascending or Descending order by any other field in a Child file.

Features

1 2 3 4 5

performance

1 2 3 4 5

ease of use

1 2 3 4 5

cost

1 2 3 4 5

format value

1 2 3 4 5

for

- Can store patterns and records on data
- Fully relational structure
- A powerful programming language
- Flexibility of structure as database evolves.

against

- Needs better cross-indexed manual and reference card
- The price!



■ A relational database in action. Here the MCI number of the patient on the top half of the screen has been used to find an appointment record which is displayed on the lower half.



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LEARN BASIC

Part five of our indispensable guide to BASIC programming covers the joys of file handling. Suss out sequential and random-access files, the various commands that let you read or write to disks and how to send data to the parts of your computer that other programmers can't reach.

When it comes to writing programs that manipulate vast quantities of data — be it colour palette information, telephone and address lists, sports graphics, bank statements or species of South American animal — listing lengths can grow frighteningly fast if you try to keep everything on BASIC statements as described last month. The alternative: store all data in separate files.

It's not so radical, or even as difficult, as it sounds. Rather than reading information from BASIC statements within the program, you simply read information from disk. The reading process isn't as fast as having the equivalent information stored in memory, but the advantages outweigh the disadvantages. For instance, the data can shrink or expand without the need to edit the program.

Several BASIC commands tend to group together to create, read from, or write to a data file. The first instruction in the sequence is **OPEN**, which has the following form:

- **OPEN mode** [(channel), filename] **LIBRARY**
- **OPEN #channel** [(mode) [(path) mode] [(LIBRARY)]

A file must be opened before any input or output operations can be performed — hence the **OPEN** is the first part of the command.

Anything in italics following **OPEN** is a parameter that needs to be supplied by you. Parameters in square brackets are optional.

The first version of **OPEN** must follow these rules: *mode* needs to be a single-character string, enclosed in quotes, which can be "W", "T", "O" or "R"; *channel* and *library* are acceptable. The letters stand for Append a sequential file, Input or read from a sequential file, Output or write to a sequential file and Random for manipulating a random-access file — we'll come on to which type you need. The *channel* is effectively a

unique number you use to identify the file with inside your program — it may be any integer between 1 and 255.

Next is the sequence of *filename*, which is simply a string containing the name of a file, with its disk drive and directory path if necessary.

The last option, *library*, if used, specifies the length in bytes of each data record for random-access files, or the internal buffer size for other types of file. The default value is 128 bytes. This can be increased to a maximum 32,767, if you're not using random-access files; then altering the buffer size probably won't be necessary. However, the loading and saving process of large files will be noticeably faster with a big buffer.

Here are typical examples of **OPEN** using the first syntax:

```
OPEN "FILE1.DAT" LIBRARY 100
OPEN "T1", "A1", "RANDOM", 255
OPEN "A1", "1", "RANDOM"
```

The second **OPEN** syntax is only a verbose version of the first. Parameters are in a different order and *mode* and *library* are included — the result is the same. One form of **OPEN** is compatible with old Microsoft BASIC while the other is compatible

with the new version — we'll standardise on the first version.

In and out

It's all very well **OPEN**ing files to work on, but to do anything useful you need to use other commands. Sequential and random-access files have different instructions for doing similar jobs. Sequential file handling first.

To read data use **INPUT**, **INPUT#** or **LINE INPUT**. **INPUT** (*channel*), **INPUT#** (*channel*), **INPUT#** (*channel*), *variable* reads data from the device or file specified by the channel number and places it into the *variable*. The channel number is the value specified when **OPEN**ing a file. For example, **INPUT #1, X1**, **INPUT#1, X2** and **INPUT#1, X3** each reads a string and an integer from file number 1.

INPUT# (*channel*), *channel*, *variable* reads *channel* characters from the specified channel. An entire file can be read in one go using the method — assuming there's enough memory. **INPUT#** (*channel*), *channel*, *file* is one way of using the command to read the end 10 bytes of file 1.

Writing data to disk or other

LISTINGS ON DISK

The cover disk this month contains several demo programs to go with this article. Run **OpenBASIC** from your **Enteric** disk. Go to the Program menu and select **Open**. Click on the driver responsible and open **OPEN** demonstration. Click on the filename separator, insert the Format code disk containing the BASIC files, type in **PROGRAMS** and press **Return**. The file will load. You may not if by clicking inside the **OPEN** window and typing **BACK** like the filename **OPEN**. **BACK** instead of **PROGRAMS** for the second program.

Go to the **File** function in the device window of Power BASIC supplied with issue 2 and, the **OPEN** listing on located for Power BASIC by opening the current cover disk on the drive and selecting **Open** from the File menu. Double click on **PROGRAMS** or **OPEN** if you wish. The files will load. You may not if by clicking inside the **OPEN** window and typing **BACK** like the filename **OPEN**. **BACK** instead of **PROGRAMS** for the second program.

