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- **WORD PROCESSORS** — Pick of the pack
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the name
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FORMAT**
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ST AMIGA FORMAT

CONTENTS



NEWS

7

So gossip from both sides of the Atlantic with a Commodore report and news from Atari's desktop product show.



FUTURES

13

Transputers - are they all hot air? We've had a close look at what's really going on, and reveal the shape of tomorrow's computers.



LETTERS

32

How can you have readers' letters in issue 17? Only by using talking computers - but read it anyway.



GOLD DUST

44

Save \$600 straight into the electronic graveyards: 88000, 88000, Link, ST laptops, Amiga graphics upgrades... all the best news is featured here first.



QUESTIONNAIRE

46

Yes, we want your personal details - inside my measurements, favourite colours... tell us all and we'll build a better magazine.



SPECIAL OFFERS

95

All the best ST and Amiga news at rock-bottom prices... and we're giving away over £100 of goodies with an immediate subscription offer.



ESCAPE SEQUENCE

98

Scraping rock bottom at the rear end of the issue. A round-up look around the month's second stories. Also the first episode of our 1988 cartoon strip.

GRAPHICS



PHOTON AND SPECTRUM

37

Reviews of two brand-new graphics packages - Photon Paint for the Amiga and Spectrum-EG for the ST.

DISK EXTRA

Details of Disk, ST1 and Interceptor (Amiga) plus a host of invaluable advice for monitors and printers alike. Get all this really for in one magazine for only £2.500 (plus £20).



MUSIC



ANIMAL HOUSE

74

Chris Jenkins went along to the Animal House recording studio to see how professional rock stars use the ST's MIDI capabilities.



PRO-SOUND DESIGNER

78

A look at what promises to be the most exciting music package yet for the Amiga, courtesy of Eidossoft.

SPECIAL



WORD PROCESSORS

17

It's the single most important serious application for a computer. We check out the full range of WPP packages, on both ST and Amiga.



COMPETITION

73

A £1,000+ Epson GC2800 laser printer must be won in this 1988-1989 competition, plus a consolation prize of a 24-pin GC850.



GAMES



SCREENPLAY 49

The complete low-down on the month's new releases. This month's picks are Intermation, the Amiga flight sim, and, finally, the ST version of the Amiga's famous Zaxxon.



THE INDISPENSIBLES 61

So you think you've got the best games? Check your collection against our hall of fame.

NOT ANOTHER MAGAZINE!

What's that you say? You already buy a monthly magazine for your ST or Amiga, so why should you buy another? Well, there's no reason really. Not if you're happy reading formula-written reviews of tired old games; not if you're happily ploughing through pages of target techno-jargon; not if you're happily playing through the noise to get hold of useful software.

Still reading that? Good. You're the kind of reader we want. We on ST Amiga Format know that there are a plethora of magazines out there for ST and Amiga, so we've got to work hard to keep your interest. And we're going to. We've got a load of great features lined up for future issues, but the single thing we're most excited about is our cover disk. We've managed to find a way of bringing you great software each month at a price barely above that of the other

magazines. When you think that a blank disk alone costs around £1.50, ST Amiga Format looks like like unbeatable value.

Buy Confucius, he says, 'Life is a bit of give and take, matey.' (That's a loose translation from the original Mandarin.) We want you to help us, write ST Amiga Format. The first thing we want is letters - tell us what's right and wrong with Format, ask us technical questions, praise us when we're right, or tell us, 'BULL, US!'

We've also got a host of other things for you to write. We need software for our disk, we want device drivers for squeezing extra lines out of games; we want technical tips on using the ST and the Amiga.

Please stop reading the editorial stuff. Get stuck into issue 1, and happy reading!

TECHNOPHILE



GETTING GOING 83

A guide to what tools and books you need to get started on the ST and Amiga.



SURVEY OF BASICS 86

There are so many dialects of BASIC out there for both machines, are you sure you've got the right one?



DESKTOP 90

Get lost, Amiga owners! Two pages of tips and technicalities exclusively for ST owners.



WORKBENCH 93

Get lost, ST owners! Two pages of inside info to help you get the most from your Amiga.



GAMEBUSTERS 71

Inside info and cunning tricks to get you onto the high-scoring tables of your favourite games.



ST OR AMIGA? 27

After by some glossy photos we survey the options available on both machines and remind you of the questions you should be asking. Spare your time to reach the right decision.



SUPERBASE 33

Precision Software's ultimate power user's database entries in ST and Amiga form. Sit back and drool at its signs with our in-depth review.



DTP 80

Both the ST and the Amiga are out to conquer the world of Desktop Publishing. We're keeping a regular monthly eye on developments.

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NEWS

Games prices to drop?

The inevitable pricing of 16 bit games could be a thing of the past. At the moment, owners of 16-bit machines pay around £13 for a game, but ST and Amiga owners have to stump up twice that for some titles.

However, From Software's latest product schedule looks set to cut prices. They plan to release new ST and Amiga titles at £10.99 each.

Between July and November this year From will be putting out *Terminator: The Game*, *Wipe A, 2nd, Rocket Racer*, *Battlegrounds*, *Artificial Dreams*, *Acad*, *Tap and Push Games* on both machines, and *Adaptation* on the Amiga.

Multiface for ST and Amiga

Remarc's Multiface, based in the backbones of Commodore, are ready to release an ST version of their successful loading software device, the Multiface.

Previously available to Amstrad CPCs, Multiface is a hardware add-on which can interrupt the central processor at any time and let you respond and alter memory. It can also copy most formats of disk, using its own backup of favourite games.

However, it's not a great idea. Once you've copied a disk you need to have the Multiface and plugged in to your ST to allow you to run the copy, so only the original owner can do it.

Price should be around £30 when it's released in September and Remarc intend to start an Amiga version, but only once the ST model is up and running.

■ Remarc's *Robot*, ST-200 207.

Laptop ST looks definite

As Weston Churchill might have said, "Never in the field of human endeavour have so many rumours been used to sell few machines." Amidst the widespread announcements of 80386 and 80486-based versions of ST and Amiga, it seems that a laptop version of the ST is being planned for Autumn/Winter launch.

Bearing the in-house nickname "Slazy", the machine's specification is as yet still the subject of the usual optimistic rumours. What seems certain is that the bottom of the range model will essentially be a 5000T with a flat LCD screen and single floppy disk. It would be impractical to have a mouse on a portable computer, but in the past other manufacturers have got round this by using a trackball (you've seen them on arcade machines) or mini-joystick.

For the bigger models, an internal hard disk drive is thought to be an option, however, bearing in mind that a hard disk for an ST costs less in three times as much as for an IBM PC, and that laptop PCs with hard disks cost over £2,000 (it isn't going to be a cheap option).

Slazy is being developed by Perfection Hardware of Cambridge - the same company who have done the transputer-based *Blay*. We rang them for news, but it they commented, "If Adam want to tell you anything that's up to them, but we certainly won't." Commanding brevities, but at least it seems to confirm they are doing it.

Proof? Well, full-size 16 by 25 LCD screens alone cost a fair bit, so it's going to be expensive. It may go down particularly well with musicians who need portable MIDI capabilities.



■ The clear flat screen LCD on display at this year's Hannover computer show. Could this be Slazy's screen?

Light years ahead

Emtech Research are at the moment finalising developments on their Parftec graphics system, which sounds as though it could be achieving both technical and price goals.

Parftec is a custom built board designed to interface with STs and Amigas. It provides high speed graphics processing with a refresh-rate range of 15 million colours. This is based around an unmasked 32-bit processor chip running at a staggering 40 MHz - that's five times the speed of an ST or Amiga.

The plans are to release three different versions of Parftec. The top of the range system is called *Pixel*, and features a 1024x1024 pixel display with 16 million colours. The colour palette system allows you 256 different colours per line.

First off the block though will be a more basic system called *Colour+* - at 1024x512 resolution, the 4096 colour palette allowing 16 different colours per line.

The third option will be called *Text+*, designed for serious business users wanting high quality displays for

desktop publishing and the like. This will have a stand 1024x1024 display, with GDF and word processing software in ROM.

Parftec has its own processor and video memory and a graphics programming language to drive it. Since the graphics output quality is above the display capabilities of the standard ST or Amiga monitors you will need a decent multi-bit monitor too. A Quartz will be available at around £149 for interfacing to video editing equipment.

And the price? Excluding VAT, Emtech are aiming to bring out *Colour+* at £499 and *Pixel* at £699. *Text+* is as yet unpriced. *Colour+* should go into production within a month. *Pixel*, a little later.

The first versions of Parftec will work with any model of ST - interfacing through its cartridge port - with the Amiga and other versions to follow closely.

■ Emtech Research, 1 Victoria Arcade, Aldgate, London, South E1 7JL, 0407 28889.

Amiga price cut

Despite the widespread complaints in the computer manufacturing industry about the price of 5MBs, Commodore are prepared to cut the price of the Amiga 500 to match the new 1000T.

The price to dealers of the Amiga was officially reduced for the duration of the Commodore show, June 24-26. Buyers who made the trek to the Festival in London could have walked away with a 500 for £199 or less - which isn't much consolation if you weren't there.

As we wait to press it wasn't clear whether the price cut would be held. Commodore have scheduled a press conference for an announcement on the Amiga range likely to shake the computer market to its very foundation. Allowing for being damn fond of the 1000T, this could either have been a price cut across the Amiga range, or one of the other new Amiga products designed by Steve Goss in his return this month - see page 14.



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| Atari (ST)1240 system 1 - includes Mega (2), Mega Monitor, RAM8K (not free), One Drive/Palette (30 day on site maintenance) | £249.00 |
| Atari (ST)1240 system 2 - as above, but with Mega 2M | £299.00 |
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Format in the U.S.A.

In the UK, whatever the technical merits of the two machines it is generally accepted that the ST has sold about three times as many units as the Amiga. However, in the States the picture looks odd, and the Amiga is very much the dominant party. ST Amiga Personal missed the gate to enter the Commodore's computer store in Atlanta that our writer's last time in the Summer and Autumn of the year.

Head monitor

In the past, the Amiga colour monitor has attracted criticism on two counts. Firstly, it can't display the Amiga's high resolution interface mode screen without flickering, leading to annoying Amiga users or their machines' most powerful asset. Secondly, for business users the lack of a high-definition mode screen has always been a problem.

Commodore themselves have now rectified this with the official announcement of a long persistence phosphor colour monitor, the 2000, and also the 2004 high resolution monitor. The 2004 is a strange beast, and a bit quite clear how it fits into an Amiga. It will be a 1000 to 600 pixel screen with 2 bit planes, so it isn't really new.

AmigaDOS 1.3

Most exciting news for Amiga owners is the impending launch of a new version of AmigaDOS, 1.3.

With a new fast file filing system Commodore's system file have speeded up disk access by a factor of four at times — but only at fast disk access. The improvements won't apply to floppy disk drives until AmigaDOS 1.3 hits the streets.

On the printing front, more and better writer paper drivers claim to speed up graphics printing up to four times. Owners of Epson LX printers and HP Deskjets are excited for interestingly Commodore seem to be gearing up for a desktop publishing assault, as the new *Fontographer* disk contains versions of Times, Helvetica and Courier fonts developed by Adobe, the leading typeface company. Adobe fonts have been instrumental in the success of the Apple Macintosh as a DTP system.

For number-crunching fans out there, there will be improvements in the speed of the mathematical libraries, and the Amiga will be able to define and use the 68000 matrix co-processor if it is fitted.

For non-fanciers who require the CLI and only use programs from the 'WIMP' Workbench interface,

there is still good news. The contents of the RAM disk will be preserved during a well timed log, a Comco-Amiga-Amiga keypress. There is a screen snapshot utility for saving your display to a graphics file at any time. Finally, for program developers there is a utility to create icons and link them to CLI programs.

CLI users at last get the benefit of a command line history — the ability to scroll the command line you typed if you made a mistake.

The upgrade comes in three parts — Workbench disk, Extra disk and Kickstart ROM chips. Most users only need the disks, but a couple of changes need to be made in the ROMs if, for instance, you want to save back off a hard disk.

And as to availability, Commodore reckon it should be out by the end of the summer, and are looking to set a low price. "We regard it as a service to our users, so we aren't looking to make a killing out of it — just cover our costs," said US marketing man Paul Higginbottom. He reckoned \$15 might be reasonable for the disk version.

Commodore UK, The British-Scottish division, Macmillan House, 21 701 (0208) 770000

3-D Amiga

Remember those 3-D shooter films at the local cinema? They could soon be on your Amiga screen with X-Specs 3D hardware.

X-Specs is a headset through which you view your screen. It consists of liquid crystal panels capable of switching from opaque to transparent, exceptionally fast. On a UK TV the screen in fact displays two interlaced images at 26 frames a second each. The first image is all the even-numbered lines on the screen, the second all the odd-numbered lines. 25 frames a second is sufficient that the human eye normally merges the two into one continuous picture.

X-Specs exploits this: the LCD headset tracks out, top, the even frames from your left eye and the odd frames from your right eye. The means your brain is fooled into thinking it's getting two stereoscopic signals, and with suitable pictures you see in 3-D.

Headsets are selling in X-Specs in the States at \$104.95. No UK deal has been announced yet.

Headsets are at 208 Caroline Park, Suite 1207, Carrollton, Texas 75006 054

Flicker-free screens

Commodore's long persistence phosphor monitor is one solution to the problem of the Amiga's high-resolution graphics flicker, but not the best one. Long-persistence phosphors tend to blur the image.

Mostly they have developed the Flicker Free 16 to do the job cheaply. Flicker Free is a plug-in board for the Amiga which effectively sets up a fast video memory and sends the display frames to the monitor at a higher rate, eliminating flicker.

Results are nice at C6400K was very impressive, but it's not really a home user's solution. Flicker Free costs £299.75 (no VAT in the UK), and you need a MultiSync monitor like (2000-1) to display the faster refresh rates.

Monobit Europe, 37 High Street, Kingston-on-Thames, Surrey KT1 5LJ, 01 541 5440

Animated excitement

The Amiga is pretty good at producing colourful 2D pictures, but who wants 2D? Two new animation packages are out out to change your screen forever. Morpholution's contribution is Photo Video; its rival from Dickson is it's Deluxe Video. We hope to have a detailed comparison of the two next month.

Animation packages act as editors and advancing steadily in sophistication, but what makes them two different is that they can process a digitised soundtrack and synchronise it with the visual display. You can then send the results to a home video recorder. It should be a piece of cake to combine together your best home Max Headroom show.

Photo Video in the U.S. costs \$149.95. For the professionals out there, an optional extra is the Truquant Controller (\$200.00) which allows you to interface the Amiga into a studio quality frame by frame video editing console. Deluxe Video 1.3 costs £58.95.

Morpholution UK distributor is Activision, 23 Fowl St, Colchester, Essex CO1 1JH 01206 32911

Electronic Arts, 11119 Sistrup Road, Langley, Bucks MK12 0JN 0753 49442

DTP gets serious

That Commodore are about to produce an Amiga-based Desktop Publishing package is all but official news now. The question is early next year's job is, "Whose software will be chosen to head it up?"

■ X-Specs 3D

■ Deluxe Video 1.3

■ AmigaDOS 1.3 disk

Commodore

■ Flicker Free board



Raring to go

At COMDEX, the flagship STP package was last Don's Professional Page, at the flagship price of \$299, or \$269 in the UK. The "Professional" part of the title reflects the fact that it has full PostScript output, so can be directly linked into Apple (Macintosh) laser printers or even photocopiers.

This month's STP surprise is 'Colour Separations'. To print a colour page, a printer (the inkjet who runs a printing press, that is) needs to do four passes, one each in magenta, cyan, yellow and black. Professional Page can take an Amiga (colour) screen and print out the four separations with the registration marks needed for printing.

Colour is certainly the area that the Amiga is strongest in, if Commodore are thinking of making an assault on Apple. The Professional Page demonstration at COMDEX was impressively sending draft prints to a Hewlett Packard colour dot matrix printer, and printing full separations on a laser test to it.

■ **Code/Desk UK distributors are:** All Marketing, Brookley House, 27 The Green, West Nyon, Surrey MO26 2P7 (073 6562-44423).

Go faster

Forget all those fancy 68000 and 650 stories. Strange Systems were showing their ST Accelerator board, which 60,000x the speed of any model of ST for \$299.

Kevin Henderson, a partner in Strange Systems, had to admit that Ray were demonstrating an early prototype. It seems his car had been broken into on the way to COMDEX and all their show models stolen.

ST Accelerator works by replacing the 5 MHz 68000 chip at the heart of the ST by a 16 MHz version, the 68000-16. The clock generating hardware also need to be replaced, and the whole upgrade is automated - you can turn it off if it is making your favourite game too fast to play!

■ **Strange Systems, 728 W. Bay Area Blvd, Houston, Texas 77066, USA.**

■ **Kevin Henderson taking pride in the loss of all his ST stock, destined for the COMDEX show.**



Andy "cap-tem" Storer eyes up the news and games that arrived too late for review. Only the finest fresh titles make it into his roundup.

STARFLEET 1

Electronic Arts ■ ST & Amiga, £24.95, £24.95

Judging by the manuals, which are at least two pages thick, you could be inventing the galaxy for years in this strategy game. You build up where aliens have no right to go and let them know it - or introduce them to the four points of laser and photon torpedo technology.

MINDFIGHTER

Artisoft ■ ST & Amiga, £24.95

Complete with a full-length novel, parapsychology is the central theme of this graphic adventure in which you have glimpses of the future - and it looks bleak. An impending nuclear holocaust is to be averted. It's your small job to save the world (yet again). Digitised photos add a neat edge to your libations.