POWER BASIC
Microsoft BASIC
Atari ST Computers

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OTHER OPENINGS

Normally the **OPEN** statement of **OPEN** refers to a disk file. However, Power BASIC allows other device names to be used:
CON — screen and keyboard
PRN — parallel printer port
FILE — file
DEV — printer and device with input
MEM — RAM port
MEM — integrated keyboard
For example: **CON**
PRN, **FILE**, **MEM** will write to the screen, printer and keyboard respectively. Statements go to the printer rather than the screen.

NAMING CONVENTIONS

Names can be generated by an optional module for drive names and even a random sub-directory names. The entire combination is known as a path. Information can be from 1 to 255 characters in length, and can consist of either uppercase or lowercase alphanumeric characters. Each file or subdirectory name within a path is limited to 30 character octets on the left and right, with a possible three-character file type extension, on the left.

device is achieved using **WRITE** or **WRITE**. **WRITE** writes data in ASCII in the same way that **PRINT** sends data to the screen. For this reason, care should be taken to format the data written so that it is recognizable for a later **INPUT**. Strings written with **WRITE** have spaces around them; numbers written with **WRITE** don't have leading or trailing spaces. Syntax is similar to the standard **PRINT** or **WRITE** command: **WRITE** FILE, "STRING" sends the results to file 1 rather than the screen.

Two other useful functions are **GET** and **GET**. **GET** is less of the number 1 is treated like this in if statements like **IF GET(01) THEN... , 1** and **GET(01)** will return the length in byte of the number 1.

al variables in one second, as long as your total number of bytes allocated doesn't exceed the record length specified when opening a file (the default is 170).

GET and **SET** are used for putting data into a random-access file buffer. If you remember that variables is a record of a random access file are always fixed length, the **GET** puts data into a variable at the left, padding out at the right with leading spaces and truncating, if necessary, and **SET** does the opposite but with leading spaces at the left.

The random-access equivalents of **INPUT** and **PRINT** are **GET** and **PUT**. **GET** (channel, number [, record number]) is the format syntax, so and **GET +1,2** would be



Doing It Randomly

Before reading or writing to a random-access file you must use the **FIELD** statement. This tells BASIC what format your data is going to be stored in, and has the following format:

```
FIELD (channel, number, field_width) AS (type) + where 1....
```

The channel, number is the one assigned to a file when it is **OPEN** and field_width is the amount of space allocated to a particular variable. The part in curly brackets can be repeated as often as you like on one **FIELD** statement, to set up cover

up to the specified file. **CLOSE** without parameters will shut all **OPEN** files and devices.

To illustrate all this techno-speak, here's how you might open a random-access file, write a few items and then close the file:

```
OPEN "R", "A", "TEST"
FIELD #1, 20 AS name, 3 AS age
FOR #1 TO 4
INPUT "ENTER NAME ", name
PRINT "ENTER AGE ", age
LINE #1; name; age
NEXT #1, 20
CLOSE #1
```

And here's how you would open the random-access file and retrieve the contents:

```
OPEN "R", "A", "TEST"
FIELD #1, 20 AS name, 3 AS age
FOR #1 TO 4
GET #1, 20
PRINT name; " "; age;
NEXT #1
CLOSE #1
```

Complementing this month's installment on file handling we have two short listings on the cover disk - have a look at them to see how they work. **WORDGAME** - simple Hangman-like game, file has 12 chances to spot letters and guess the correct spelling of a word.

DECTRY - allows you to add words to the dictionary file used in **WORDGAME**. Also included is a **WORDLIST** file which hold the dictionary. Check the appropriate box for your machine on loading listings.

Next month is the last part of **LearnBASIC** - don't miss it! There will be a total round up plus a look at strings and 3D functions; graphics, sound, processing GEM and the floppy ROM.

GENERALISED DEVICE INPUT/OUTPUT

Single BASIC and Power BASIC (about with in a month now), supports input and output to various devices. This means you can access the printer or serial port in a similar manner to disk files. The following BASIC devices are supported:

SCREEN - data can only be output to the SCREEN. All data generated by it is directed to the normal output with also.

VIDEO - files can be opened for input, all data read comes from the floppy keyboard.

LPT1 or **PRN** - output to the printer is possible. Data is sent to the print-

er. **COM** allows output to the serial interface as set up in Preferences. **FILE** provides output to the parallel

port. **COM** files can be opened to the serial port, and the baud rates etc. specified: **COM** (baud rate) (parity) (1 (data-format) (stop-bits))

For instance, **COM** "R", 48, "com1", 9600, 0, 1, 1" opens the **COM** 1 as an output port to the serial port. Regardless of what your Preferences settings are, the baud rate is set to 9600 with file parity, 1 file per word and 1 stop bit.

You should always check with the manual for the device regarding your serial Preferences what you can use here, otherwise you won't get any communication.

SEQUENTIAL AND RANDOM-ACCESS FILES

Two types of data files can be created and accessed by BASIC: sequential and random-access files.