SENTINEL

Pondera ■ Amiga, £19.95

An eagerly awaited conversion of one of the most original releases of



recent years. A strategy game in which you absorb and transfer energy from objects scattered about a series of landscapes in an attempt to defeat the Sentinel overwatching all. Since there are 10,000 levels you could end up expanding quite a lot of energy yourself.

PANDORA

Pondera ■ ST, £19.95

Having beamed aboard the intergalactic spaceship Pandora, your task is to salvage alien artifacts and defuse the craft. Assured psychosis, aliens and robots roam to visit intruder. Crazy comic strip lights and a wealth of interactive characters look set to make this punch-in-up worth waiting for.

CORRUPTION

Electronic Arts ■ ST & Amiga, £24.95

Prove your innocence in Mag. Soak's quest, and yuppies, adventures. Put down Fido's menu con-



firm with solid images to illustrate a tale of high finance and low ethics. Decent, good and double double come your way after you're hauled as the tall guy for reasons during high fives.



WHIRLIGIG

Pondera ■ ST, £19.95

Intelligence described as a sort of Pony express in space, it claims to



have 4.1 billion levels (count with) of cloning and combat between stages. The four-way shooting-up features solid 3D space craft with excellent light surface illumination.

CAPTAIN BLOOD

Infogrames ■ ST, £24.95

The English version is almost a brand new game compared to the French original. Now there's four times as many ways to converse with those strange aliens, and 32,000 planets later you may have found the few bones you're searching for. A visual treat with a certain



Minister J.M. Jans providing the sound.

STARGLIDER 2

Electronic Arts ■ ST & Amiga, £24.95

A sequel which cuts through the haze stacked on its counterpart predecessor. The demo of Starglider 2 we saw left all other animated solo 3D releases firmly on the ground. With over a hundred 3D objects moving at unheard of velocities, you'll appreciate why it took eight people a year to put this together.

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Electronic Arts ■ ST, £19.95

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| BASIC for the Atari ST | HiSoft Basic | Power Basic | GFA Int. | GFA Comp. | Fast Basic | ST Basic 2 |
|---------------------------------|--------------------------|-------------|-----------------------|-----------|--------------|------------|
| Detail price (incl. VAT) | £79.95 | £79.95 | £45.00 | £15.00 | £44.95 | |
| GEM Editor | ✓ | ✓ | ✓ | No editor | ✓ | ✓ |
| Max string length | No limit | No limit | 32k | 32k | 64k | 155 bytes |
| Max multi-GEM array size | No limit | No limit | 64k | 64k | No limit | 64k |
| Complete AIOs & VDI access | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Produce stand-alone programs | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Assembly language support | Libraries | ✓ | ✓ | ✓ | in-line | ✓ |
| Several standards | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Joystick access | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quick reference card | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Double precision floats | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Multi-statement lines | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Multi-line statements | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Line numbers allowed | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Line numbers optional | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Load and use resource files | ✓ | ✓ | Line num. not allowed | ✓ | ✓ | ✓ |
| Create Desk Accessories | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Program profiling | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Average PCW benchmark time | 0.43 | 0.47 | 1.4 | 0.6 | 1.9 | 1.0 |
| BYTE Calc (floating-point) time | 1.37 | 1.37 | 6.50 | 3.00 | 7.14 | 1.6 |
| Compatible with | ST BASIC & Microsoft QB3 | | GFA Basic | GFA Basic | HiSoft Basic | |

All the information given above is believed to be correct at time of printing. HiSoft BASIC & Power BASIC are HiSoft products.

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FUTURES

■ Kuma's 8-Max 1 transputer board, already commercially available, it plugs into the ST's 8088 port, has a 1614



transputer chip and 256k of RAM. The processing speed is 7.5 mips. If you want, a second transputer can be added to the spare socket on 6704 for a two-transputer system. Programs are written in transputer assembly on the ST, cross assembled and downloaded via Kuma's 'Calculator'. The results are then uploaded for the ST to display.

Kuma are great fans of Perihelion's Helix operating system. The 8-Max 2 is designed as a Helix engine, can plug into standard IBM card slots, and has got LoadMemory - up to 4 MB. At the moment, due to the fluctuating price of RAM, the 8-Max 2 is priced to order, but is typically around £2000 fully populated. There's only room for one 1614 or 1608 on the boards, but extra boards can be plugged in to create a multi-transputer farm.

TRANSPUTERS DO IT IN PARALLEL

What's all this fuss about transputers? Both Atari and Commodore have announced transputer goings-on - ST Amiga Format battled its way through all the hype to discover who's doing what.

In the beginning was the transputer. Well, more or less. It took the efforts of Ivan Baranov, and a fair bit of transputer's hard-earned, but they got there. Now that the transputer chip itself is established as a reliable computing engine, other companies are beginning to exploit it commercially.

Kuma already market a transputer add-on board for the Atari ST, called K-Max 1. This comes in two models: K-Max 1 has one or two transputer chips (depending on the socket in your pocket) and 256k of RAM. It's merely an ST-controlled processing unit, not a speed-up board for the ST. The K-Max 2 has up to 4 Mbytes RAM and comes as either an ST add-on or on an IBM expansion card.

Atari themselves have recently announced the Ataga. This is a wholly

new machine, which can run between one and thirteen transputers, depending on the configuration. Although not a new ST, the Ataga is promised in both stand-alone form and as an add-on unit for the Mega. The Ataga will run an operating system called Helix, currently being developed by German-based Perihelion Software. Commodore's efforts are a little more foggily. At the 1988 Hannover show they announced a transputer board for the Amiga, but the development is being done entirely by Commodore in Germany. Apart from confirming its existence, Commodore UK don't seem to know much about it.

Kuma in control

Based in an industrial park in exotic Pangbourne (near Reading), Kuma was

founded by John Day and Tim Moore. Despite a good deal of success in the PC and MSX markets MSX still being big in Brazil, Kuma haven't expanded widely. They have about 15 employees, partly doing commercial database and spreadsheet programs for IBM PCs, with leading-edge transputer work.

Tim Moore, the technical go-to-man behind their Transputer development, is the MD of Kuma and an ardent advocate of parallel computing as The Way Forward. "It became clear after the Norway conference of 1984 that 8088 chips were really on the way, and that someone was going to go and do a proper job," he says. "We considered both the transputer and the Acorn ARM for our projects - the ARM is a good chip, better in some ways, but

■ OCCAM'S RAZOR

The ultra-transputer language Occam, partly reminiscent of the earlier procedural language Occam and produced by Perihelion Software, is described as "distributed memory" in other words, that is, simple.

■ PERFORMANCE TESTING

Measurements are essential to the a rational measure of processor performance. Ten highly selected benchmark programs are the focus and the illustrations. A transputer chip Occam is a pure-parallelism paradigm through its capability to do all the work. An existing task divides itself into a large number of tasks.



SUN PLANS

The new Perbitron comes from the world's leading in-house design firm. It's the only computer to be designed in-house. This means to use the name of a well-known technology meant for design firms. The founder is Perbitron founder, Bruce Sun. Computers are made a very different way. In-house design, the manufacturing process is the Sun's special way of Perbitron's manufacturing process.

WHAT'S IN A NAME

Although the name Sun is often used to describe the name, the name itself is only a trademark and is only used for the Perbitron products as it is a name used by a company in Britain. (Sun is a registered trademark in the UK and is used by the Sun Microsystems Inc. in the USA.)

In the end we plumped for Amiga because we needed technical support from the chip manufacturers and Amiga just wasn't prepared to help in our times were very tight."

Kilias received their first transputer chip in mid '88, and developed i-Max 1 within six months. "There was a body of opinion within Amiga at the time that Occam, their parallel programming language, was the only valid way to program a transputer. As an engineer I don't accept that," Moore says, "and wanted to get my hands on the assembly language. Amiga wouldn't let, so I worked out how the chip used the machine code had to be. Then a week before i-Max was launched I rang Amiga and said, 'Look, we're about to publish a transputer assembler - surely it makes sense to use your standard mnemonics?' There was a long silence on the phone, then two days later a complete instruction set arrived by post. As a result, our developers' job was the first ever transputer assembler on the market."

Kilias has been on sale for 18 months now, so what do its users do? "It's primarily a research tool, but many home users would have a genuine use for you," Moore reveals. "Many of our customers are defence contractors who aren't discuss their projects, and of course education is a big area. We've also got an Occam simulator running on the ST, and that has still very real to universities. Students can write visual Occam programs without the need to actually have a transputer."

Moore isn't planning an Amiga version of i-Max, though they comment that there's no reason why the i-Max 2 shouldn't run in one of the PC slots on an Amiga 2000 with a Graphics Board. "The transputer is a pretty good fit to go," Moore concludes. "Better chips will be along, but Amiga has done an excellent job for a first bash."

WHAT IS A TRANSPUTER?

The transputer itself is effectively a super-fast microprocessor. It is one of the new breed of 'Reduced Instruction Set' chips, or RISCs for short. RISC chips work fast because there are very few basic machine code instructions available and they are all processed extremely efficiently. The idea is that the core instructions are the most commonly used ones. The transputer has 16 basic instructions, one of which is an 'extend' command to allow it to run a set of super-complex but fast, efficient microcoded subroutines.

The chips that are currently causing a stir, the T404 at around £300 and the T800 at over £500, are both 32-bit processors. They have a RISC-type control processing unit, fast on-chip memory on the T404 and 4K on the T800, an external memory interface capable of addressing up to 4 gigabytes and four local links which may run at up to 30 Mbits per second. Both chips come in an 88-pin surface package.

From a programmer's point of view, the transputer offers three registers, a stack, and arithmetic and instruction pointers. The handful of instructions available are convenient for loading and manipulating values on the stack and altering the flow of control. This could prove useful if it weren't for the wealth of microcoded instructions - less efficient and slower perhaps, but greatly increasing the processor's capabilities.

Like other RISCs, the transputer has on-board communication. This means many transputers can be connected together into a Transputer 'farm' - which can be configured to staggeringly powerful multiprocessor systems. On its own the transputer isn't that special, but when it's used with a battery of others, amazing things are possible. Of course, parallel programming produces problems. Programmers are used to the serial nature of traditional processors, and trying to think in parallel does some programs a disservice.

An important application for transputers is in the generation of stunning, life-like three-dimensional models for mechanical design. Of course, animated displays and video processing are just scratching the surface. The transputer-generated graphics here give some indication of parallel processing power.

Letting the sunshine in

The King of Perbitron software bases his offices in a converted brewery in Shapton Market, Epsom, Surrey. Instead of on the top floor are some very fast micros with some very clever software engineers programming them for all they're worth. Out of their work will come the production version of the Amiga's multi-tasking operating system, i-Max.

King left Cambridge for the academic wilds of Bath, where he resided for three years while

completing a PhD involving both database design and the workings of distributed systems (networks). After this he went to work for Intel Systems.



Tim King of Perbitron, architect of the Amiga's multi-tasking system

which at that time he describes as "three people working over a grape in a basket" - very reminiscent of the early days at Apple Computers. It was while at Intel Systems that King wrote much of AmigaOS for Commodore, before starting to look for projects that would further his interest in RISC. King knew Jack Lang, the founder of Perbitron Hardware, from his days at Cambridge and became interested in his ideas for a graphics workstation based around a RISC chip.

They singled out three candidates for the core processor of their new micro: the Fairchild Clipper, Amiga's ARM and the Transputer. It was not initially the parallel processing architecture that attracted them, but the



RISC features of the chip. As Acorn were already developing the ARM for themselves, they decided to go with the latest chip and set out looking for the



■ Jack Lang, founder of Perfitton Systems, sketches an Acorn Vm Cent.

upfront back their project.

King and Lang approached various companies, most of whom showed interest but wanted to know where the machine was going to sell. After several fruitless consultations, they contacted Atari who said "Yes, it's interesting. Let's do it". Development has continued apace since then and release of the Vm is scheduled for September.

What makes Acorn King see for the machine? "To some extent it's targeted at people like ourselves, program developers. Secondly we're targeting at top level academic, i.e. for research and teaching of parallel processing techniques themselves. There's then the whole area of

CAD/CAM and graphics, where you really do need the processing power. The ability to plug it up to 70 static processors really does make a fantastic difference". King says the possibility of home computers based around transputers is very interesting but depends largely on the cost of the latest chips and on which way the home-market moves.

Perfitton themselves use a variety of different techniques to develop Helix. There are plenty of transputers, but in a host of different configurations ranging from cards in PCs through K-Max add-ons for Atari STs, to Acorn development machines, all lined together through a network to a large, Unix-based mini-computer.

Helix is written in a combination of RISC assembler and C, both of which were written in-house by Perfitton to

THE THIRTEENTH PARALLEL

On its own a transputer is basically a fast microprocessor. When the fun starts (and the fun really starts) is when you link several of them together. The chip has a special communications link so that many transputers can be easily networked together.

On a transputer the program being run is split into several parallel parts, all parts running simultaneously. The results are then combined at various strategic synchronisation points to get the desired results. Because most programs written nowadays run sequentially, they don't really convert to parallel processing. Instead, programs are best designed from the start to be split between several parallel processors.

There are two ways of doing this: you can use Occam or run under Perfitton's forthcoming Helix operating system, which should do this allocation automatically for high-level languages.



■ This cheap chip is Tom Baron who played an important role in the formation of Inmos. Together with a band of top Inmos brains he announced the transputer in 1985. Two years later both the T1414 and T8000 were on the production line.

minimise time lost through problems with the software. That's not to say that Perfitton's C is bug-free, but any problems that do appear can be corrected by allocating programmers from within the company, presumably as other parallel processors. ■

THE INMOS CONNECTION

Inmos began life in 1970 with funding of 65 million pounds from the British Government's National Enterprise Board. The company's British headquarters are in Bristol and its US counterpart are located in Santa Jose. Back in the early days Inmos produced 10K static chips, which they'd introduced to the world in '81. In the following years they devised a family of 64K dynamic chips, a million-lookup table (included in 1985's PD2 computer) and a digital signal processor. Today this boasts over 250 computer products.

It was after the crunch years of 1984-85 - during which time the Government sold its share of Inmos to Thomson DSM - that Inmos announced the

Transputer. The project, spearheaded by Tom Baron from chief strategic officer at Inmos, was completed in '88 with the advent of the T1414. Last year Inmos introduced its transputer with on-chip floating point processor, the T800.

Occam, the official transputer programming language promoted by Inmos, was written in 1982 by David May and Tony Hoare. May, who now works for Inmos, is still introducing modifications and improvements to it. Essentially Occam takes the sting out of parallel processing, it can capture the integrated structure of a system by allowing an interconnected set of processes to be regarded from the outside as a single process.



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FAIR CRACK OF THE WP

Word Processing — it's the most important business application there is. Ben Taylor surveys the ST and Amiga scene, where new arrivals are threatening old faithfuls.

Everybody knows that a word processor is — a piece of software — to help you produce neatly printed typescripts, and avoid expiring your appalling handwriting to substitute. Software for the ST and Amiga isn't cheap, and the average price for a word processor is £75 or so. At that rate, you can't afford to make the wrong choice, so read on and find out which is the best one for you.

What should you expect?

The ST and the Amiga are both WIMP computers. This doesn't mean that they turn into lemons when things go wrong, only that they provide the alternative to programs to run with windows and a mouse for maximum user-friendliness. Virtually all the word processors in this article use the WIMP system, where you push blocks of text with mouse clicks and point to the relevant choice on a menu to make a slight change.

Popular wisdom has it that a WIMP system is always a Good Thing. This is not true. For word processing in particular, programs that use the mouse a lot are often very hard to use, because when typing it slows your input speed right down if you have to take your right hand off the keyboard to move and click the mouse. For this reason, most programs allow you to use keyboard shortcuts for many operations: 'Delete' (or might be [Control]-[Delete]) on the ST (Amiga-[Del]) on the Amiga.

Another common buzzphrase is WYSIWYG (What You See is What You Get). This means that the screen shows a close approximation of what the printer will produce when its turn comes. Most of word processors claim to be WYSIWYG, with varying degrees of truth. You should at least be able to see letters as bold, text as left, underline as underline and where the line breaks fall, which are the important things. Most processors that offer you fancy fonts may not be all they seem — unless you have a very good (expensive) printer, you will get the best results by

doing simple output using the printer's own fonts.

Features to look for

There's no real point dwelling on the basic word processing features. All programs have a core of functions to underline text, set margins, mark and manipulate a block of text. There are subtle differences in the way each program does these things, but you can get used to most variations. Here follows a list of 'value-added' features; very few word processors will have them all, but you can decide which ones are the most important to you.

SPELL CHECKER

The obvious addition to a word processor is a spell checker. Your word processor can spell check from within the word processor; usually you just choose a 'Spell' menu option and you're off. Cheaper WPs make you save the document, exit from the WP and run a separate spell checker program. Some programs even offer a 'Continuous checking' option where every word you type is checked as you type. This is probably overkill as it will slow your typing down abominably.

Your dictionary will probably come on a separate disk with between 30,000 and 100,000 words in it. (The words aren't all different — 'unimadidic', 'unimadidic' and 'unimadidic' would count as three.) For efficient spell checking it is essential to have two disk drives or enough memory for a large RAMdisk to hold the dictionary.

MAIL MERGER

These are the things that generate the classic 'Dear Mr/Littleme' mail order letters: 'You, Mr Grangeop, have been chosen from all the Mr Grangeops in Guller Creekton for our Peas O'War!' and so on. You make up a standard letter in the word processor, leaving blanks where the person-specific data is to be inserted. By giving each item of data a name like 'surname' or 'amount_needed' you can read this data from another file and run off hundreds of

form letters. As for the data itself, you can either type it in to a separate document using the word processor, or import it from a database.