Sequential files are the simplest to create, and are a sequence of bytes that follow one another on disk. The get of byte number 4000 forces you to read all the previous ones first, all with a random access file, you could, if you had one that file up properly, go straight to that byte and avoid reading anything reading the rest to get that one access file are needed for getting particular items out of a database, for example.

Another advantage of random-access files, as for as Amiga users are concerned, is that data is stored in a packed binary format on disk or tape - you need more than sequential equivalents.



accessories in the RAM disk will be loaded (very quickly) without activating the floppy disk drive.

If there are no accessories in the RAM disk then the resolution change will be almost instantaneous. If there is no DS3870P.PW file on the boot disk, STORNA.PRG will automatically install itself as a hard disk regardless of the drive identifier you specify in CONFIG.SYS.

Tom Miles

Software Warden, Essex

No, you can't!

In issue 4 I blithely stated that in order to undelete a file at that

need be done is to change the first character of the filename from 255 to an ASCII value in the range 32 to 127. Unfortunately, this precludes a common misconception about how the ST deletes files, which can also be found in other magazines, including specialist ST magazines who should know better.

The fact is that, as well as changing the filename so that its first character is 255, the ST zeroes all the entries in the FAT file allocation table that apply to that file in order to mark them as available for use. Hence, not only would you need to change the file-

name back to normal, but you would also need to know which FAT entries were affected (and what their contents were) in order to restore them.

The reason for the misconception among us probably be attributed to users relying on GEMDOS behaving the same as MS-DOS - it doesn't so since a file has gone, it has gone for good.

S A Collyer
Rugby, Works

Stealing sound samples

Get a directory display of the game boxes and locate the

SPROCKETS file. Copy this file onto another disk, and rename the copied file to SPROCK.PRG. Double click on the SPROCK.PRG file and follow the prompts. You will be asked to press keys between Q and T - do so and you will hear the computer caw "Caw, one, two, three and four". These are the samples played at the beginning of each level during the game.

Pressing Esc will return you to the Desktop while F10 quits the current sound.

Paul Carver
Rushall, Walsall

Desktop no more

You can determine which icons are used for a given file type by editing the DESKTOP.PW file on your startup disk (you'll need a word processor or editor capable of loading and saving ASCII files.)

By inserting a line under the required PNG, TGS or TTF identifier, you can make any file behave like a program file. Look at the DESKTOP.PW file - at the end you'll see lines beginning BS, BT and BP - these determine the behaviour of PNG, TGS and TTF filetypes respectively. You could add an extra line as follows: so BS BT * .com 0. This would have the effect of making all files with BS file extensions look like PNG icons (because of the BS), and behave like them when clicked or too. TGS can be replaced with any extension of your choice.

The BS and BT statements in DESKTOP.PW can be changed to file names so that when a window is opened only files matching the pattern specified will be displayed - eg. *PNG will only allow files with a PNG extension to be seen.

Paul Gray
Co. Antrim, N Ireland

BEGINNER'S CORNER

The last item in the menu bar is Options; a variety of useful desktop features can be accessed from here.

INSTALL DISK DRIVE...

A typical GEM desktop consists of two floppy disk icons. Each icon has a disk identifier (a letter) and an icon label, the "Install Disk Drive..." option allows you to change the label name, remove a disk icon or add a disk icon.

Single click on any floppy disk icon and click on the Install Disk Drive... option item. You'll get a dialog box that looks like this:



To install a new disk icon simply type in a drive identifier (A, B, C...) and click on the Install button. Point at the current name (icon name) and click the left mouse button if you want to alter the icon label. Press [Esc] to remove the old name completely, or press [Backspace] to remove characters individually, and then type in the new name. Click on the Install button when you're done.

Remove a disk icon by selecting the required icon from the Desktop, choosing Install Disk Drive and clicking on the Remove button.

INSTALL APPLICATION...

This has been dealt with extensively in issue 1. It allows you to determine which sort of data file will open an application.

KEY PREFERENCES...

You can decide how the ST interacts with you through programs and saving boxes, and set the screen resolution.

Confirmation of deletion and copies can be switched on or off by clicking on the appropriate Yes or No box, Miming (Mimic) or clicking on OK executes your decision.

One of three screen resolutions can be selected by clicking on the Low, Medium or High button. You can only select High resolution if you have Atari's monochrome monitor plugged in. Similarly Low and Medium can only be chosen if you have a color monitor or monitor.

SAVE WINDOW...

Any modification you make to the GEM Desktop with the above options can be saved using the 'Save Desktop...' option. The information that can be saved includes positioning and size of windows on

screen, resolution, printer configuration (printer setup is done via the Control Panel accessory) and icon names and positions. The GEM Desktop is saved to the appropriately-named DESKTOP.PW file. This means that if you load up using that disk, all the changes you made will be used on the desktop. If you start up with any new options will be lost when you reset the ST.

PRINT SCREEN

This option prints the current screen display. You must, of course, have a printer connected capable of graphic output. Make sure the printer is on-line and the appropriate printer driver has been selected from the Control Panel. Press [Alternate]+[Print] to stop printing midway.

You can also activate the print screen function by pressing [Alternate]+[Help] at any stage. Pressing the key combination again will stop printing.

The system will time-out after 30 seconds if you don't have a printer attached - in other words, you can't just return any after that time.

SLITTER

Only a slitter-enabled monitor will have this icon in the Options menu. It allows you to use the slitter on or off. Some software might complain if the chip is present, hence the slitting function.



Position windows and icons where you want them to appear every time you start the disk.



Configure copies and deletion and choose resolution.

Save the Desktop options. Windows layout and other preferences will appear in the same format whenever you boot the disk.

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GOLD DUST

Major U.S. computer trade showpiece Comdex is building up in Las Vegas — Steve Gold wrests the rumours from the wires, including Atari's 68030 would-be Amiga beater and Commodore's video disc secrets.

By the time you read this, Comdex in Las Vegas will have come and gone. The major event, which takes place during November, is traditional for major computer companies to showcase their new and forthcoming products. I can reveal that Atari will announce its Super 37 at Comdex.

The Super 37 centres around a Motorola 68030 microprocessor and is capable of displaying up to 4,096 colours onscreen simultaneously. In addition to this — and contrary to my earlier information — the machine will support an Amiga-style multi-tasking environment, subject to memory limitations.

Environment-wise, Macintosh-style graphics are expected. Atari will also support the Ethernet networking protocol.

As well as the Super 37, Atari will formally announce Starz, its long-awaited laptop ST. Despite reports from Atari 68030 Bob Goodwin in the Spring of this year, it now looks like we won't see the 37 laptop until at least the Spring of next year.

Oh, brother!

On the software front, keep an eye out for Shadowland Software. The company is expected to unveil into the UK its coming Spring with a whole lot full of new 37 software. Keep an weather eye



Comdex — the major U.S. computer showpiece for

Spain for their flagship product, Fightback USA.

Judging from reports on the US networks, the 377 program has already passed and is destined to become the flight simulation package for the 37. You can't wait for a UK release? I don't blame you. Call Japan Computer Products in the US on 0203-301-6794/621 for an e-mail details.

Finally, is there any more thinking that Atari is a 3D-oriented company, then again. During an online conference on Comdex during October, Sam Naveed admitted that he was placing Europe at the head of the queue for new machine shipments. The admission caused quite stir amongst online conference delegates and — naturally — Sam departed very early from the conference. I wonder why.

Amiga vision

Commodore are planning a number of changes for 1993. One interesting project that Commodore UK is working on is an interactive video disc system based around the old LaserVision standard and — wait for it — the new Philips CCD standard.

OK, in case you hadn't noticed, it's the real stage on from those ubiquitous Compact Discs (CDs). In addition to high quality sound, the CDV discs, which come in 3, 6 and 12 inch sizes, can store a limited amount of digital picture data as well.

The LaserVision technology

has been tried and tested in the Acorn Broadway project, but it's a costly system. Animate Software in the UK has been selling separate Videodisc systems for some time with the Amiga, but the systems in date have not yet been standardised.

Sources suggest that Commodore is working on an Amiga-based CDV system for interactive video applications, in preparation for bidding for a major US Department of Defense project. It's ironic to think that interactive video was the mainstay of the Amiga CDV system when Commodore CEO Chris Kelsey (remember him?) unveiled the machine a couple of years back.

Hyper intelligent

On a more general note, during a two-night online conference on Computers, Dave 'Magic Sac' Small announced his plans for a system called Hypernet. The idea is that Hypernet will be a single device to allow software from any MS-DOS-based machine to run on any other.

Hypernet is still very much in the early software stages, but Dave expects the machine to

span the Apple Macintosh, Mac 32 and Commodore Amiga environments, among others. Credit to the Hypernet project is the Transputer software, which Dave is currently packaging with the Spectra 128 Mac emulator for the 37.



Laser discs — the key to the Amiga's videodisc future?

Gold Star is compiled from the US online services by Steve Gold, a freelance journalist specialising in computer communications. Email: robbery@ps.com or comdexnet@73MBA2008 in via the US E-mail network: Comdexnet_76011.1125@SOUL.BBN.COM and the Source on F2009.

PAPERING OVER THE CRACKS

A lot of front-watchers have been sceptical by the events of the last few weeks. Finally, an I registered last month, came the attack news that that there, long-standing technical guru with Atari may be not only and other warning. Then came news that other looking light in the technical and marketing streams were going their separate ways.

Marko, a long-standing associate of Jack Trammell's from the early days of the ST or Atari, left with no public comments, and — in fact — few people have been able to contact him. One of the few people who still has Steve Small's of Magic Sac fame.

Small left a series of messages and recordings on the 37 networks, which raised shock and consternation amongst the ST community, within a week, Small retracted his comments, about "retracted the Star" that the Atari US media was collating and Marko had based his beliefs for got caught up with the problems of the company.