THESAURUS

As the name suggests, this is a version of Roger's Thesaurus with hundreds of thousands of impossible alternatives for words. Have hours of fun looking up synonyms of bodily functions, or with a spelling checker, the sheer size of the dictionary often demands two drives or lots of RAM. Using a spelling checker and a thesaurus is usually impractical — 2 to 4 megabytes of memory might do it.

OUTLINE

Outlines have recently become very trendy, probably something to do with the Filestar revolution. They are structured writing tools to encourage you to plan long documents properly. First you enter your main categories, which are numbered 1, 2, 3, etc., then the sub-headings A, B, C, etc., within each, then sub-sub-headings 11, 21, 31, etc., and so on. The outline can move and edit blocks and adjust the nesting of levels as required. You can then view the outline at different depths, or expand it into a full document.

TEXT JUSTIFICATION

So important are this, and really one of the almost every WP mentioned later on. When you ask for justified text what should happen is that every space on the line is expanded equally. This is called 'proportionalisation'. Since this means having fractional spaces, most WPs ignore it and put in whole spaces in some places and forget about others, which makes the word spacing in a line uneven. For reference, the lines in this magazine are properly microjustified.

GRAPHICS REPORT

It can often be handy to include pictures in your documents. An obvious use is to put graphs into business reports, but a more subtle application is to input headlines prepared in a fancy font with an art package. Almost all Amiga word processors can do this, but very few ST ones. The Amiga has the advantage of having a very standard





pages for format called "FF", whereas the ST has several different formats to contain programs with.

AUTOSAVE

Some WPs can be told to save your document every 10 minutes or so, minimizing the risk of lost text should the worst happen. This can be very handy if your power supply is prone to spikes or other irregularities.

MULTICOLUMN TEXT

Being able to set text in two or three

columns like magazines can be ideal if you are preparing newsletters, but very few word processors offer it. (Like Douglas Import, if you are trying out for multicolored text you should be looking at Desktop Publishing.)

FOOTNOTES

A nice fill, particularly if you are an academic writing wanted treatises for earnest journals, is the ability to add superscripted numbers to the body of the text and print them out at the foot of

the page with small-type notes.

ASCII SAVE

ASCII (American Standard Code for Information Interchange) files are full document files with all the information about margins, bold, italics etc. stripped out. This makes them totally independent of the word processor they were written on, and makes them suitable for exporting to other programs.

1st WORD PLUS

\$79.95 ■ Electric Distribution/OST ■ ST

of several little ripples: the manual has very few keyboard shortcuts which slows typing down, you can't print the file currently in memory (you have to save it to disk and print it from there), if you select a block of text and choose a new style for that you have to click on *Apply* to affect the change, and a most tedious crime, the manual has no index.

Still, 1st Word Plus is a fast and efficient word processor with good features and a good display. If the ability to mix graphics and text is important, it's most definitely the word processor to go for.

| | |
|--------------|-----|
| features | 4.5 |
| performance | 3.0 |
| ease of use | 3.0 |
| manuals | 3.0 |
| format value | 4 |



1st Word Plus is one of the very few ST word processors that can handle graphics. You can read in Degas, Newsroom and Double format pictures, and there's even a "magical" ability to capture screens directly in Degas format. In fact, the full feature list is very impressive, including an efficient spell checker and mail merge. One nice feature is the ability to print in multiple columns, although this is purely a print-time operation and you can't see your document on-screen.

However, the package falls short of being a classic word processor because

1st Word Plus showing our old friend the IBM assemble - or is it a tiger?

When you're in graphics mode the screen is expanded to give you a better idea of relative size of text and graphics, with graphics off the text is normal height.

K-WORD

\$89.95 ■ Kana ■ ST

K-Word doesn't pretend to be an all-singing, all-dancing word processor, and it isn't. It does come with a mail merge and spell checker, but to use it you have to use K-Mail, not K-Spell and then return, which is tedious.

Disappointingly little use is

made of the menus. Functions like Print and Save are there, but there is no Style menu. To set text in bold you resort to good ol' control sequences like *Control-B*, which you have to look up in the manual and remember. Back marks for no index.

However, K-Word is a competent WP which scrolls and

does fast-and-sloppy efficiently, and since it is pleasantly priced it makes a fair entry level program.

| | |
|--------------|-----|
| features | 3.5 |
| performance | 3 |
| ease of use | 3.5 |
| manuals | 3 |
| format value | 3 |

WORD WRITER

\$79.95 ■ Electric Distribution/Tenworks ■ ST

This is a lovely word processor; if it could mix graphics with text it would be perfect. Word Writer has a mail merge, spell checker and Thesaurus, all of which are well integrated.

There are simple keyboard menu shortcuts to justify the rapid user, and a good selection of easily accessible panels at the bottom of the screen. If you dislike absolute keypresses you can do one click on these panels to say, let's bold on or off. In other words, mouse-operated stuff.

| | |
|--------------|-----|
| features | 4.5 |
| performance | 4 |
| ease of use | 4.5 |
| manuals | 4 |
| format value | 4.5 |



Word Writer showing off its Thesaurus. It automatically links up the word on the cursor and allows you to insert the replacement.

shortcuts! WordWriter scores over its nearest rival, 1st Word Plus, with an outline to help you flesh out the basic structure of more complicated documents.

The one serious complaint against WordWriter is its rules. You only have one per document, and no auto-formatting. On a long document you are supposed to change the rules, reformat the paragraph you want,

leaving the rest unchanged. If you accidentally reformat the whole document you could lose a lot of structure. Multiple rules are definitely needed!

It's tough-and-gig to decide between WordWriter and 1st Word Plus, but overall WordWriter simply feels better - it makes better use of the OEM windows and has a faster response.



AMIGA PHILOSOPHY

One big difference between the ST and the Amiga is the way files are set. On the ST, files are set for the software to organize, but on the Amiga they are built into the hardware's Workbench base disk. This means that most Amiga programs - graphics programs, word processors and all - offer you the same choice of icons: floppy diskettes, hard disks, CD-ROMs, games and magazine screen fonts.

WORDPERFECT 5208.00 (ST/1280.75 (Amiga) ■ Continued ■ ST and Amiga

WordPerfect is the big boy in the word processing field. It sells on all major computer formats, and is now reworked onto the biggest selling word processor on little PCs. Its price shows a desire for the opposition - the kind of people who will buy WordPerfect are (a) those for whom money is no object and (b) those who, how does one put it delicately, get on expenses.

It takes up 4 Amiga disks or 4 ST disks, and the manual weighs in at over 500 pages. WordPerfect has almost everything you could want - massive dictionaries for the spelling checker and thesaurus mean that you'll be very pushed to run WordPerfect on a single disk machine, although it's possible.

It has to be said that WordPerfect is a disappointment for the money - it



looks a bit. One incredible fact is that if you choose justified text (an even right margin) the right edge is still jagged on screen. The only way to tell that it is justified is by selecting 'Normal' under 'to show WordPerfect's unformatted printer codes.

| Features | 4.0 |
|---------------|-----|
| performance | 4 |
| ease of use | 3 |
| rewards | 2 |
| overall value | 3 |

The screen display can be set up in two columns, and you can edit text in those columns with correct reformatting.

■ WordPerfect running on the Amiga, but the ST screen (above) is virtually identical. Right justification is turned on, but you can only tell by the 'WR Just (R)' code in the browser (below) window.

as you work. On the Amiga you can call up a new GUI (the Amiga's non-WIMP command line interpreter) built within the word processor, which is a nice touch.

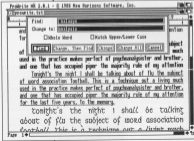
Very few corrections have been made to the WIMP environments of the ST and Amiga, and WordPerfect shows its generic PC origins with a bizarre choice of function key commands (though you do get a function key template as a reminder). There is no provision for graphics within documents and the mouse handling seems fussy when you try to define a block bigger than one sentence.

The manual is exemplary in its indexing and clarity, but having the only reason to buy WordPerfect is if you run an office where every other machine you have runs WordPerfect.



PROWRITE 525.00 ■ Amiga Centre

Scotland/New Horizons ■ Amiga



The ProWrite master disk contains two versions of the program, one for medium-resolution screens and another for high resolution. As with the majority of Amiga WPs, ProWrite shares all the printer drivers and fonts provided with the micro. It's fully WYSIWYG, and boasts a spelling checker and mail merge, but no thesaurus. You can import graphics images into documents and insert and crop them to suit. ProWrite converts your photos into T colour only, but since most colour printers can't do full justice to 4096 colours, this is no great loss.

ProWrite's screen update is not very fast - if you insert text into a paragraph, you notice quite a lag between typing and display. However, scrolling and other editing operations are fast enough.

■ ProWrite taking advantage of the Amiga's extra fonts.

| Features | 3.0 |
|---------------|-----|
| performance | 3 |
| ease of use | 4.0 |
| rewards | 3.0 |
| overall value | 3.0 |

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VIEWWRITE

£89.00 ■ IBM Marketing/Visa ■ Amiga

Despite a relatively high profile in the recent past, Viewwrite leaves a lot to be desired. It's a standard Amiga-type word processor, meaning that it can import graphics and display text in all the multicoloured glory of the standard system fonts. However, its main fault is

being unacceptably slow at reformatting. Even a completed typed sheet two-faced typists reach 30-40 words a minute will get ahead of the screen update as they type in new text. As for modifying existing paragraphs, forget it.

Viewrite has no spelling checker, unlike most of the others, and uses an odd Atari background for its text

(although this can be changed). All in all, Viewrite's looking really to recommend it.

| | |
|--------------|-----|
| Features | 3.5 |
| performance | 5 |
| ease of use | 4 |
| manuals | 3.5 |
| format value | 3.5 |

KEY WORDS

£49.00 ■ Amiga Centre Scotland/The Disc Company ■ Amiga

Key Words sets out to solve the problem of reproducing screen fonts properly on printers. The snag is that most Amiga WPs lets you produce lovely screens with the Amiga fonts, but the printed is always a disaster. KeyWords has a "Super Font" disk which allows you to print text in one of three resolutions (standard, final or MLC), in the lowest resolution a merely crude text to the printer as ASCII codes to be dealt with by the printer. In the other two modes it sends graphics of varying complexity to the printer to produce nice fonts.

■ **Key Words.** The review copy will send the American-style short screen, but we're assured that the production version will have a full depth 640 screen.

KeyWords produces the best printed output of the Amiga WPs, and has good printer drivers to get results out of cheap printers. Even so, your printer's own R/LQ fonts would still be better. As a word processor, KeyWords has all the usuals in terms of text mangling commands, spelling checker and graphics import. It lacks an independent word counter (you have to go to the spelling checker).

KeyWords has some nice ideas on the graphics and printing side, and its price gives it the edge over ProfitWise as the best all-round performer.

| | |
|--------------|-----|
| Features | 4 |
| performance | 3.5 |
| ease of use | 4 |
| manuals | 3 |
| format value | 4 |



SCRIBBLE

£89.00 ■ IBM Marketing/Micro Systems Software ■ Amiga

At first sight Scribble seems a bit lame, compared to the other Amiga word processors. Its screen display uses ordinary text as opposed to one of the larger fonts, and you can't incorporate graphics in your documents.

However, on reflection there are all advantages. Smaller text means more characters per line and more lines per page, with the result that you use a much larger share of your document on the screen. Anyway, though Scribble 24 point text looks lovely on screen, it really looks pretty well printed out. Scribble comes with neat margin



■ **As Harry Collier would say, there's no business for text on the screen.**

and spelling checker. It automatically formats text as you type and is fully

text about it, since it is working with characters of fixed size it has a very conventional way of handling equations or blocks of text: first you choose the equation (the Calc), then you mark the block to be set out. Once you're used to it, though, it's fine.

If you think you can live without pictures in your text - and most of us can - Scribble's simplicity makes it the best Amiga word processor. Scribble is the WIP part of 'The Works' software bundle currently being sold in the Amiga 500 summer promotion.

| | |
|--------------|-----|
| Features | 3 |
| performance | 4.5 |
| ease of use | 3.5 |
| manuals | 4 |
| format value | 4 |

BEST BUYS

APPLICATION

- Writing letters
- Writing long documents (eg. a book)
- Writing business reports (where the ability to import a graph or other illustration into the document is needed)
- Preparing text files for transmission to other systems
- **WYSIWY**

BT

- 1st Word Plus, WordWriter, 5-Word or HabaWriter
- 1st Word Plus, WordWriter, WordPerfect or HabaWriter
- 1st Word Plus, Wordfly (if you have a laser printer)

Protest, WordPerfect

- WordWriter (or 1st Word Plus if you need graphics)

MS/2

- (Any will work adequately)
- ProfitWise, Key Words, WordPerfect, Scribble
- ProfitWise, Key Words

WordPerfect, Protest (Mac only)

- Scribble (or KeyWords if you need graphics)

What printer?

Printers come in three types - dot matrix, daisywheel and (more recently) lasers. By far the most common type is the dot matrix, where characters are formed by rows of tiny dots punching through an inked ribbon onto the paper. Daisywheels use typewriter technology, punching a whole character at a time onto the ribbon - they give very high quality, but the dot matrix printer can put a dot anywhere on the paper and so produces graphics output too. 90% of home users have dot matrix printers.

Laser printers combine the best of both worlds. They are effectively very high resolution dot matrix printers which have enough dots per inch (usually around 300 dpi) to rival daisywheel in quality. Lasers cost a lot (£1000 upwards), but if you can afford one it's a great status symbol.

Setting up your printer

Once you've plumped for a particular printer, you've got to let your software know about it by setting the correct 'printer driver'. If you've invested in a Zanussi model 201244 you probably won't find it on the 'known printers' list, but don't panic as long as it seems to be Epson compatible you can let your computer to use the Epson printer driver and everything should work fine. Look for Dots/Min compatibility for a daisywheel and HP LaserJet Plus emulation for a laser.

On the Amiga

To set your Amiga what printer you have, you will need to run the preferences program on your Workbench test disk. Once in, click on



■ The Amiga's printer preferences screen, which you use to customise your Workbench disk.

the Change Printer panel at the bottom right and you'll see the Printer Preferences screen come up. The most important thing to do is to go to the window at the top right and click on the scroll arrows to look through the list of available printers, then click on the one most similar to your own printer.

Once you've saved these new preferences to your Workbench disk all your Amiga programs should pick up the correct driver. Most Amiga software comes on its own boot disk, so there may be a wider selection of printer types than on the standard Commodore Workbench disk.

On the ST

There's no special set-up - most programs you buy will have to set their

printer driver. Look in your manual to see how to select the correct one for your printer.

THE NAME GAME

There are 1001 different models of printer to choose from, but as a guide and advisory guide - good budget - £2000 note dot matrix printers are the Canon 170, the LQ15 and Panasonic 1022. If you want a colour printer, the Star LQ15 Colour and Chromatic 200 are widely used. For daisywheels the Panasonic 1021 is great value as for lasers, that make their own for the Amiga ST the Amiga owners should visit the list.

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Brayley, Bucks (087 770) 0090
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Arco - Petrol House,
Weyman Road, Epsom
PE2 0BA (0753 220611)

Sentinel - Wellington House,
New Zealand Ave, Watlington
Thames, Surrey KT12 1YH
0810 230184

Amiga Centre Scotland - 4
Hart Street Lane, Edinburgh
031 355 031-557 4342

HOW THEY MEASURE UP

| Name | Price | Resolution | Prints per page | Spooling | Character set | Character set per page | Thickened lines | Micro- dot printing | Emulation | Colour | Prints per min | Prints per hour | Output format | Matrix | Auto renewal | Auto cancel | Auto copy | Auto copy per page | Auto copy per hour | Auto copy per hour |
|---------------|----------------------------------|------------|-----------------------|----------|------------------|---------------------------------|--------------------|---------------------------|-----------|--------|----------------------|-----------------------|------------------|--------|-----------------|----------------|--------------|-----------------------------|-----------------------------|-----------------------------|
| 1st Word Plus | 79.95 | 31 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Word Writer | 79.95 | 31 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Printed | 79.95 | 310 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WWord 2 | 99.95 | 31 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Word Writer | 99.95 | 31 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Word Sp. | 99.95 | 31 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WordPerfect | 129.00 (ST) 99.00 (ST) 25.00 (4) | 31 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Printrite | 85.00 | Amiga | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vizante | 99.95 | Amiga | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WordRite | 49.00 | Amiga | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scratch | 99.95 | Amiga | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1 Word/Case means without spell checking the file

2 Amiga version due out in July

3 Prints in 2 columns but doesn't show on screen display

4 Partial - bold shows as reverse video

5 K/Regal is £29.95 extra, but needs 2MB.

6 Only prints in graphics, can't print in a printer's internal M/Q font

7 Amiga graphics fonts microprinted, printer M/Q fonts printed with hard matrix

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**THE
CHOICE
IS YOURS**

Which machine – ST or Amiga? Richard Monteiro wades through the waffle to highlight the differences and similarities between the two micros and recommends the best choice for particular applications.

For business or pleasure, the machines making waves are Atari STs and Commodore Amigas. That's undebatable. But if you're a newcomer to the 16-bit world or you fancy upgrading your current model, the problem is deciding which machine to choose. Each has its good points and each its bad. More confusing is that both manufacturers have introduced several versions of each computer – some are being pushed into the entertainment area and others into the domain of business.

Machines are one thing, but what about software and support? Thankfully, there's no longer that nagging doubt. Software is out there – plenty of it, with new releases hitting the shelves every month. The same is true for hardware: there are enough add-ons to keep the most ardent gadget freak happy. Even Atari and Commodore are about to produce new machines, that can't be said.