What now appears to have happened is that an Apple-style power struggle has broken out amongst within Atari. Unfortunately, that there was the third last equivalent in the Atari episode.

GENIE OFF-LINE

Genie on from any member of the ST Board lists on GENIE, the General Electric online system in the US, server at ST/Amiga format readers have contacted me to say that joining GENIE is rather tricky, since you must have a 30 address for routing purposes. My answer for this message was it looks like the ST service on Genie is fading away.

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FORMAT LETTERS

OK, so we asked for brickbats as well as bouquets, and this month we sure got 'em, courtesy of the Mailsoft incident. But just to show there are no hard feelings, we've decided to instigate prizes for the best letters: we'll give an ST Amiga Format Organiser (see p102) to the two sharpest scribes each month, so get writing to: Format Letters, 4 Queen Street, Bath BA1 1EJ.

MAYHEM MAYHEM

I would like to comment on your answer to the letter headed 'Mail Order Mayhem' in the November issue. May I ask why it, as you state, is against the law to advertise without a full address, your magazine accepts such adverts?

The reason I ask is because on the page facing the letter in question was a quarter page advert for Mailsoft, PO Box 5890 (our correspondence) please.

Mr D Clifford
Swindon, Wilt.

■ Can what a bunch of waffles we are. Unfortunately the editorial staff don't know what advertisements are running until the magazine is printed, so we don't realise the unfortunate postposition.

For some time this subject has been something of a grey area, but the Trading Standards Authority has explained that it is unacceptable for an advertiser seeking for money in the cash offering goods by mail order to use anything other than the full address from which the business is managed. All our advertisers have now been reminded of this fact.

Here's a reply to our comments from Mailsoft themselves:

Further to the letter published in your magazine in November, the particular computer game was ordered by Mr J Bell and not J Bell as you published in your magazine.

The computer game in question was ordered via a direct response to an advertisement placed in Computer and Video Games magazine. At the time, your magazine ST Amiga Format was not seen in this town, and I do not see why you have taken it upon yourselves to interfere with a customer that does not concern Future Publishing.

Surely a company like Future should find out all the facts in a case, before going to press.

We have written to Mr J Bell on three occasions informing him as to the position of the software ordered, Renegade for Atari ST. The game was placed in our advertisement upon confirmation from Ocean Software that this game would be available on the Atari ST computer. We were later advised by Ocean that this product was not going to be published on the Atari at all.

We told Mr J Bell a note to say he could either choose another product or he could have a refund; we have not heard from him since. We will not be able to purchase Renegade for the ST in his local full shop, as you suggested. Maybe you would like to ring Ocean to confirm the fact to your readers.

We are somewhat surprised and disappointed at the lack of professionalism shown by the editor and staff of this magazine. Can I remind you that in line with good journalistic practices, the editor should have pursued the facts and ascertained independently the accuracy of the letter before rushing to print. If, as you suggested in your comments, that the company 'feels' suspect, can you then

explain why you allow for same company to advertise in your publication. We have been advertising using a PO Box in Future Publications since your magazine ACE was launched over a year ago.

It is letters and repeated comments like yours which have given the software mail order companies the bad reputation it currently has. It is companies like ours who have been around for a long time and have been serving the computer users who are trying to change the image of mail order companies. One of our biggest problems is software houses not keeping to their release dates which they have given to the public. To change this image, we would suggest you don't your energy into the possibility of allocating some space to let the reader know what games have actually been released in the last month, as I am sure you must experience products being delayed by software houses in your own mail order operation.

We are purely a mail order company employing several staff. If the customers wait low prices on their software, we can only achieve this by keeping our overheads as low as possible, and one way is by not being on the telephone.

All letters are always dealt with in a correct and professional manner.

We are not totally satisfied with the manner this problem has been dealt with by Future Publishing and are at present seeking legal advice, on the allegations made by Future Publishing in the reply to Mr J Bell's letter.

In the mean time we are sending Mr J Bell a refund for his money and let's see if he can buy this game.

We have only had 24 hours to reply to this letter, due to the copy date deadline for going to press.

Colin Jacobs
Marketing Supervisor,
Mailsoft, London

■ We would like to apologise for suggesting that Mailsoft looked suspect because it didn't display a full address.





with Personal Pascal run with the 68010?

Need future purchases like 2700, like and Federation of Free Traders work with the 68010?

Where would I get the 68010? Would there be any noticeable difference to my 1.2/200M, new TOS, with the 68010 fitted?

I would be very grateful if you could answer these questions for me as it would vastly influence my decision of whether to upgrade or not.

Mark Weston
Weston Publishing, Leam

■ First, we must confess we haven't ever seen an ST running with a 68010, so these replies are hypothetical. In general, you would be better off by 50 to 100 Kbytes if you intend to play games much. The reason is that there are often delicate timing loops inside them which go awry if a faster processor is connected. Only fitted to Pascal, I'd think not to us, it should speed them up by around 10% - not at that noticeable perhaps.