That's the short-term view. What will happen in six months, a year, even two years? The popular belief is that both machines are here to stay – in the clarity of lead, in America the Amiga is seen as the machine to own, the converse is true in Germany where STs have the stronghold. This division is reflected globally – some countries have taken to the Amiga, some to the ST. It means good news for machine owners here, so foreign buyers in hardware and software will be around for a long time to come. Indeed, this is already much in evidence with many companies already flourishing imported goods.

Electric avenue

In the beginning there was the 5200T. This useful beast had no internal drive and GEM (the operating system) had to be loaded from disk. Soon afterwards the 5205TM arrived. This too had no in-built drive, but had the operating system embedded in ROM and a modulator-cable for connection to a TV – hence the M in the name.

After the 5205TFM – which now comes with a double-sided 80-track drive (take care when buying one that you're not put off with an earlier model with a single-sided drive) – came the 5240. And it was less than a year ago that the Mega, with larger memories and better, made an appearance in Britain.

Not to be outdone, Commodore introduced the Amiga00 with 256K of memory, KickStart (the 16-bit-level operating system) on disk and a 61400 price tag shortly after the 5205T hit the



shelves. Those that are gone, and so too has the 51500, in its place, Commodore giving the 4000 and 4000+ the nod in the world. The 500 has 512K (expandable to 1 Mbyte) while the 2000 has 1 Mbyte (expandable to 4 Mbytes and also for expansion cards).

Why so many versions of each computer? Commodore's line is that the 500 is a games machine, while the 4000, which can be made to emulate an IBM PC is being pushed as a business machine. It makes sense as the 2000 is well beyond the reach of most people's pockets, the starting price is around £1100 for a single drive machine without monitor – not very useful in the office. Atari are taking a similar stance. The 500, and to a certain extent the 1040, are aimed at the lower end of the market – the entertainment sector. Atari's current bundling deal emphasises this point: 20 major games titles and a joystick thrown in with the 520 for the summer.

PIRG PONG

Atari (Atari) also claim the first video game console. Pong, and other successors, to starting the company. "What was it like going to get you in your new model?" If you're interested in the Chinese game file, you'll want to find the original in your file.

FRIEND OR FOE?

Amiga is a game – and the Atari (Atari) is a game – for gamers. But by focusing more on the video game market, Atari is losing the Atari (Atari) market. Atari is losing the Atari (Atari) market. Atari is losing the Atari (Atari) market.

BT BLASTERS

So what's all the fuss about 16-bit? In one word, 64000. It's the common factor that links the ST and Amiga. At the heart of both computers is Motorola's 68000 silicon chip. This chip – which was announced in 1977 and appeared in 1979 – was conceived as a competitor to Intel's 8086/8088 (which has since found a happy home in IBM PC) and its countless clones.

Several processors can handle big numbers, up to 65535, in a single operation. This is the most significant difference between 8-bit and 16-bit processors. Of course, 8-bit different types of addressing mode, 17 registers capable of storing

32-bit numbers, relatively simple assembler syntax and the ability to address 16 megabytes of memory help to make it a firm favourite of software and hardware enthusiasts. The 68000 is the 16-bit beast causing the commotion and stealing the thunder from ageing Soothers like the Z80 and 6800 which can be found in Spectrums and OSAs. The Amiga and ST are the next generation of computer as the cutting edge of home micro technology. Obviously, other custom chips inside the computers help to make the machines what they are – Powerful.

COMMODORE AMIGA

The A500 comprises 1.2M of memory, an internal 5.1" double-sided 500-kt disk and operating system on ROM - the whole package in one plastic case unit (except for the power supply). The 2000 consists of two lots: the keyboard and processing unit. The main unit houses one megabyte of ram, and depending on your requirements can hold a Bridge Board for PC emulation, hard drive or 5.25 drive. All units come with an internal 3.5" drive identical to the A500 and have the option of a second internal or external drive. Other differences include two internal slots for expansion cards and a better keyboard.

GRAPHICS

Use definable modes and a staggering palette of 4096 colours. Normal operational modes include 320 by 200 resolution with 32 colours, an screen of prog. 640 by 200 with 16 colours and a special full and modify (HAM) mode which lets you have 4096 colours at the same time. Instructions come in to play which make this mode less than useful for animation. These modes can be displayed on televisions or Commodore's 1084 monitor. Using a special technique called interleaving the Amiga can double its horizontal line count; a specialised persistence monitor is required with specialised chips like the Cooper co-processor and Silver chip the Amiga makes light work of shifting large amounts of screen memory. Amiga's facilities include eight 3-colour and four 15-colour hardware sprites.

SOUND

The native sound chip, affectionately called Paula (is she Spanish or Portuguese?) - 140 - provides the Amiga with steering professor-like musical power. Four voices can be used which have fully definable wave forms. Amplitude- or frequency modulated sounds are possible. And output is in stereo with two voices per channel.

EXPANSION

Analog RGB, digital RGB, monochrome composite video and standard television jacks are present on the A500. The A2000 offers RGB and mono video only although, internally, it has an NTSC/PAL coder for composite video. A parallel printer interface, 80230 modem interface, floppy disk interface, 80-pin expansion connector, memory cartridge slot, audio output, lightpen jack and two floppy plugs for joysticks and mouse are also standard on both machines. The 2000 also has several internal slots for PC cards and for further expansion.

DRIVES

A second 3.5 inch 1 Mbyte drive, the A1810, is available and optional. Hard drives for the A500 aren't available from Commodore, and this situation doesn't look to change in the near future. The A2000, on the other hand, can accept either an Amiga hard drive or a PC hard drive - it depends how you wish to use the machine, and how much you're prepared to pay!



THE CHOICE IS YOURS

ATARI ST

Currently there are four models to choose from. Bottom of the range is the 1000ST which boasts 128k memory. The 1040ST, which is identical in design, has the advantage of a larger memory but lacks a modulator socket. Finally there are the Mega STs - ST2 and ST4 reflecting their memory sizes in Mbytes. The major difference between them and their lesser ilk comes - for the obvious reason - in the addition of a blitter chip, battery-backed real-time clock, and expansion connector.

DRIVES

All STs come with a double-sided 80-track drive as standard. A second 1.2Mbyte drive, the ST 3.5", can be fitted which is helpful for disk file copying. Hard disk drives for the ST are phenomenally priced. This stems from the fact that a special controller - which adds around £200 to the base price - is necessary. Atari's 30 megabyte 84000 is just under \$500.

GRAPHICS

The ST has three modes or resolutions and a palette of 312 colours; only two of the modes permit colour. This is controlled by the video chip. Soften. Low resolution offers 250 dots (width across) by 200 dots (height across) by 200 dots (depth) with a maximum of 16 colours on screen at once. Medium resolution manages 640 pixels by 200 pixels with four colours on screen. Medium and low resolution can be displayed on a television or Atari's 5013204 monitor. High resolution offers a whopping 640 by 400 image. The trade-off is colour; there isn't any. Only black and white pictures are produced and a special monitor, the 504 25, is required. Neither horizontal scrolling nor sprites are available through hardware, although vertical scrolling is. The Megast come with a Blitter chip while the other STs can have one added which speeds animation.

SOUND

Softly the ST's sound chip, the Yamaha YM7143, leaves a lot to be desired. It's only capable of producing basic board notes through three channels - similar to the chips in the Amstrad CPC and Spectravox +2 computers. However, the inclusion of MIDI ports leaves there's a wealth of alternatives that can be controlled from the ST.

EXPANSION

It's one standard 15-pin DIN plug lets you interface to either a high resolution monochrome monitor or a medium resolution colour monitor. A separate plug allows connection to a television. At present only the 5250 comes with the monitor. A parallel printer interface, RS232C (modem) interface, floppy disk interface, direct memory access port for a hard disk, musical instrument interface (MIDI), plug-in cartridge port capable of supporting a 128k ROM and two 8-way plugs for joystick(s) and mouse are also standard on all machines. In addition to that, all the Mega STs have an internal bus expansion connector.

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Machine choice

Which machine is best for you? Decisions, decisions... we can't make them for you, but we can certainly put you on the right track. Do you want to use your machine in an office environment? Do you envisage your machine controlling your robotic assistant? Perhaps you see yourself spending hours in front of a monitor pumping out red-hot code? Or do you plan to stop the sales from leeching clients? You know what you want to do with a computer, all you have to do is decide which machine will do the job best. Easy really.

Follow our tables to help you out if your queries. They show the various models available and the usage of some key demands.



■ Commodore's A2000. Trapped within are specialist chips for Agnus, Denise, and Paula



■ The Amiga's sleek design hides the legendary 68000 graphics chip

Other sources

The price of most official peripherals will certainly lessen the weight in your wallet, a two-party offering may give a minor choice. For instance, Atari's laser monitor, available as it may be, drops in at a penny under £400. Commodore's 1024/604 isn't much cheaper (£260). The Philips 8000 at around £250 seems to be the favourite of many dealers. There are other options, but it's best to hunt around and decide exactly what you want and how much you can't fork out.

Mostly the Amiga's interface mode requires a high-performance monitor to call out the flicker. Hitachi's manufacturers warn. But there are several features to take into consideration: screen size, degree of persistence, size of gun and so on. Whatever you choose, it will suit you speeds of £200.

THE PRICE IS RIGHT

| | Atari | £ | Commodore | £ |
|------------------|---------------------------------|--------------------|---|------------------------------|
| Computers | 520E/516 1024/604 | 399.00 389.00 | A500 A2000 | 499.00 1199.00* |
| | Mega-512 Mega-674 | 1034.00 1379.00 | | |
| Monitors | 587.25 mono 50104 colour | 149.00 289.00 | 520 modulator 1024 colour | 124.00 349.00 |
| Drives | 5F2H 3.5 inch 5H205 5.25 mag | 159.00 209.00 | 1010 3.5 inch 101 mag PC 10 mag Amiga | 149.00 630.00* 730.00* |

* Price includes monochrome monitor

* Prices are approximate and will vary from dealer to dealer

Atari ST

Art and design

Has less colour than the Amiga. 520E/516 comes with modulator for connecting TV, but for serious work the 1024/604 monitor is required.

Business software

A monochrome monitor, second drive - preferably hard - and large memory are the usual requirements for business applications.

CDP

Large-memory machines, monochrome monitor and Atari's laser printer make a perfect combination. Hard drive recommended.

Games

Disappointing three-channel sound chip. Mill ports are included, but software requires lots of memory.

Music

Large selection/quality better all the time. The minimum spec 520 with modulator or colour monitor is fine.

Programming

Bundled BASIC is poor and can leave business flourishing. However, lots of other languages are available.

Word processing

Monochrome monitor is best. The more memory the machine has, the easier document handling becomes.

Commodore Amiga

Favoured with artists. A500 can be connected to TV via modulator, but 1024-colour monitor is best for detailed design.

The A2000 is regarded as the business machine. Its PC emulator offers great access to thousands of applications, and utilities.

Impressionist A500 due to lack of memory. A2000 with hard drive is fine, although third-party laser printer is needed.

Custom four-channel sound chip capable of AM and FM synthesis. Sound reproduction in starting stages.

Graphically and musically excellent. However, relatively few titles are produced for it. A500 adequate.

Excellent BASIC comes with the machine. Learn level programming tough as the machine has a very closed architecture.

A second drive is a good idea. Its fee is the 62000 simply because it has more memory.

Hard drives - and, indeed, external disk drives - are another sore point. Commodore don't make a hard drive for the Amiga A500 so you have no choice but to seek elsewhere. Try Precision at 01 2007198. They distribute the Spore hard drive which costs 099-00 and has

20 megabytes of storage. Probably the cheapest 20 megabyte hard drive for the ST is the one offered by Intense Systems (041-444 8816). Big Disk. Cost is £249. Look around for external drives, it should be possible to put one up for a sprinkling under £100. ■

FUTURE FORMATS

It looks certain that Commodore will release two new Amiga machines within the year. The first is the 62000 which is effectively seen as an expanded 63000 with 66020 processor (rather than the 68000), optional RT or Unix plug-in board and a more powerful graphics chip. The A2000 will be a souped-up A2000 with a 68000 processor. Given how fit that the 68000 machine could be around 10 times faster than current Amigas. Re-price it at yet, but you can bet they will cost

hundreds of pounds more than the A2000.

Perfection Hardware of Cambridge - best known for their work on the Alan Ayton transformer-based machine - are currently prototyping an ST looking computer. Although little is known about the machine, rumours have it that it will be available around Christmas priced at under £600. Also at Atari's feet is a 10400ATM which, logically, will have a modulator included.

STORMY WEATHER

After meeting Commodore under a cloud, Alan Ayton was rightly left for me to do it. Alan Ayton taught a fascinating course for the Commodore Communications Club's President on the company now. He was Alan's managing director until the company's first sale. The company then structure.



FORMAT LETTERS

Left, no right

Why didn't the whole computer world try to build the ST and Amiga as pure games machines. They're so much more than that, with fast high-resolution graphics, superb sound systems and fast processors. There is now plenty of circuitry software available which just goes to prove that they make ideal business machines. Don't convince them to be tedious playthings, bring them into the office where they belong.

B.B. Hess
London Centre for Hand Work

■ Couldn't agree more

Right, no left

Why is everybody trying to build the Amiga and ST into business. It's so obvious they were built to play games with their high-resolution graphics, superb sound systems and fast processors. There are masses of high quality games out there which prove that at least the Amiga's potential is being realised.

Joy Rick
Preston Road Playgroup Assoc

■ Couldn't agree more

Moving files

How can I transfer files between my 1600ST and the IBM PC at work. The IBM is fitted with an internal ST drive (he also exchange data with PC laptops) and will take an ST disk, but the PC comes up with a "General failure error".

A.H. Tappin
Oswestry, Shropshire

■ You're obviously tried to run the ST disk directly and nearly cracked the problem yourself. If you'd tried transferring data from the PC on a disk formatted on the PC (720K drive, not the high density 1.44M variety) you would have found that the ST can read and write to that without problems. As long as the transfer disk is formatted on the PC, both machines should be able to share data.

The alternative route would be to transfer data via the serial ports of each drive. Cannot be too

with a null modem! Just use designed for a serial printer and run a system package such as Xerox (versions are available for both) across from most Public Domain libraries. Watch up the baud rates, parity and number of data and stop bits and away you go. The same serial technique can be used between the ST or Amiga and most other models.

Wrong mag

I've been browsing *Magazines* for the last year or 10 years now and take strong exception to your recent feature on fertility testing. It's commonly known that the ovulatory cycle of Tapers is easily predictable with an instrument no more sophisticated than a clinical thermometer. Perhaps Mr Trumper should consult his book before the ground is put before making such rash statements as those in his article.

L.E. Reid
Dares, Leics.

■ It's worth pointing out that ST Amiga Format is designed to cover all hardware and software available for the Atari ST and Commodore Amiga models, and can boast very little expertise in the area of Taper fertility. If you have any problems directly concerned with the use of either of the above micro-computers we'd be only to happy to hear of them from your agent. As it is, we fear your present letter would be better directed to a nature journal, though you are at least right about the ovulatory cycle.

Software shortage

Why is it that the ST has much more software for it than the Amiga, which is so obviously a superior machine. There are at least three titles available for the ST for every one on the Amiga. Is this:

S.T. Grant
Preston

■ *Format* doesn't really come into it. It's all down to market forces. In Britain and most of the rest of Europe, the ST was launched at a much lower price point than the Amiga 1000 and has since in a year's time before the Amiga was released as a competitor. Software houses started to write for the ST soon after its launch and have continued to regularly release new games or adventures in this format. The Amiga market is still somewhat behind this, as have Amiga users said. The situation is changing all the time, though, and

more titles are released simultaneously in both formats. There's also a lot more software imported from the US, as the Amiga has a much stronger market than the ST over there.

It's not really in the business of arguing which of the two machines is the better. They both have their strengths and weaknesses and it's pointless trying to pit one against the other. ST Amiga Format intends as far as possible to maintain a balanced mix of features and reviews for the two machines.



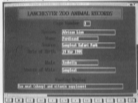
NAME CLEVER DISKS

OK, so the letters on this page aren't genuine. The spotted it but didn't see it as being a spoiler. Rather than fill this page with letters from other mag's which happen to be lying around the floor, we thought we'd put together a sample collection of wondrous letters to ST Amiga Format. We don't really want to do the same thing next month. Though, we please write to us with any comments on the ST and Amiga scene, ST Amiga Format or any other relevant aspect of micro-computing. Technical questions are also welcome. We want to help your opinions and problems, and will publish the most interesting and controversial in our pages.

Send your letters to: *Format Letters*, ST Amiga Format, 4 Duxton Street, Bethnal Green, London E2 9JF.



■ Check you've defined the fields in your file. Form view lets you rearrange them on the screen and group them together for readability. If you want more sophisticated formatting facilities though...



■ ...you have to go to the Form Editor, which lets you add colour, boxes, lines and graphics to the screen and include fields from more than one file.



■ The split-screen program editor lets you see your record and a program segment at the same time. Full text editing facilities are available and, as you'd expect, line numbers are not in evidence.

comes up and it's then just a question of naming fields and deciding on their types. However sophisticated your database program there's no real alternative to planning out your record on paper before entering figures into your micro. Plan the overall shape of the screen display, where you want different fields to appear and which ones should be grouped together. Make sure you've got the lengths of each field right.

Superbase is more forgiving in this area than most databases as you can return to the field window at any time and change the size or type of a field. You can also change the format of the record itself in the Forms View mode, one of three optional display formats available for any file. You simply click on the field you want to move and drag it to its new position. To complete a file definition you have to specify at least one of the fields as a key by which Superbase can sort all records into order.