Apparently Atari Germany have managed to fit a 68010 to an ST, but it requires you to change the ROMs, so it is not a simple operation.

To buy a 68010, try scanning a few electronics magazines for advertisers.

We'd be very interested to hear from anybody who has successfully fitted a 68010 to an ST - is it worth the hassle?

Educating remarks

I find your magazine very good, even with the price rise. No doubt you will have people complaining, but most magazines of your class are £2, to £3 and a risk (even at mail order shipping cost) is £1.00 is great value.

I am writing to your letters page because I have discovered one thing your magazine does not have a classified ads section. I have discovered this because I thought an ST and Amiga magazine would be a great place to advertise our club, mainly because our club is ST/Amiga only. We meet in Canterbury at the Adult Education Centre (Room 206) on the third Tuesday of every month. It costs 50p an evening, which covers coffee or tea and room rent. We welcome beginners or experts. In fact, about a year ago Jeff Minter came along with his out-of-control ST. More details can be got on 0276-680829.

Ian Blunbury
Whites End, Whites Drive,

Canterbury, Surrey, GU11 3EH.

ACE comments

I used to buy your enter magazine ACE every month to check out the great games for my ST, and I have found some contradictions in games ratings. I'd mention the most recent ones: is STAR you gave Super Hang 'On only 60% while in ACE it was rated 80%? Was Super Hang (11M) as better than Super Hang (off) Come-Get-Lock at the better defined graphics in 540, the better game play, the speed impression, etc? You must be joking, right? Is it worth buying or is it just an ordinary game which doesn't deserve my hand-cranked cash? You should take it into that all games are much more expensive outside the UK and we buy the games only if they are rated... (transmit?) Does the mood of the reviews influence the rating of a game? What about a second opinion besides the main reviewer?

Jay Lee
Netherlands

■ Although ACE and Format are enter magazines - we're published by the same company - we don't have any reviewers in common. I think, have you seen their reviewers? (Sorry, Jack.) Reviews are very subjective anyway: what one person finds another may not, or is glad we've got a chance of opinions between the magazines.

Dog eat mouse world

I would be most grateful if you could help me with the following problem. My dog has just chewed my mouse cable to bits and I wish to rewire it back on to the plug at the end of the lead but do not know which coloured wire goes to which numbered pin. The coil of



PRIZE LETTER

The voice of reason

I know there is a lot of controversy at present about how good the ST and Amiga are, and although your mag seems to only show this in comic form (Daphnesires, Inc) there is a really brilliant centre, and countless anecdotal potential for purchasers. Having owned an ST for about a year and an Amiga for about 3 or 4 months I feel I am in a position to put these machines in perspective, and with any luck put the minds of ST/Amiga nuts, as well as any potential customers, at rest. So here's a quick random-of-the-good-but-points-of-both-machines-to-the-user.

Firstly for Word Processing, the ST undoubtedly outshines the Amiga in quality of software. The combination of a 1000 Kf main memory, Fleet Street Publisher and decent printer can produce brilliant results. Amigas are poorer, probably because up-programmers avoid using features made because of the flicker and low line and medium size. There is also a lack of really good RPs apart from WordPerfect - and that'll set you back over £200!

Secondly, games. Although broadly similar on both computers, Amiga games often simply ST-proof cover are generally better because of the sound (Amiga FX) and music (really beef up a game), hardware sprites and scrolling which make games like Starblay in the Amiga very difficult to reproduce on the ST. Although the ST owner has more releases, at £25 or so each neither owner will be buying many.

Thirdly, art. Again the Amiga has the edge over the ST, mostly because of its better and co-processors. Compare the ST Quantum Paint with the Amiga Protopaint, and you'll find that the former is much slower, has less options available and is more difficult to use - not because of the programmers but because of the lack of specialised graphics chips in the ST.

Fourthly the operating system on the Amiga. It is really designed for two users (hence it is a real hassle to visit) and normally I know with an Amiga there has been or is coming up for another one, or be prepared to spend an extra £100. The Desktop on the ST is much faster and easier to use than the Amiga's Workbench, although it is far less complex and often limiting. On the Amiga there is also the CLI - difficult to use, but once mastered it is extremely useful.

Fifthly there is MIDI. The ST wins hands down because of the MIDI port as standard, and excellent software support (although I Megabyte of memory is recommended).

For my opinion? Well as a games player 75% of the time, and using a word processor about 70% of the time, I prefer the Amiga, personally. However, no amount of arguing will tell us which computer is ultimately the best, it all depends on you and your wants and needs. Remember, just because a computer seems to sport better specifications doesn't mean it'll be the best for you.

And with that in mind, I hope ST/Amiga nuts and potential buyers are now satisfied. Although I'd probably be damned for Amiga bias, which I am of course as in my opinion it is the best computer for me. I hope you will respect my point of view.