Once the file is defined, a blank record is displayed in Record View. This simply shows down the left hand side of the screen all the fields listed in the order they were created. The alternative view is Form View, where you can position fields in any order and in any position you like on the screen, and Table View where each record takes up one line of the display and you can scroll sideways to see all the fields. Views can be alternated at any time, but new records are always added in Form or Record view and the format shifts automatically. Entries are formatted according to the attributes you set up when defining the file, so for instance you can enter a date as 21.5.86 and it will be automatically reformatted to 21 June 1986, if that is the specified format for the field.

With a few records entered into your file you can start using the control panel. This is the line of buttons at the bottom of the screen which have been designed to mimic the operation of a cassette deck control panel. You can move forward or back a record at a time, or flip through records on 'fast forward' or 'rewind'. You can also change the file's key field, filter records for particular information or call up an auxiliary external file to import graphics or extra text.

Superbase includes a text editor designed for putting together the form letters and resembles most closely with a mail merger, which is also included. Both work well and for simple applications should mean that you can do without a word processor.

JARGON JUNGLE

If you have trouble with some of the terms used in this column think of the meaning of a word less than of when cards. The fact that a letter is in the word indicates that it is shared, and a longer piece of information (the example is someone's name) is in a field.

A good relationship

Superbase claims to be a relational database, which means you can call up fields from one file while working on another. The advantage of this is that you can economise on disk space by only storing each field once. You could, for instance, call up earnings from a finance database against the part numbers in a stock file, or even store details of the animals in a zoo and call up feeding information from a separate file for each animal in turn. Superbase Personal, the original product on which the Professional version is based, can only make these relational links using its query language. The newer product takes this idea a step further with its forms editor which can continuously display fields from many different files on the same screen.

Query is a way of filtering out records which don't match a particular set of rules. Using it you can create a sub-set of the records in your file, which you can then display or print out. It is an address list, for example, you might want to pull out records of all people living in a particular area, aged under 26, who own a car. You could then mail them with details of your latest available model and expect to get a good response.

Query reports can be very useful and are easy to generate. They also enable information from other files to be brought into the report by specifying 'joins' between fields. You can direct the output of the report to the screen, to a printer or to a disk file. Query is the relational bit of Superbase Personal, which is fine for reports, but it would be much more handy if you could call fields from different files into a standard screen display. You can do this in the Professional version of the program using the Forms editor.

The Forms editor is like an expanded version of Form View, though much more versatile and containing many of the features of a painting package. You can use it to pull together fields from different files and to combine them on screen with lines, boxes and logos. The finished form can be displayed in a selection of colours and can be up to three pages (88 columns by 66 lines) in length. On the Amiga you can choose 4, 8 or 16 colour screens, with a proportional increase in the display memory used.

For instance, in the eye feeding example outlined earlier, the feedbills used to feed each animal

could be given a series of numbers which are used within the Animal Record and Animal Feed files to link them together. The feeds can then be called up via the form to store entering the feeding regime for each animal individually.

Professional perk

The other innovations included in the Professional version of Superbase is the DML, or Database Management Language. This is a BASIC-like language especially geared to creating customised database applications. It starts with all the variables, arrays, and control structures you would expect to find in a programming language and then goes on to major in file handling and control of Superbase from within. You can automate just about any procedure that you can perform manually through Superbase and can assign short programs (up to 256 characters) to the function keys.

The main use of the programming facility is to tailor the system to your own specific application. You can use it to refine the works of a database and at the highest level you can even redefine



the beginner can ease himself or herself into it comparatively painlessly. Considering that the language is largely for tailoring a personal copy of the program to a specific need and doesn't really open the doors to commercial program development, the asking price seems a bit steep, and most users will still be quite happy with the services of Superbase Personal at \$98. It would also be reasonable

STRANGE BUT TRUE

Taking off animals, too simple from that. Some interesting questions and the only animals other than humans that can suffer from depression is horses. If you keep one, feed it plenty of fruit and grains, regardless of what the

MAKING SPACE

On an Amiga 500 you have only about 100K space for files. As you may need to put loads on the contents of your RAM disk, this device expansion of disk space is the thing to do. It is even available within Superbase, making it hard to see the vector point.

VERSION TO VERSION

Superbase is available for both ST and Amiga. The Amiga version is written under Interleaf's BMP interface used by the Workbench while the ST version works through GEM. The two are sufficiently similar that the same manuals are useful for both versions, with appendices highlighting the differences. The main practical differences are the extra screen modes in the Amiga version, which allow most colours in forms if you have the

memory, and use of the speech synthesiser on records or from the DML.

The differing graphics systems of the two machines are also catered for by compatibility with Degas, Resochrome and MAC files on the ST and RT files on the Amiga. Differences in keyboard layouts and key names mean that certain operations described in the manual have alternatives or replacements on the ST.

the pull-down menus to contain only the commands you want. What it isn't capable of doing is writing stand alone databases which you can market independently of Superbase. In that sense it isn't a rival for a product such as dBase IV, but then that version of dBase isn't yet available on either ST or Amiga. A minor annoyance is that you can't create a field within Superbase with the same name as any keyword in the DML. An odd restriction in a modern language.

And for you?

Without doubt Superbase is a powerful and very complete database management system. Because of this power it can also appear complex in use, but Precision have sensibly catered for the more aesthetic parts such as the programming language, so that

to argue that a Forms Editor of the type now included should really be standard equipment in a modern micro database.

for

- Very full featured database
- Users graphics interface need
- Allows structural changes at any stage
- Can display pictures with data

against

- Tight on space in a full 8Mbyte machine
- Dangle on Amiga version

features

SEARCH

performance

REPORT

ease of use

FORMS

MANUALS

CONVERTERS

FILE

FORMAT

value

SEARCH

performance

REPORT

ease of use

FORMS

MANUALS

CONVERTERS

FILE



COMBAT SCHOOL OPERATION VOLF ARKANOID
BOBICOOP KENTGADE PLATON
RAMBO BATMAN COBRA

"SOFTWARE HOUSE OF THE YEAR"
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"SOFTWARE HOUSE OF THE YEAR"
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OVER THE RAINBOW

If you thought the spectrum was made up of only seven colours, we've news for you. It's 64 with *Photon Paint* on the Amiga and a brilliant 512 in the ST's *Spectrum 512*. Matthew Gales and Oliver Shepley dip their electronic brushes.

SPECTRUM 512

ST Only. Requires colour monitor.

£59.95 ■ Electric Software/Antic ■ 0954 61258

A s I led from the ever-expanding and more confusing ranks of ST art packages comes one which seems to have a legitimate claim to the coveted title of 'ultimate art package'. *Spectrum 512* is the first ST art package to be able to display all 512 colours on screen at once.

Getting in Sync

Displaying all 512 colours at once makes heavy demands on the ST's video chip, and so such a test program correctly synchronises them at switch-on. *Spectrum 512* will only run in low resolution, and automatically selects that mode when run. The main workspace appears as a menu bar at the top and one of three colour palettes in the side borders. The menu bar, which can be hidden with a click of the right mouse button, includes the standard icons found in other art packages: New, Line, Circle, Rectangle, Brush, Fill, Magnify, Erase and Load & Save.

Although all are fairly common among art packages, *Spectrum 512* has a good few extras which differentiate it from the rest. Because there are so many available colours, the package uses three palettes instead of the usual one. The *GUI* (gui) palette allows you to create your own selection of colours for use in a painting. You can save this palette to disk. The *FIXING* palette automatically calculates the 25 colours nearest to the one you're currently using, so you have a good range to tinting and subtle shading. The palette is updated each time you select a new colour. The third palette is *Filled* and shows a particular range of colours which you have selected is useful.

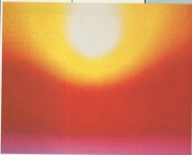
NO ZAG is a particularly impressive feature. Used in conjunction with the line or circle functions it smooths lines so they appear to be seamless as opposed

to the unightly jagged formed by only using one colour to build up the shape. *NO ZAG* works by building up shades of the original colour and blending them with the background, so effectively forming a smooth transition.

The *ANTI-ALIASER* is a classic, and far superior, version of the same command found in packages such as the 16 colour *Digital Arts*. It has three distinct parts: The *anti-aliaser tool* which works in a similar way to *NO ZAG*, but smooths off the edges in a pre-defined area; the *filter* which acts in a more exaggerated way, and does

indeed blur objects round the edges, and lastly the *contrast*, virtually the opposite of the other two functions, which increases the contrast between adjacent pixels and sharpens the image. These functions can either be used within a pre-defined square block area (up to the size of the full screen) or with a brush on small selected areas. The degree to which they work, and accordingly the time they take, can be set on a scale of 1 to 5.

[YOL] works with the brush or airbrush, automatically changing the colour as you draw and working through all the



■ Creating smoothly blended colours is easy in *Spectrum 512*.



colours present in the custom palette.

BLOCK has all the usual functions for manipulating areas of the screen. Cut, Paste, Resize and Flip enable you to move parts of your picture around the screen, altering their dimensions and orientations. **Blocks** can be moved into a buffer which can hold two full screens or a basic 512 512 or ten full screens or a 1048 512. **Blocks** can also be loaded or saved (but this is by no means all the block features can do) hidden in the depths of the block function is the most powerful feature on any art package - **ST** or **Amiga**.

GRABBER FILL is used to smooth fill an area with colours emanating from two or more base colours. Given the

number of colours available, the result is an area of incredibly smoothly graduated colour. First results may be a little flat and dull, but with practice it is possible to predict and control the final result. Using gradient fill on large areas can be a very lengthy process, sometimes taking over 20 minutes to complete.

Conclusions

512 colours on screen has to be good, and **Spectrum 512** is one of only two packages to offer this feature as present on the **ST**. A direct comparison of pictures created with **Spectrum 512** and other leading art packages shows that the others really can't compete. When it comes to the crunch this must be the most important consideration and **Spectrum 512** is a clear winner. There are a few niggling problems, though the program makes quite ingenious alterations each time you change the job colour and when using some other functions. This can be rather annoying at times. Far more important, though, is the omission of features which are normally considered standard in **ST** art packages.

Firstly there is no way of editing text in pictures. This came as a great surprise, as it imposes quite a limitation. Secondly there is no way to define an irregularly shaped block (ie. a general polygon draw-and-fill routine), and thirdly there's no gradient to aid positioning of items on the screen. These omissions are all the more surprising when you look at the sophistication of some of **Spectrum 512's** features. It gives the impression that the designers of **Spectrum 512** went all out for innovation and in doing so missed out the intermediate functions. This is by no means a condemnation, as **Spectrum 512** is a competent, easy to use art package which with a little practice can be used to create spectacular artwork. Its ability to load other picture file formats - **Degas**, **Neochrome** and even **Amiga 400** files, if you can find some way of getting them onto your **ST** disk, is a definite plus. It's a pity other screen resolutions



can't be used, but this is not a major problem.

This type of art package represents a significant advance in **ST** art and there are sure to be many more like it in the future.

BEST OF THE REST - ST

While **Spectrum 512** offers the greatest colour range available to 50001 owners, owners of **ST's** with larger monitors may feel themselves being drawn towards **Quantum Paint**, which boasts a massive 4096 colours on machines of over 1. Mbyte and a breathtaking, but still respectable 120 colours on the half megabyte **ST's**. What makes this package more amazing is its price - at £25, **Quantum Paint** offers power and economy to the budding artist. It's power is hard to beat, even for **Spectrum 512**.

If popularity is any indicator of quality, **Degas 512** must be one of the best art packages around. When you use it you can see why **Degas** works in all three screen resolutions, and is packed with features which all go towards making computer art as painless as possible. If you are looking for versatility and ease of use at a price that now ranks among the budget art packages (after a recent reduction, **Degas 512** should be on your short list).

For those who are only interested in more pictures, there are a number of packages worth a second look. One recent one is **Gratia** from Black Soft. Purely on a number of features offered, it would seem to challenge the might of **Degas** and other more expensive packages. **Gratia** is priced at around £17.

Finally, if you find yourself in a state of complete bewilderment, know little about computer art, or are not even sure if it will cut you, then do not despair before spending vast sums of money on an art package have a look in the public domain catalogues. You'll find various versions of **Amiga Resolutions** programs (one of which may well have been bundled with your **ST**) and **Neochrome** itself offers a good start into computer graphics. Later versions offer functions that many expensive art packages omit - animation for instance! There are also other PD art packages, some of which come from higher educational establishments - these may be the results of experimental research and are often well worth checking out.

features



performance



ease of use



accuracy



format verdict



Spectrum 512 for

- 512 colours on screen at once
- Variety of good anti-aliasing methods for smooth edges
- "Gradient fill" gives subtle shading
- Can't work on two or more screens at once, even on a bit!

against

- Can't directly type text onto images
- Lacks polygon drawing and grid locking



■ **Spectrum 512** showing its multi-coloured splendors.



■ With a little skill, a digitiser, an interesting face and Spectrum 612 all things are possible!

THREE AS GOOD

There is a small but growing way the Amiga's total mode operation which makes it better than any other computer of the same size when it comes to the way it uses the screen. Using the hardware helps reduce the colour resolution on the screen. The problem is a feature of the video chip.

FOR THE FAINT-HEARTED

Operating computer bits is one thing, explaining graphics to your brother, friend and family, especially family members.

What is the standard TV set video system in the USA. The video base transmits lines per second that also the European system, an equally limited horizontal compression often has a dark field area at the bottom of the Amiga's video output. This is the European TV set video standard. It is higher quality than NTSC.

However, a technique to increase more pixels into the screen than normally is to strip the normally blank top, bottom, left and right margins.

However, a technique to double the normal resolution of a screen by doubling it vertically. On the Amiga you could use a special chip called the Amiga graphics board, the standard monitor board, having.

Screen doubling is a technique to reduce the number of lines transmitted when images are drawn on video. It works by using alternate colour shades to fill your eye into seeing a smooth edge.

PHOTON PAINT

Amiga only

£69.99 ■ Activision/MicroIllusions

■ 0933 76768

There is one aspect of the Amiga's graphics that angles it out from other recent releases, the so-called HAM display mode. HAM and HAMx, as it is in fact, is a means of ensuring each separate pixel of a screen can hold a colour of its own without altering any other pixel on the screen. This technique allows for 4096 colours (something ST owners can only dream about). A heavy Amiga with 512K of RAM can display this mode at 1 only takes up about 60 or 70K.

To date, this facility has been slow and painful with few packages showing any real achievements in handling HAM images. A package not to change at that is Photon Paint from MicroIllusions. It has a load of features missing from the likes of DigPaint, and now the

acknowledged leader.

The first thing you notice about Photon Paint is the colour palette - it shows 64 colours as opposed to the normal 30. This palette is comprised of 30 base colours and 30 HAM colours. The base colour set is exactly the same way as conventional art package palettes like Deluxe Paint, but the other 30 may be selected from the theoretical maximum of 2.2 million different colours available on the Amiga.

Drawing the line

The colour palette is just one item in the tool selector window, which also includes the basic art tools: Copy, Line, Rectangle, Circle, Ellipse, Copy, Freehand, Arrow, Fill, Brush,

GET IT OUT

Now that you know about the various ways of getting a respectable image into a computer, how do you get hard copies of your masterpiece?

The best way to reproduce a colour screen is by photography. You must have a camera which allows you to set the shutter speed, which most 35mm SLR cameras do. Because the display is a video screen displaying 50 frames a second, you must use a slow shutter speed to avoid strobe lines (causing the screen refresh in mid scene). Experience shows that shutter speeds of 1/8 or 1/4 of a second work best. Experiment with a variety of aperture settings. Slide film tends to give finer colours than print film, especially if you use a cheap 35-film developing shop.

An alternative is to use a colour printer. The need for colour printing requires a few breeds of printers from standard dot matrix ones, namely the thermal transfer printer. These printers use heat instead of hammer's to print the required information onto the paper. Therefore, they are relatively quiet in operation. The Okidata 80 printer retails for about £170 and produces very good quality printed for the price. Alternatively to the screen at a little over £200 is the Star LC10, which also does post-black text printing very efficiently.

THE ARTIST AT WORK

To put Photon Paint to the test, and to see if it could load 32-colour digital pictures as created by the "best" picture, there's how it was done:

- The master head was taken from a Budget 35 slide and scanned in the 48-bit mode of Photon Paint (120x800). The final image, cleaned up, was saved to disk.
- High-View was used to colour the head in 32 colours. The result was again saved to disk.
- The 32-colour-head was loaded into Deluxe Paint II. The ground of heads was created using high anti-aliasing techniques (with Photon Paint tools) and the 80 screen window. This "ground" was saved to disk as a brush.
- Working again in Photon Paint, the purple sky and green ground were created using gradient fill. The head ground was then loaded as a brush and painted down in the appropriate place. The final large head was dropped into the back-ground (the head was pasted in the same place twice to give it the appearance of glass). The whole picture took 25 minutes to create.

Magnify, Undo and Redo. Most of these tool names are self-explanatory, though perhaps perhaps needs a little note. It takes a group of pixels around the current pointer position, finds the colour which has been used most in that area and draws a black rectangle in that colour. This process can be used to produce a mosaic effect with a starting size of between 3 and 8 pixels. The Magnify function creates a new edit window, which can be resized and has gadgets for zooming in or out, selecting a new work area and jumping

from minimum to maximum zoom.