R Glenn
Havant, Hants

■ Well, that seems a pretty even-handed summation up. You've perhaps forgotten one tiny point in the ST's favour - money. £8, or you reckon the Amiga just has the edge, but is that worth it?

We don't really want millions of letters saying 'Yeah, my machine's much better', so if any of you out there are going to write to us, keep your comments constructive.

a replacement mouse is out of my financial situation at present, I have managed the connecting strip inside the mouse using the same colour coding as original - could you tell me which colour goes to which pin on the wire in plug?

Terry
No address

■ You might be trading your dog for an amicable - Agnes has never chewed any of our mice up. In fact, she gets on a chair and screams whenever they come near. Sorry, we can't help on the wiring, we can't get the modular plugs of our mice apart.



Nyet!

Please put a stop to his amiable madness. It's getting very boring.

**Richard
Coburn, Essex**

Contents

Worried of Dyflout

As an old reader of your otherwise quite excellent magazine, I have recently received a worrying letter from a person. Throughout it vague references have been appearing to certain members of the amateur family, namely the Assembly and the Barbican. As a Condon

member of the Council for Rehabilitation of Armadillos and Pangolins (CRARP) I must complain in the strongest possible terms about such phrases as 'big creature with a face like an armadillo and 28 antennae not an armadillo, amongst others'.

Over many years I have forged strong links with the amateur community in this country and I can state, quite categorically, that many amateurs do not like letters to being used as figures of fun in a publication such as yours. This one is an utterly reprehensible example of openness at its worst. It is the low end of the wedge. They quit right! He.

How many amateurs can afford even an

Alan 5000?, let alone program and? Amateurs are denied education and ignored by society as a whole, consequently they have unaccountable difficulties in finding suitable employment even without the stigma of such frightening misanthropy. This one, I believe, an example of the extreme prejudice shown against ordinary amateurs striving to do the best for themselves and their families and should be treated with the contempt it deserves.

**Julian Barkway
Dyflout**

■ Sorry, Mr. Toland of Colchester, Essex, we fail.

New Year resolution

I want to purchase a colour monitor for my Atari 520, and that was when my troubles started. Which monitor to buy?

I thought I had done my homework. My rough guide was high res: 640x400 pixels, medium res: 400x300 pixels and low res: 320x150 pixels.

Looking at the adverts you only get a choice of low, medium or high res, which isn't much help. What is the difference between the Preferences menu? What is my best choice?

**Jim McGillic
Bangor, N. Ireland**

■ The ST's screen modes are: highres - 640x400 black and white; mediumres - 640x200 4 colours; lores - 320x200 16 colours.

It is generally not possible to get a monitor that can display all three modes. Only the Atari mono monitor GC1343 can display the lores mode, and all colour monitors (including a TV via a modulator) will only do low or medium. It is possible to get one monitor for all modes - such monitors are called "multisync" monitors and cost over £300.

PRIZE LETTER

Sharing a good thing

I have often seen the following phrase in magazine: "Half-tone mode does not work on early 5000s". Can anyone please tell me how one distinguishes between an 'old' 5000 and a recent one. Also, is there a way of adding to the memory bank of an 81000 Beyond 512K other than buying a board at £250 and then a bank of 512K RAM for 1130? Every time I approach vendors it offers me this option!

Even though I know three assembler languages (BASIC, PASCAL and FORTRAN), I still prefer BASIC (and Fort BASIC) to be precise to any of the aforementioned languages. Most of the criticism about BASIC seems to come from people who've probably never seen a 'modern' version of the language (eg. Polytechnic lecturers). I think BASIC's biggest stumbling block is that people are ashamed to admit that they use it, or that using it at all one time. The latter probably follow up by saying, "Real programmers don't write in BASIC," an arrogant attitude to take in my opinion.

I've developed a patch box which allows simultaneous connection of an ST and an Amiga to an Atari GC1338 colour monitor. At the press of a button the display toggles from one computer to the other. I only made this box as a one-off, but met many people who like myself had bought an Amiga in addition to their ST and found they couldn't use the Amiga with the GC1338. When I actually encountered this problem I simply made a lead of which one end was plugged into an Amiga and the other into the ST monitor lead. This was obviously unat-

racting, since if I was using using both computers at the same time, having to switch one and switch the other is not quite a bother. When I built the box I decided to add another switch for the sound, so which allows the connection of a Hifi as well, so that toggling the switch causes one computer to use the monitor's output and the other the Hifi. The Amiga's left and right sound channels are separated for the Hifi and combined when switched to the monitor's speaker. If anyone else has this problem then I would be only too glad to tell them how to build such a box, or to build one for them.

A.T.S. Wain

Manchester M15 6DP

■ Half-tone mode on the Amiga is a way of getting 64 colours on the low resolution screen (usually 32 colours only) by making the second/3rd colours be the same as the first 32 but half as bright. This needs a hardware feature in the Amiga which wasn't in the first 41000s to roll off the production line, but has been on all later ones, and the 4500s and 2000s.