The File menu offers options for selecting the data colour and remapping the picture (that is, redrawing it with the new palette) as well as the obvious functions for loading and saving pictures. You can also create a spare screen, even an AMIB. The Preferences menu includes a Screen Mode option which brings up a scrolling bitmap selector from the bottom of the screen (a neat touch) and allows for NTSC, PAL, Overseas and Interface displays. Overseas in PAL mode is fun

edge to edge video - very effective. Other options from this menu allow for various screen adjustments, as well as for a mouse speed controller, which is other bit garbage included.

The Brush menu is probably the best part of Photon Paint. It lets you load and save brush definitions from disk, switch it from opaque to transparent and reshape the outline in its palette. Not impressed? Well, to clarify it - the power of Photon Paint comes from the bottom half of the menu options. There are options to bend the brush into an arbitrary shape, to fit it in 3D (very effective), bend it and turn "Wrap On". This function displays a side menu which maps the present brush onto a cube, cone, ball, ellipse, cube, cube with the brush showing on all 3 faces, or a teardrop shape. This "reshaped" option can create weird effects - you draw one half of the brush's new shape outline in a box and the computer calculates the rest. All of these functions take a while to calculate and a counter is displayed in the tool window to show you how things are progressing. There is one last feature in the brush menu - LUM, which provides primitive ray-tracing.

Show but sure

Text in a wide variety of styles can be loaded from any standard Amiga font

GET IT IN

Other than drawing every image you could from scratch, most serious computer artists find digitisers very useful items. A digitiser is a piece of equipment used to capture an image from a video source like a camera or a video recorder and turn it into a series of pixels which your computer can display and edit.

Digitiser £799.95, Amiga-only, Resfinder is capable of producing scanned pictures in all of the Amiga's graphics resolutions. This image may then be made into black and white, negative or colour - separate for each, and the colour palette of 32 colours may be retained to 14, 4 colours. The calculation of shading is admirably good and, for example, the well-known picture of Ring 14 may be reduced to 8 colours with little noticeable loss of quality of image. Resfinder owners are recommended to 120x800 and

640x400 (black and white scans only).

588 (£249.95, ST only, Silicon Software) is only capable of making first grey scale scans of an incoming video image. It is so fast that you can play a video tape into it and it will pick up each frame from the tape perfectly. The 528 ST can load 18 pictures in memory at any one time. £249.95 owners can save 25 (about 3 seconds) worth of animated and Mega ST owners can store between 50 and 100. The software that accompanies the digitiser can create time frame animation and time lapse photographs.

These days the Amiga is creating something of a specialist market for itself in video editing, so it is a better bet than the ST for serious video artists. ST AmigaFormat will be covering the video market in more detail at a future date.



SOFTWARE



software screenshot



software screenshot



software screenshot



**format
verdict**



Photon Paint for

- Palettes of 4096 colours and 32-bit quality
- RGB256 can be "wrapped" around images
- Waves of colour gradients can be generated
- Works in 10- and 16-bit, and operators made guess tag picture sizes

against

- Light mouse ray tracing sounds useful but not powerful enough
- Hard to change colours once chosen

file, and the Blend menu provides more valuable options. From here you can select solid colour fills or add or subtract colour from other sections already in the picture. The Blend option itself is very powerful, offering gradient fills and shading the way in which most other functions work. Set brings up another file screen which lets you load up gradient fills from left to dark and back again. The Set function lets you fade colours in varying amounts up and across the screen, which can be used to produce some exciting effects.

With all these features, it is easy to forget what the package was actually intended for - creating stunning art pictures people will, that are certainly a treat and the program - about a little

size at times - really does show off the graphical capabilities of the Amiga to the full.

Does Photon shine?

The obvious comparison that will be made is between Photon Paint and Deluxe Paint 3, and there are definite omissions from Photon Paint. In particular, Photon Paint provides no Anti-aliasing techniques and there is no way to create a tiled background as seen in the composite-test picture printed here (it couldn't have been easily created that way in Photon Paint). Another problem is that once you have painted a colour onto the screen, it is very hard to change other than by remapping the entire picture with a

RAY TRACING

This is the technique used to create those spectacular effects of interpenetrating and transparent spheres that are just "wow-wow-ingly" to make the viewer gasp over realism. The art program creates pictures from highlights and other items simulated light sources and predicts how the light will fall on many objects (like pictures by drawing/imaginary lines and ray-tracing as they pass through the scene.



■ Photon Paint showing off its capabilities with a magical display

BEST OF THE REST - AMIGA

As programmers develop and overcome their initial panic when faced with the Amiga's "freight" RAMP programming environment, so art packages have become very powerful.

Deluxe Paint, which used to be bundled with the ROM, is one of the all-time classics and few art programs can be as easy to use as this masterpiece of programming. The most complicated part is learning how to use brushes and high resolution graphics modes, which are offered with the command palette (10 or 16-bit bit maps from the CLG).

Another classic is Aegis Images (Now being bundled with Aegis-Format). This program provides more advanced features than Deluxe Paint and has therefore created a genre of artists tuned to its capabilities. Deluxe Paint II is probably the best art package on the Amiga, having the extra facilities of Photon Paint so required this month. Every imaginable feature is on offer and the program retains the look and easy use of the original Deluxe Paint. The program provides very good anti-

aliasing, and the results can be very good.

The first package to break out of the 32 colour cage was Express Paint which offered 64 colours on the screen by a trick. The Amiga has a special graphics mode called 16-bit bit planes, as the name suggests, each primary colour within the 32 colour palette has a bit, but half as bright. Express Paint also has impressive text handling techniques which allow text to be imported easily and moved around pictures and into drawn shapes.

The final, and most impressive leap for Amiga art is the arrival of the RAMP paint packages. From the first of these packages, appeared about two years ago. Soon after that came Digi-Paint. This is a rather simple program and is some extent is the same as Photon Paint. Digi-Paint features particularly good shading - it is possible to state a sphere from a circle that actually looks like a solid 3D object with proper highlights and reflections. Among the PG art programs are the magnificently named Paint on PD Disk disk 128.

new points, but that can lead to strange colours appearing in other parts.

There are no real complaints about the features that are included - there are certainly enough of them, but an art program that appears to excellence is severely limited without a good anti-aliaser.

The ray tracing LUM function is extremely limited, and is best left alone. The manual did explain that it only works with the Wrap On function, but surely it would be better to make it work on all of the brush functions.

With these provisions though, and after a little practice with the package it's hard to go back to lesser programs like Deluxe Paint 3. Overall, Photon Paint far exceeds any other art package available for any other home computer in terms of the results achievable with a little expertise. With care the finished result can look like a digitised print. ■



GOLD DUST

Steve Gold, electronic mole extraordinaire, sniffs out the news behind the news on both sides of the Atlantic.

At the May Comdex show in Atlanta, USA, the red hot news on the Amiga front was the unveiling of a 68000 accelerator card for the A2000, as well as a version of every university's favourite operating system, Unix, for the machine. Commodore US has also confirmed the development of an 80386 card for the A2000, but a very high resolution monochrome monitor for the Amiga range.

That's the good news. The bad news for Amiga and Unix fans is that Amiga Unix applications will not run concurrently with standard AmigaDOS applications software. Commodore has said, however, that

if Matrox 68000 chips don't take your fancy, then how about a less powerful 68008 coprocessor board? Commodore has confirmed the development of just such an IBM PC-AT compatible board, as well as the much-touted (but never seen) 68009-based coprocessor card for the A2000.

Monitoring progress

All that processor power doesn't deserve to go unexploited, so Commodore also unveiled their Model 2024 high resolution monochrome monitor for the Amiga. The monitor can be connected to a

ST AND AMIGA ON-LINE
In the world of modems and terminals, CompuLink has now branched to ST and Amiga services.

Unlike the Commodore 64, the ST and Amiga computers do not require a special modem with onboard software. Instead, users of the ST or Amiga can use any Hayes-compatible modem, but require the special CompuLink terminal-handling software at £29.95. A package deal for both modems, including software, a free month's usage of CompuLink and a Price Limit modem, is available at £125.00 (plus VAT). Subsequently, CompuLink will cost you between £9.00 and £15.00 per month.

■ CompuLink Telecommunications Limited, Stratford Business Centre, Stratford Road, Farnham, Middlesex, UB8 7JL. (01-927-2581)

the Atlantic, but a little bird tells us that they should be on show (and about certainly available) by the

end of the year. The bad? Well, all good news, you could see it in sale around Christmas/January time," he added.

Goldstone remains open to the subject of pricing, but the programme has it around the £700 price point. LCD screen resolution shouldn't pose any problems, said Goldstone claiming that with Alan's expertise any screen graphics problems should easily be solved.

And now on to the ST software front. Multi-tasking on the Atari ST, as seen on the Commodore Amiga, has been around for some time, but true concurrent loading of 68k applications has yet to be seen. The reason for this is that 68k requires operating system control of the screen - a task not possible for two or more packages to share at the same time.

Computer programmer Hank Houbart (of Anadix Software fame) claims that he's about to solve the problem, thus putting the Atari ST's capabilities on top next the Amiga.

"I've written a package to support ST applications software in a multi-tasking environment, and now I'm looking at solving the OEM problem," Houbart told me. "I believe I should have solved this problem very shortly," he added.

Houbart hasn't priced his at all yet (unusual! MVS (multi-tasking operating system) for the ST "I'll be making an announcement shortly," he said, "but I never intended to market it as a commercial package"



■ The baby Amiga 500 - 1MB version with enhanced graphics also seen?

If the A2000 is equipped with an 80386 co-processor board, then Dos and Unix applications can be run concurrently on-screen.

The reason for this strange anomaly is that the Amiga Unix environment requires the exclusive use of the A2000's 68000 microprocessor. The Dos applications meanwhile, run quite happily (and independently) on the 68000-based co-processor card.

Of course, if it's speed you're after, then the 68009-based accelerator card comes equipped with its own memory management unit and can support up to 20Mb of its own RAM.

1MB Amiga and supports a resolution of 600 by 800 pixels with 2 bit planes.

Existing Amiga owners needn't despair either, as Commodore has also confirmed that it's working on a new resolution-enhancing chip set. This is reported to be pin-compatible with existing chip sets and will allow Amiga users to double the amount of video RAM in their machines. This would in turn allow a new enhanced resolution of 800 by 600 pixels - even in the baby Amiga V10a.

Pricing and firm delivery dates on all these new goodies has not been announced on either side of



■ Goldstone - surprisingly candid

the UK. Personal Computer Show (formerly the PCW Show) comes around in September.

Hot rumours still surround the 'Baby Amiga' - the A100. This is still in line for a launch, say Commodore US contacts. If you're not a 1MB-equipped A500 (maybe called the 01000?) Fast Scan Now.

ST laptop latest

Back in April, I bumped into Alan Gold in his Glasgow at the Atari Computer Show. I raised some interesting topics of information. Stay, the code codename of Atari's ST laptop, is coming very near indeed - faster than anyone thought.

Goldstone was surprisingly candid on the ST laptop. "We hope to have the laptop finished and on sale

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It's as traditional as Mom's Apple Pie. A questionnaire in the first issue of a new magazine, that is. We'd very much like to find out a bit about yourselves, and what you think of our magazine. That way we can fine-tune the mag to be just perfect for you; and we mean that most sincerely.

To tempt you even further, we won't charge you for filling in this questionnaire. In fact, we might pay you. The first five replies out of the box on Tuesday 26th July will receive a £25 voucher good for our special offers pages – you can use it to buy absolutely anything on our mail order lists.

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Occupation.....

1. How old are you?

- Under 16 17-24 25-34
 35-44 45-54 Over 54

2. Are you:

- Male Female Other

3. Which computer(s) do you own?

- 520 ST 1040 ST
 Mega ST 2 Mega ST 4
 A500 A1000
 A2000 None yet
 Other

4. What hardware do you own? Intend to buy?

- Second floppy drive
 Hard drive
 Video digitiser
 Audio digitiser
 MIDI interface (Amiga only)
 Joystick
 Modem
 Memory upgrade
 Printer
 (Circle: 9 pin – 24 pin – Daisywheel – Laser)
 Other.....

5. What software do you own? Intend to buy?

- Games
 Word Processing
 Database
 Spreadsheet
 Art package
 Music package
 High level programming
 Assembler programming
 Communications

- 6. In the next year, what will you spend on:**
- hardware: £.....
 games software: £.....
 other software: £.....

7. What are your favourite games (up to five)?

.....

8. What are the five non-games programs you use most often?

.....

9. Please list and rate magazines you read:

- ST Amiga Format:/10
/10
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10. Rate your interest in the following sections of ST Amiga Format:

- News...../10
 Futures...../10
 (eg. transputer article)
 Comparative surveys...../10
 (eg. word processors)
 Cover disk...../10
 Reviews...../10
 Games...../10
 Gold Dust (column)...../10
 Graphics...../10
 Sound...../10
 DTP...../10
 Hints and tips...../10
 Competition...../10
 Special Offers...../10
 Letters...../10
 Escape Sequence...../10
 (back page)

11. How did you hear about ST Amiga Format?

- Advert in ACE magazine
 Saw it on the newsstand
 Heard from a friend
 Other.....

12. Did you have any trouble loading the cover disk (due to suspected faulty disk duplication)?

- Yes No

13. What areas would you like to see ST Amiga Format covering in future? And do you have any general comments on improving the magazine?



GOLDEN GAMES

Let's start by introducing you to the man who's going to have the stressful job of testing out all these games - Andy Stone. Andy's a screenplay writer and filmmaker who's used to his eyes on the small screen. And who can blame him? Of course the games will be seen and played by at least two other people, so that the opinion of the game that we present is that of the whole magazine.

THE REVIEWING SYSTEM

So what's so special about this reviewing system that you haven't seen it furnished times elsewhere? The revolutionary step we've taken is to dispense with the traditional review to concentrate on the most important features of an ST or Amiga game - its visual impact. By doing this we can much more easily explain exactly what happens in a game and make the most of those fabulous graphics at the same time.

For all the big games you'll be treated to a sequence of screenshots, accompanied by detailed, descriptive captioning, that take you through the game. In addition there will be test boxes in which we'll summarize areas of the game that can't be conveyed visually. You should find everything well explanatory when you flip over this page to our first game, *Interceptor*, but here's a quick run-down.

Welcome to the pages that are going to bring a whole new look to the ST and Amiga games scene. Every month we'll be providing in-depth coverage of all the big games in our own unique fashion. Once we've told you what we think are the hottest games around, we'll help you get more out of them with pokes and playing tips.

Introduction - Here you'll find all the relevant details of price, machine availability, any compatibility problems and control methods. The last following that box sets the scene for the game and covers all the relevant background information.

Gameplay - This scenario stuff is all very well, but what do you actually have to do? You'll find the answer to that question here.

Graphics and sound - you can see what the game looks like, but here we tell you just how good those graphics are in action and what the accompanying music and sound effects do for the action.

Conclusion - we've told you everything there is to tell about the game and now we're going to tell you whether we think that adds up to a great joystick experience. We'll be highlighting the game's most important points, that may make you love or hate it.

THE RATINGS

Best graphics - this mark reflects the quality of the background graphics, the screen presentation and any other static elements.



Best graphics - It may look OK in screenshots but what happens in those pretty graphics when they actually go into action? What's the scrolling like? Is the animation up to scratch? Does anything actually move? These are the factors that determine the rating.

Soundtrack - there's no way a magazine can play you the music and sound effects, so this rating

GAMES INDEX

FORMAT GOLD

Interceptor Electronic Arts 90
Wings Humbird 92

REVIEWED

Out Run US Gold 94
Thriller Activision 94
Sunday Mirror 94
Pinpower Activision 94
Leatherneck Microdeal 99

THE INDISPENSABLES

10 top adventures 98
10 top arcades 81

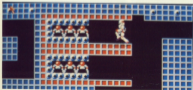
reflects their impact on the game and whether you'll want to see them again or give to the sea-stalls.

lasting interest - this tells you how long we reckon you'll be hooked. Is it a one-day wonder or will you be playing it for months to come?

Overall - this takes into account all of the other ratings and reflects our general opinion - whether the game is actually worth shelling out hard earned cash for.

SMALLER REVIEWS

We'll be giving our most detailed coverage for the big games, we've committed every gameplayer will want to add to their collection. Where games are covered in less detail, it doesn't reflect the time spent on them. Every game will be thoroughly tested so the ratings here give a fair and accurate opinion.



It's an action shot from *Thriller*, one of this month's top games.



1 You've practiced enough and feel ready to take on a mission. It's a real tough one - saving the President's life. The map shows the position of Air Force One and a bogey. It can be referred to in flight to show you a wider area than your radar. If you don't intercept that Mig, bad luck! AF-1 is going to be so much sopping metal at the bottom of the Pacific.



2 Deciding off from practicing you decide to take a briefed flight around the Bay area. You can fly under bridges, around buildings with shadows and even buy Ed's office in San Mateo.

3



3 Missing your the water to intercept the Mig. A mistake at this height could be fatal, but from here you can bank up behind the Mig and catch them by surprise.

4



4 You distracted the enemy for long enough to allow AF-1 to make a safe landing at San Francisco airport. How all you have to do is head for home and doubtless the President's congratulations.

GRAPHICS AND SOUND

The in-cockpit view isn't terribly interesting unless you bank buildings and bridges, but the screen updating is fast and convincing. Where the graphics really score is in the ability to go outside the cockpit and view the action and surroundings from all sorts of camera angles. This may not be realistic, but it adds tremendously to the presentation, atmosphere and overall effect of the game.

There isn't a great deal of detail or use-of-colour in the graphics, but they are sharp, clear and functional, giving a very atmospheric edge to the action. This is added to by the engine sound which is a realistic roar that sounds most impressive when you're outside the cockpit, and is complemented by some booms, explosions, warning beeps, cannon fire and sometimes deathly silence as the fuel runs out and the nose cone falls in all seriousness seawards.

7



7 It's in your sights. You've found off a couple of *astéroïdes* - aimed by the target designator square and missile counter - aimed on the HUD. The last time right hand corner of the HUD tells you there's a range.

CONCLUSION

You can't help but be amazed by the graphic sequences that are possible. They are every bit as thrilling as those in films like Top Gun or Predator, but the big difference is that you're in control. The difficulty level has been set just right so that even a beginner can get plenty out of the game in a short time, but it will continue to offer increasingly difficult challenges as the player improves.

The control action is fantastic. You will have to work hard to put by a hostile Mig that has several missiles with your name on them. The satisfaction of bumping it a daylight against a city opponent is immense. It's a stunningly absorbing game that is impossible to put down once you've taken up the challenge.

5



5 Always. Lack of consistency in the *mission* journey proved fatal as a Mig knocked you out of the sky. Never mind, you splutter and can spend all that time floating down thinking about your revenge.

skill completion



moving graphics



overall score



floating buttons of



overall 91%



VIRUS

FIREBIRD



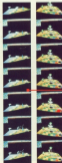
ST 19.95 Mouse or joystick, all models

Average version expected score



■ Move, home on the range... among the rockets where your mission begins and where you need to return to refuel. Mind that you tend strictly parallel to the surface though or it's curtains...

Something wonderful has happened... David Easler's own conversion of his Archimedes' high profile shoot-'em-up, Zorch. Released to unanimous critical acclaim, the game had only one problem - you needed a cool GB00 for the hardware to get it up and running. Now it's out on the ST, with seemingly little changed save the name. The only discernable differences are the loss of 'depth cueing' - the landscapes don't grow darker as they recede to the horizon - and the reduction in colour range - from the 256 on the Achle to 16 on the ST. Neither detract from the flawlessly smooth animation. Virus seems to run just as fast as Zorch, indeed it's all too easy to believe something wonderful has happened to your ST. But no, it hasn't become a PRCy 50-50.



■ Your radar shows the arc-length of view which you fly. Infected areas are shown as brown, you and the allies appear as coloured blips. If they have knocked out any computers, some areas will appear black, and you'll be flying blind.

■ Your energy just fills bottom and you ride the fall. You can't always win these all but you still have a couple of fourplanes left...

■ Your pursuit falls as a Easler disappears off screen towards you in less than 1/20th of a second. Did you hit him or not?

■ A gentle pull on your mouse and the landscapes shift from side view to plan. The transitions take less than half a second of effortlessly smooth motion.

■ Super 8 sequences - each frame 1/20th second.



3



■ A Destroyer sees its silent sensors and you move in for the kill... but what's that coming up fast on radar?

■ A Peet drops in from above on a familiar river. A quick fire and...



■ Almost blew it there, but you took him out first time. Now what's that Destroyer got to?

■ Here he is...



■ ...and there he was.

GAMEPLAY

The story is quite simple: ecology with a vengeance. Fly a hoverplane over a surface of oceans and catchwork fields on a beach to allow craft capturing the landscape beneath you with real-time. Leave and Destroy are the operative words here, with your scanner, laser cannons, and fast-loading missiles to help you. Although nothing highly original about that, but it's the position from which you view the proceedings which makes this unique.

Your hoverplane flies before you in mid-screen, tracing the slightest touch of your mouse, in wide 3D flight. There's no simulation as such since you're not outside the action, but you certainly don't feel isolated for long. Translating 3D mouse movements into 3D flight paths can be quite tricky at first, but once you've learnt to keep the hoverplane's nose tilted down, maneuvering comes naturally and you're in control. Left button for forward, right for fire.

The landscape can scroll in all directions as you fly everywhere in pursuit of enemies (ships and if you head off up into the black above you meet the stars. Back down below the game's distribution of trees, houses, powerlines and radar scanners play fast in the real object of your attention, the low flying Destroyers. They quickly go about their work, hovering from one tree to the next, scanning sectors of killer games. Since you gain points and bonuses for the land areas remaining unexplored, it's your solemn duty to blast at Destroyers to unjam them and go for the 5000 points you need to take you to the next wave.

Flying on the delicious Destroyers brings out the heavy duty boys. Bombs and Mutants, Bombers and Peets and, worst of all, Fighters, out to total you with their own beams and missiles. And this is where the real fun starts. The aerial combat is something else entirely. As what you see is only a virtual window on a much larger world, it's possible for your foe to disappear off screen towards you too! You'll be forgiven for ducking clear but your momentary lapses could be fatal. You soon find you have to weave, start, swoop and swoosh in order to gain enough height on your opponents to take them out. But remember to watch the shadows below: while sure you are not about to suffer a real air collision.

GRAPHICS AND SOUND

The real, true perspective 3D imagery is certainly outstanding though it's the movement which puts this in a class of its own. You could quite easily just hover around up there all day and take in the world below. From the bestial caricatures of the landscape to high-speed low-level attack runs, looking action has an effortless grace. The effect is quite uncanny and difficult to explain, no matter what speed you move relative to the ground, the hoverplane seems to glide with an ease you'd normally equate with slow motion. When you fire off a burst of cannon, the shots fall in a quality rhythm only possible into a million points with ease. Perhaps this is why sound plays such a minor role in the game: anything even slightly jarring would destroy the sense of calm. What sound it there a almost ambient - nothing special.

CONCLUSION

Is there any game that has attracted as much interest for its graphics? Although Zarn always seemed to be marveled in its same breath as the tremendous processing power of the Archimedes, Virus underlines the vision, style and attention to detail contained in the original game design and coding. Of all the games of the late Eighties, people will look back on this one as setting a standard for graphics in the Nineties.

with graphics



moving graphics



movement



looking interest



overall 96%

4



■ Back on the beat wire, you may as well turn up those sensors from while you're at it - more points towards the bonus!

■ There's the subject: just take position with a little threat... but he's about to take off.



■ And always, here we go again. Another Peet out for revenge.



■ A little threat to get your eye while you fly and take out the Destroyer... but that's it for this life. Well, that Peet is just about to hit another thing into you.

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OUT RUN

US GOLD

MSX - £19.99, joystick or mouse, colour only

Amiga - no version planned

The much hyped, much sold and much pilloried arcade game has been big news for over a year now, but ST owners have had to wait a long time for the version. On the 8-bit machines it was a dreadful game - so have they come up with a winner this time?

The concept is simple: driving a Ferrari Testarossa you have to complete five stages of a road race course within the time limit. What made the arcade game a hit was the



■ Flat out at 200 km/h on the first stage. (Hit out for traffic and trees)

amazing graphics and 'feel' of the car. These have been well reproduced, except when driving with the mouse - very difficult.

The stages are limited so that at the end of each you can look left or right. The reviewer is of the view that the stages (largely) vary in terms of road layout and obstacles. Some routes are far easier than others.

The road dips and rises (damages at times) and bends can be very tight. It's an obstacle and you'll be slowed down or compromised all over the place, losing you valuable time. Other vehicles on the road are quite a hazard as well.

It's an excellent conversion of the game and captures the feel and action of the arcade version. However, it is a little on the easy side and it won't take long to exhaust the music. If you look to it the best time, Out Run delivers.

still graphics



moving graphics



soundtrack



lasting interest



overall 71%

THEXDER

SIERRA

Amiga - £19.99, joystick

ST - No version planned

Bind us the best selling action game from Japan with over half a million units sold, *Thunder* is a little like being in Tokyo - space is scarce, the heat alive, and the action frantic. Add to that the fact that you pilot a Hyper Destroyer Robot Jet Transformer, armed with heat seeking lasers, battling hundreds of bizarre creatures and you might get an idea of how the Japanese deal with claustrophobia.

There are 20 different enemies inhabiting the 10 levels of caverns, tunnels and tight halls conjuring yet another of those forbidden worlds run by an evil computer. You have to trace the various routes, dodge the deadly traps and maintain your energy by, yes, you guessed it, killing things.

The most difficult stages are to be found at the beginnings and ends of levels, and so the Robot Jet Transformer doesn't do so brilliantly at that early, you can

find yourself unable to fly just when you most need to. Whether this is a feature or a bug is unclear. Also, the heat seeking lasers have a habit of

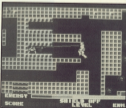
hitting the nearest creature or lava pool is hard - even if it's the other side of a wall. However, when combat gets tight they're wonderful things to have. No need to aim - just blast.

It's a shame though that *Thunder*, like other games ported over to the Amiga, hasn't been speeded-up more to make fuller use of the machine's facilities. The graphics on this one are adequate, with the sound made up of a simple melody with overated machine gun fire, and even *Beethoven's*

Midnight Sonata taking sound in their composites. Made it should have been the Ninth Symphony, it would still barely be enough time for you to get through all 10 levels of *Thunder*.



■ Thunder flies for cover and finds a few challenges on the way.



■ Here in robot mode, Thunder attempts to converse with the locals.

still graphics



moving graphics



soundtrack



lasting interest



overall 61%



FIREPOWER

MICROILLUSSIONS/ACTIVISION

Age: \$19.99, joystick only, any monitor

97 — under development

For some time now two-player games have been at the top. Now you can not only take on another player at tank warfare, but tanks can be at the other end of a network too. Unfortunately it's restricted to those with 16-bit compatible monitors, but it's a step in the right direction.

You're in control of a tank that starts life safely ensconced in its own fortress. The task is to find and attack the enemy fortress, capture its flag and return to base. The action is viewed from above, with a vertically split screen for the two player game.

The tank can be one of three types, each having different speed, fuel capacity, armor, number of mines and capacity to rescue men.



■ The two tanks are in the midst of the opponents fortress with debris scattered all around.

Each fortress is composed of a large number of gun turrets and other buildings. As you rumble around you have to watch the guns, mines and helicopters that can blast the rear end of your tank.

You can destroy just about everything in the game, even the trees and the hills that fill run out of destroyed buildings. You can also

rescue your own men and return them to base. The two player game is a straight raceball to get the opponents flag first, while in the one player game you have a limited number of lives to do it in.

The graphics are OK but lack zing. The sound effects are more pleasing — a near constant series of large explosions. Certainly best played with two, but even then the action eventually becomes repetitive.



SUNDOG: FROZEN LEGACY

FTL/SOFTWARE HEAVEN

97: \$14.99, mouse

Age: No version planned

In which your long lost uncle leaves you a deep space freighter and a little unfinished business. You have to locate a religious colony your uncle was under contract to supply. Wowing among eighteen planets strung across the beam systems of the Orville Region, you need to find, buy and deliver all the goods needed to complete the colony's construction. Between planets pirates will attack you for your cargo, and once you've managed to land in a city it's the muggers' turn to clean you out. The colony has its problems too — like no calendar! They've been freeze-dried and stored in warehouses (positioned throughout Orville so you have to find and defrost them as well. A great joy your uncle — what an adventurer!

Sundog's screen adopts a plan view of the cityscapes and the

interior of your freighter, with sub-screen log boxes for mouse commands and character interaction. In deep space you at least have the relief of moving star fields in which to lose your wares and lasers, but neither styles are particularly interesting or convincing. However, some of the only sequences are quite compelling; you can visit bars, restaurants, hotels, armories, tube stations, teleports — all the usual places where you meet crucial partners, the kind who say "Get lost way-head, you're wasting my time" when you refuse to bribe them for directions. And as the only food available on all eighteen planets seems to be beer and Big Macs, this kind of response is hardly surprising. Strategy, charm, fast talking and, of course, armed combat are the kind of social skills you'll need to acquire.



■ Into a hotel lobby for a quick beer and some information. That's you in white. Behind the door, the city awaits you.



■ The controls of Sundog aren't too busy (loads prepare for 98-99)

Sundog should appeal to all those who enjoy an old-fashioned space trading adventure and who aren't too fussy about sound and graphics.





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TEN BRAVE NEW WORLDS

Double format, double trouble – the Pilgrims and the White Wizard, two of Britain's foremost adventure columnists, who share more pseudonyms between them than Moby-Dick, come up with their Ten Favourite Adventures. Choosing adventures is a highly subjective affair – as far as the Top Ten is concerned, the honour is not coming first, but simply being included.

1 Beyond Zork

Infocom ■ £24.95

Combines the character attributes of role-playing games with the wit and depth of Infocom's acclaimed text-only games – plus on-screen map-ping into the bargain. Your aim is to locate the fabulous Coconut of Quondor, using magic, ingenuity, and force of arms.



2 Guild of Thieves

Rainbird/Magnetic Scrolls ■ £24.95

One for the graphics fans, this game has stunning pictures. We chose it because it combines a simple gametask (finding treasure) with some excellent puzzles. It isn't too difficult and although it's not quite as sophisticated as its later game, Jewel, we both had more fun playing it.

3 Jewels of Darkness

Rainbird/Level 9 ■ £19.95

A classic compilation of three early games, featuring Colossal Adventure, Dungeon Adventure,

and Adventure Quest. Although these old titles really show their age, they've been lovingly reprogrammed with graphics and a better parser. Discover the early days of adventuring, woe in nostalgia, and save a tribute with this bargain pack.



4 Darts Tale

Melbanc Arts ■ £24.95

The Darts Tale series combines graphics action with role-playing exploration. You form teams of adventurers who then sally forth through town, country, and cavern battling, stealing, and generally wreaking havoc. Little brain-power required, but lots of long term enjoyment.

5 Lurking Horror

Infocom ■ £24.95

Almost certainly one of the best text-only games ever, in which Infocom lovingly recreates the horror fiction of H.P. Lovecraft. Explore the forgotten labyrinth beneath your American college and discover something a lot nastier than 666...

6 Hitchhiker's Guide to the Galaxy

Infocom ■ £24.95

Douglas Adams' iteration with interactive fiction led to this minor masterpiece from Infocom, though traditional adventurers tend to be less impressed by the humour and uncomfortably aware of the flimsy quality of the game structure and puzzles – but then that's what Hitchhiker's is all about, isn't it?

7 Time and Magic

Melbanc/Level 9 ■ £19.95

Level 9 do it again with this intriguing release. The silent game, Lords of Time, is a treasure and

the best of the three. Red Moon comes a close second with a strong atmosphere and a few spells to cast. The Price of Magic rounds up the collection with lots of spells but not much else. However, for the price, this is definitely a winner.

8 Ultima IV

Microprose ■ £24.95

You visit the countryside in the form of an overhead peering map, with close-up graphics when you're in towns or on boats. Form a party of adventurers and telly-to across the land of Britannia, casting spells, trading, murdering, and gaining experience at the way. Slightly over-graphics, but the gameplay is absorbing and lasting.

9 Kings Quest III etc

Activision/Bernie ■ £24.95

Successes remarkably well in combining graphical action with textual input. Your character



solves puzzles by finding and manipulating objects, casting spells, and so on. Very pretty graphics, slightly twee presentation, and different plots ranging from Palace Quest through Space Quest to the magic of the King's Quest series.

10 Deja Vu

Melbanc/Level 9 ■ Amiga £29.95, ST £24.95 (also £19.95 £24.95 on beta)

The best of the open-domain adventure brigade. You manipulate objects and solve problems using the mouse and make good use of sound and graphics to generate atmosphere, though experienced gamers may find the game-world limited. *Deja Vu* is the closest – later titles include the Unlimited and Shakespeare. They get better every time...

HOW TO USE THIS PAGE

1. You've never played an adventure...
 First up, *Adventures and Role-Playing Games* are how the latest gaming sector of the software industry in the States, and are catching up over here. The game has been rapidly growing in sophistication to include complex interaction with complex combined characters, powerful compression techniques, and superb graphics. The price is, as usual, a sighter than the last.
2. You've played adventures and have upgraded to 16-bit...
 Lastly you. Almost all your favourites are available on the ST, and although Amiga owners are slightly less fortunate the situation is steadily improving. Best thing about 16-bit games is the quality of the graphics (almost, really).
3. You've never played an adventure, you hate Hobbits, you haven't upgraded, you can't type, you only like arcade games, you think adventures are for dummies, you can't spell for love, and so what anyway?
 Mutual assistance is available under the PC95, but you might have to wait some months. Best to overcome the condition yourself – to succeed knowledge required, only a restriction that adventure and role-playing software isn't, at its best, when you get what state of the art programming can achieve. And so for Hobbits, we think they should share between their 16-bit and get on.

LEATHERNECKS

MICRODEAL

RT - \$19.95, joystick only (\$9.95 interface for 3 and 4 players, colour only.

Average - £19.95, colour screen.

Commands had one player, Star Warriors had two, now Leathernecks brings you simultaneous four player action in the jungle. Of course to get four players all on joysticks you have to buy the interface that plugs into the printer socket on the back of the machine.

It's not the most sophisticated game concept you'll have come across - kill or be killed - as the screen scrolls downward and the bad guys come charging at you. Of course you don't have to have four players, you can play with one or two if you don't want to get the interface. What's intriguing is the idea of the interface being used by other software houses to produce multi-player games as well. If it could be established as a standard then the potential is enormous - and no more cramping around the keyboard either.



■ With four players at once, a "buddy" system can detect if anyone wants to die long - you take the role, we'll take this one and show where you put those grenades.

■ The weapons each player is using are shown here. The heavy machine gun is best for long distance work and gets rid of bad guys fast. The primary tool is indicated by the bullet icon in the weapon, which gradually disappears.

■ Background scenery can cause problems since it can force players into "traps" where death can come quickly, sometimes from the gun button you.

■ These gun emplacements are difficult to get within range of to take out with a grenade, but they yield big points if you can do it.

GAMEPLAY

Each player is equipped with three types of weapon: heavy machine gun, light machine gun and grenades. The RMG has a longer range and is preferable to the LMG, while grenades cover a wider area and destroy some special obstacles.