The only reliable way of telling whether your 1000 has the hardware is to use an art package like Photon Paint which offers you editing in half-tone mode and see if it works! (I think that very few, if any, of the 'ratty' 40000s were ever sold in Europe, so it is highly likely you have a 'recent' one.

And we couldn't agree more with your comments about BASIC - except perhaps the bit about Polytechnic lecturers!

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You want what?

Out there, in the wide blue yonder, are some marketing men with a word sense of humour. Consider the facts, ladies and gentlemen of the gay. This month we have had press releases in the following periods; only the names have been changed to protect the innocent.

■ From Kansas comes news of Code-Itter, a Hewlett-Packard simulator for the ST. Let me guess... it'd tell me it's missed all my dots just before the next issue of Format is due to go to press? That would do the trick nicely.

Quote... Unquote

Two of our favourite bits of PR speak over the last month:

■ When asked to sign as a hard disk for next month's review feature, Alan commented, "We expect that we are unable to provide you with one" because "they are in full but limited supply." H.

■ "I'm concerned we may come of the so-called capitalists of our industry continue to launch new products and make new promises without having the ability to deliver." Thus saith Steve Franklin, MD of Commodore, in a few pretty words about their brilliant ad advance buying RRM plans. Oh Steve, we won't mention your AT Group Board, Worldwide L.S., the Enhanced Chip Set or the 2024 Party Number.

NEXT MONTH

Thursday 17th November - that's when issue 7 of ST Amiga Format goes into the streets. As well as the newest news and the handiest hints, you're in store for:

■ **WHICH HARD DISK** - The Format laboratory put these handy but pricey peripherals to the test.

■ **COLOUR PRINTERS** - Put these up on paper!

■ **OFFICE SECURITY** - Operation What, Bob? It's Amiga BASIC complex, Multitask

Instant Explorer, Palace's Shoot-Em-Up Construction Kit, Script 4D, K-Spread 3, and all the hottest releases of the month.

■ **INVENTOR'S DELIGHT** - Beginning a new series on the secrets of innovation. Make your screen move!

■ **MUSIC ON THE CHEAP** - Forget expensive synthesizers, get the best from your editor's sound chips.

■ **SOFTWARE GALORE!** - Don't forget the cover disk packed with amazing utilities, games, fonts and info for your machine.

© Contents correct at time of going to press, but subject to acts of God and the Queen's Excursion

■ **A Well-Known Printer Manufacturer** ironically chafed: "Bar-headed flats reach for a CD? I'm selling a device for £25 which allows you to draw a parallel port or from a serial port. Brilliant. Now you can get back to the good old days of fixed rates, parties, slip sets and double-dutch printers."

■ Does your mouse get restless at bedtime? Now you can buy a Mouse Park. Hang your mouse neatly out of harm's way.

■ And finally... wait for it... a hardware simulator for the Amiga. For a mere £20.95, this 'revolutionary' program lets an

old puts your £400 of hardware back somewhere in the early '70s.

Go, capitalists, go!

BLESS MY SOUL

Seen at the recent Desktop Publishing show in London: none other than a pair of rats. The two are pictured at the top, stand eyeing up an ST 100P kit - in fact, they were taking some pretty good questions to a harassed salesman. All rumours that they were looking for a bigger font size for their abby are entirely untrue.



Superheroes, Inc. by Sarkar





SENTRY
Sentry, an eagle and mouse team has designed a fabulous 2D floors store for the fast and most daring 700000/yr! With no items or visible guards and hidden treasures, yet it has been awarded for the player by the normal teaming. Sentry and Decanus why?
AMIGA £19.95



POWER PLUS
Power Plus driving skills is essential to regulate the climatic highway of speed. Deliver the situations cars and the ones that get in your way full into the top. In your tank, let the engine roar and the corn and steering track. Acquisition of laser will allow the victorious. Directed at your driving and leading skills.
AMIGA £19.95 (2 disks)



EMERALD BIRD
A game arcade adventure which has received rave reviews. Each level has its own unique solution and requires ingenuity and dexterity to complete. One player or two players 700000 actions for speed enjoyment.
AMIGA £14.95
COMPA-PLUS 4 £7.95 (2) £6.95



QUINTON
Progress through 20 levels of this fast and furious action. Lightning responses are essential to the strategic choices between better weaponry or better defence.
AMIGA £14.95



FACE OFF
Experience the sheer pace and exhilaration of ICE HOCKEY! Be prepared for the body checks, fouls and rough play. Intense competition, 1 or 2 player action.
AMIGA £19.95 £14.95

MANIAX
Maniax relentlessly pursued by the criminal underworld to save the Rock. Top regarding the world capitals. An addictive game requiring quick thinking and action.
AMIGA £19.95 £19.95
COMPA-PLUS 4 £7.95 (2) £6.95



STRIP POKER II PLUS
A exciting evening with Tom & Donna.
AMIGA £19.95 AMIG £14.95
OF AMIG-MSX-MSX ELECTRON
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