As the players move up the screen it scrolls and enemy soldiers will raise on long rifles and throwing grenades. All you have to do is enjoy them out and stay clear of their shots. You also have to be careful not to shoot, or be shot by, one of your comrades. It's a sufficient game and both shooters will be pretty dead with by their buddies.

The enemy will appear in various types of areas, made more awkward by the scenery which can get in your way - beware in particular of being "funnelled" into one line. Large scale gunfights and "roaming" guns are a big danger and only a well placed grenade will deal with them. Ammo is also a problem for trigger happy heroes because once you've run out you'll either have to find an ammo box or take a little rest.

GRAPHICS AND SOUND

The scrolling is perfectly smooth and the background's well designed. The flashing of the bullets when they die seems unnecessary but it's a minor point. There's a good range of backgrounds and each is extensive and clearly designed.

The sound effects are excellent. Sounds when someone gets hit and kills weapon noises and explosions, and some OR like music too. The only reason about the presentation is that it would be nice to have had a wider playing area, because four players can get rather too cramped.

■ Just look at that screen - after lately gunned with explosions, bullets and men. Surely that little bit and you're in line for a purple heart. It can't be too wrong then.



CONCLUSION

As a one or two player game it hasn't got anything you couldn't find elsewhere. Where it scores is in good presentation and the excitement of four player action. There's nothing like four gun-wielding lunatics huddled round a monitor, each on their own private and shouting instructions at each other as to what to do next. In such circumstances it becomes a much more tactical game than just a one player shoot-em-up.

A fun-action game for just one or two players but a real shout for three or four. Better your friends round and give your friend 100% of magnificent, mind-blowing mayhem.

total graphics



moving graphics



sound/music



lasting interest



overall 76%

THE INDISPENSABLES

The 10 games that no ST or Amiga owner should be without, plus some commendable runners-up that were just out-gunned.

Picking the best games for the ST and Amiga is no easy task. Many titles fail to deceive with their graphics and sound, while others are little more than hurried conversions of 8-bit games. What we're after is games that stretch the machine and the player to the full.

The list we've arrived at almost certainly won't coincide with yours, but we've tried for a spread of tastes from the most addictive and simple of arcade games to the most

involved and complicated of strategy games. The list is presented in purely alphabetical order because it's impossible to put them into any sort of order of merit.

There are so many contenders for a Top 10 that we've also come up with a list of commended titles that may appeal to your tastes as well. None of this month's games are included in the list - though some might deserve it.

ST TOP 10

Balance of Power
Bubble Bobble
Carrier Command
Chessmaster 2000
Defender of the Crown
Dungeon Master
Fight Simulator II
Impact
Ods
Sentinel

AMIGA TOP 10

Balance of Power
Bonecruncher
Bubble Bobble
Chessmaster 2000
Ferrari Formula One
Fight Simulator II
Impact
Mercenary
Sentinel
Sidewinder

COMMENDED

Academy
Get Dexter
Leaderboard
Powerplay
Super Sprint
Tetris
UMS
Warball

Chessmaster 2000

Electronic Arts,
Amiga £24.95,
ST £24.95

A very strong chess game that provides all the opposition you'll ever need. Plenty of difficulty settings, a pretty display and main-speech synthesis to make life a match for any master.



Balance of Power

Mindscape/Microsoft
Amiga £26.95, ST £26.95

A classic game of international power and the struggle between the USA and USSR. You can control either side and try to bring the countries of the world to your camp. Make the wrong move and a nuclear war could ensue. A superbly detailed and thorough piece of work that really stands out.



Bonecruncher

Superior Software
Amiga £14.95

One of those games that seems simple but traps you up in a series

of mind-bending puzzles. It's all down to collecting bones and making soup, but it's the kind of arcade puzzle that will turn a mid-market player into a totally manic obsessive.

Carrier Command

Rainbird
Amiga £24.95,
ST £24.95

A strategy game that not only puts your strategy to the test but provides excellent-sounding 3D graphics and a tough tactical challenge. Can you command the carrier and its weaponry to take control of a network of volcanic islands?

Bubble Bobble

Plexid
Amiga £19.95, ST £19.95

This one won't be the gray matter mush-out with so many levels and such readily addictive action it's still a maze. Two-droppers blowing bubbles are the stars, and after that it gets rather odd.





Defender of the Crown

**Cinemaware/Microsoft
Amiga £29.95, ST £29.95**

A graphical extravaganza that looks fantastic on both machines, but lacks a bit of gameplay on the Amiga. Betting for control of medieval Britain is more involved on the ST, but both versions are packed with atmosphere.



Dungeon Master

**Cinemaware/
Microsoft
Amiga £24.99,
ST £24.99**

Not out for the Amiga yet, but for ST owners it provides an enormous area of dungeon to explore in search of treasure, powers and nasty monsters. A terrific game for exploring long into the hours of the night.

Ferrari Formula One Electronic Arts Amiga £24.95

The best racing simulator there is, behind the wheel of a Ferrari you can experience the thrill of driving at the world's greatest racing circuits. You are the manager, engineer and driver through a whole motor racing season.



Flight Simulator II

**Sub-Logic
Amiga £49.95,
ST £49.95**

This one is a bit expensive and is only available on Impact, but it is the best in its field. You can fly a Lear jet, Cessna or World War II bi-plane in solid 3D. There's even the modern option allowing two pilots on connected machines to fly against one another.

Impact Audiogenic, Amiga £14.95, ST £14.95

The best of the new wave BreakOut clones. This has more levels than you can cope with, a slicker design, good graphics and sound, and total addiction. An essential buy for all arcade heads.



Sentinel

**Firebird
Amiga £19.95,
ST £19.95**

An original concept of epic proportions because it has 10,000 levels. Fantastic landscapes are dominated by the Sentinel and on each one you have to keep the position by getting higher than him. Sounds easy, but every level is different and presents masterly difficulty.



Sidewinder Melbourne House Amiga £19.95, ST £19.95

A shoot-em-up that has everything you could desire. Amazing graphics and explosion, an amazing sound effects, hordes of terrible aliens and increasing difficulty to challenge the best. Guaranteed to overwhelm the senses.



THE SUPPORTING CAST

If you're looking for something a little more specialised then maybe the titles that don't quite make the grade will fit the bill.

War game fanatics will want to get to grips with the Universal Military Simulator which provides many scenarios and plenty of flexibility in creating your own. Got fans will want **Leaderboard** and its repeats that get you as near to the real thing as you mean will allow.

If you're looking for a really mental puzzle of speed and dexterity then **Dips** should do you nicely. It's all based around tetrominos - don't you know? It's

like you're into them **Fractal** will not only provide that but a hot game too. It's a very pleasurable mixture of the two.

If pure arcade action is what you're after then **Super Spinnell** gives you 1000th anniversary, three player driving action, off-road will provide bouncing, off-road blasting action of stunning originality and **Academy** sends you into a space adventure that only the toughest will survive. Arcade adventure fans will also get there money's worth from **Car Center** which presents lots of tricky puzzles and funnies.

Academy
CRL
Amiga £19.95, ST
£19.95

Get Dexter
Infogrames
ST £19.95

Leaderboard
US Gold
Amiga £24.95, ST
£24.99

Powerplay
Argona
Amiga £19.95, ST
£19.95

Super Spinnell
Acidvision
ST £19.99

Tetris
Microsoft
Amiga £19.95,
ST £19.99

**Universal Military
Simulator**
Rainbird
Amiga £24.95,
ST £24.95

Wishall
Ocean
Amiga £19.95,
ST £19.95



DISK EXTRA

ST Amiga Format's unique dual format disk gives you the best of both ST and Amiga worlds!

Demos of the hottest new games – life-saving utilities – it's like a hundred extra pages!

FOR THE ST

44 OIDS DEMO

A brand new level of Microsoft's incredibly addictive Oids game not found on the standard release. Whether you've not yet played Oids or are a seasoned Oidster, you'll find this playable demo packs you.

45 VIRUS KILLER

Protect your disks against possible Virus attack.

46 RAM DISK

Configure part of your ST's memory as a fast disk drive. This appears to IBM as a perfectly standard disk, allowing you to run and save programs extremely quickly.

47 GAME POKES

A few underhand tactics to give you the upper hand in your game playing. Run these poke programs to get more out of Asterix, Gauntlet and Microcosm.

48 MONOWARE

Do you own a colour ST but want to run programs written exclusively for mono monitors? This handy utility allows you to do just that.

49 INVADERS

A pleasant diversion for you sea-serpent-minded mono ST owners – a version of the classic Invaders game.

50 DISK FORMATTER

Format single or double-sided disks faster and to a larger capacity. Single-sided disks (normally 387k) will have roughly 40% free, and double-sided disks twice that.

51 ART GOODIES

A screen snapshot saver for any ST screen mode, and a utility to convert art packages that between artoputer formats.

52 DESKTOP ACCESSORIES

A set of desktop accessories to give you a finished game, a color-



disk, an MS-DOS-type command interpreter, a text editor and a hidden mouse! Can you resist?

FOR THE AMIGA

54 INTERCEPTOR DEMO

Electronic Arts' stunning Amiga fight simulator sets new standards in 3D graphics animation. Even though this month's review gives you a glut of screen shots, there's no substitute for the real thing – except a live demo of the real thing! Set stick into 370k of superb aerial action graphics.

57 VIRUS KILLER

Kills 99% of all known Viruses dead. The file-saver gets rid of the original SOA virus, and also most of the newer and more heinous versions. Keep your disks clean, be long and prosper!

57 OTHELLO

A delectably cunning version of the classic board game. Can you beat your Amiga?

57 DRUNKEN MOUSE

Click it and see it do a little number to confuse your mouse.

WE'RE
PAYING
£800!

FOR GOOD SOFTWARE
ON OUR COVER DISK

We're looking for good quality software to fill our cover disk each month. If you're a nifty programmer you could earn big bucks from your labours – games, business applications, utilities, or anything of general interest. We're also interested in any especially original graphics you may have created with art packages, either for inclusion on the disk or printing in the magazine.

Turn to the end of this section for more details on how to get your software onto the ST Amiga Format cover disk.

16379  O AAAAAA + + + + + + + + + +

SIZZLING GAME DEMOS!

OBIDS

All colour STs

Obids is possibly the most addictive ST game ever. In the unlikely event that you haven't played it yet (that is, you

haven't got Breakingfinger Obidemia, as the medical profession now terms it), here's a quick summary. You're in a spaceship whose roars, thrust and fire actions are very like the famous Asteroids. You've got to manoeuvre your craft to blast the evil Bioceases and rescue the beleaguered

Obids.

The demo gives you a whole playable level of Obids with one life - see how far you can get!

To run the demo, open the folder OIDS and double-click on OIDS.DEM. An instruction screen tells you what keys to use.

COPYING INTERCEPTOR

If you'd like to make copies of the Interceptor demo, you will need to generate hard-disk copies with the Amiga's CopyDisk and the Interceptor (CD) as described in chapter 3 of the Amiga manual. This manual also tells how to make hard-disk copies, how to copy the demo to a hard disk, and how to copy the demo to a hard disk.

Make a copy of the demo on the disk you want to copy the Interceptor demo onto. The demo is located in the root of the Interceptor (CD) and is named INTERCEPTOR.DEM.

• Open up a disk window.

• Copy the demo and sub-

directories from the master disk copied previously to the new disk. (Type **Ctrl-C**.)

• Copy the demo and sub-

directories from the master disk copied previously to the new disk. (Type **Ctrl-C**.)

• Copy the demo and sub-

directories from the master disk copied previously to the new disk. (Type **Ctrl-C**.)

• Copy the demo and sub-

directories from the master disk copied previously to the new disk. (Type **Ctrl-C**.)

INTERCEPTOR

All Amigas (except 256K A1000)

What can you say about Interceptor? Quite simply, no other flight simulator on any computer has ever given the sheer feeling of flying that Interceptor delivers. The solid graphics, the burning engines, the veering horizon all combine to make you feel you are in total control of a high-tech 7-8 F-16 fighter.

Yes, on these good ol' days of Electronic Arts you know how to program. (Okay, that's enough hype - CD.) But don't just take our word for it. Read this month's review, then try it

yourself - that's the beauty of it having a disk on the front cover, each month.

To run the demo, take the ST Amiga format master disk, turn your Amiga on and put the disk in. The Interceptor demo boots automatically. It's a watch-only demo, so there are no joystick controls to learn.

Note: The method of loading up the master disk described at the end of the Disk Data section does not transfer the Interceptor demo files, so you can't run it from your CD(s). Always

make sure the master disk is write-protected and run the demo from that. It is possible to copy the Interceptor files, if you know CD commands - see the manual notes.

Amiga users: The Interceptor loading screen says that you get extra sound effects if you run with 1MB of memory (ie, on an A286 or an expanded A500). However, because of the limitations on disk space we have been unable to include the extra sound effects with this version. On such machines you will see a warning message "No more 1 MB of sound" as the game loads, and there will be a few strange crashes on take-off. Don't worry, the demo runs fine!



ST PROGRAMS

First, copy and load the disk as described at the end of the Disk Extra section.

Virus Killer All STs

Nothing is so vital to the new ST game, as revealed in this issue. Sorry, but Viruses, previously thought to be the bane only of Amiga owners, are the new ST bane.

With this Virus Killer you can check that your disks are infection free. It can be run directly from the CLICK ME menu program as described later. Alternatively, if you just go into the VIRUS.DSK folder and run VIRUSCHK.PRG by double-clicking on it you will be asked to insert the disks you suspect of being infected, and they will be checked and (re)formatted.

Warning: don't use this program on any games disks or other copyrighted commercial software package master disks. The reformatting process can wreck the loading process of these non-standard disks. It is quite safe with ordinary OEM disks though.

RAM Disk All STs

Well you've used a RAM disk, you'll know how how useful it can be. Essentially, this utility makes the ST reserve an area of its memory for use as a disk drive. The RAM disk appears as a normal OEM disk icon, and files can be copied into it and run from it like any other disk. The virtue is that it is lightning fast since there are no mechanical parts to put a spinner in the works.

Full details are given in the disk documentation, which you can read from the CLICK_ME.PRG menu program. If you're the kind of person who just won't read documentation files, here's a quick way to open the RAMDISK folder and copy the contents to a blank disk. Read the computer and insert the disk with the files you just copied. A 20MB RAM disk (drive D:) will install itself automatically.

For the more technically minded ST users, the ramdisk creation program itself can be run in several ways, either as a desktop accessory (ACOS), a TTP (DOS-like) parameter file or a standard PRG file. It's simply a matter of renaming the RAMDISK file. The mechanics of this can be found in the documentation file.

Game Pokes All STs

This folder contains hacks which - by modifying certain commercial games - give you a better chance at winning, if you want to get your name featured in

the hall of fame. These pokes will do the trick. The games in question are Microprose's Auto Dual (the pokes create a SuperStarfighter with extra money, armour etc.) and two US Gold titles, Gauntlet (get extra energy) and Melonias (get extra time).

The pokes can be run from the CLICK_ME menu, instead double-click on the POKES folder and again on the file of your choice. For instance, if you want to cheat at Gauntlet, click on the file called GAUNTLET.TOS. When requested insert the correct original Gauntlet disk into drive A. Follow the prompts.

Take care when using the pokes. They mostly come off the code heap or the games disks - if you use them on the wrong disks you're asking for trouble. We can't accept any responsibility for your misuse of these files. And we certainly can't repair corrupted disks.

Monoware Colour STs only

First! Over here! Want to run monochrome software on your colour monitor or television? Well, with this handy utility you can do just that, and it works with many commercial programs as long as they adhere to the constraints of OEMs. The System, First Street Publisher and even the name Invaders game featured elsewhere on this month's disk.

What are you waiting for? Simply select it from the CLICK_ME menu, and wait for it to load. Note that executing it will cause the ST to perform a soft-reset - this means you will not be returned to the menu program. First row of everything will appear in glorious technicolor, black and white, wow. But don't get off there - run CLICK_ME again and select Invaders from the menu.

Of course, displaying such a high-resolution screen takes it out of the poor old ST's processor. For this reason, the program allows you to select a combination of fast screen updates (or slow program running) or fast programs (but reduced quality display).

Invaders Mono STs only

Time a break from being really serious. Once your word processing, your book publishing, your book reviewing and spend a few hours being planet Earth. What, you can't afford the time? Hmmmm. What's their secret? Eat? Sleep? Or a few busy facts and figures?

Glad to see you're taking things seriously. Cause these Invaders sure are a menace. There are waves upon waves of the blighters and nothing except you to stop them. If you've been around a while you might even recognize the extra-breathless they used to



land sometimes in the late '70s.

Look, if you don't know what the game is by now, you'll just have to find out yourself. Suffice to say that Invaders only works on a monochrome monitor (or a colour monitor if Monoware has been fun beforehand) and uses right Shift, I and the (ALT)SPACE key for control. You can run it from the CLICK_ME menu.

Fast Formatter All STs



OEM allows you to format a single-sided disk to a capacity of 357K - achieved by single clicking on a disk icon and selecting Format from the Options menu. Twice this amount is attainable if the drive is capable of formatting both sides of the disk. It should cover this in simple, but what if you

DISCLAIMER TIME

We have taken our best to check that the programs supplied on this month's disk are simple to use, error free and have no known viruses. However, we cannot answer telephone queries on using the software, and we do not accept liability for any consequences of using the programs.

If your ST Amiga Format disk is faulty - and not of 40,000 duplicated copies are unfortunately found to be - you should send it back for a free replacement for:

ST Amiga Format July Disk, DeCopy Labs, 20 Oulton Close, Brackley, Northampton NN4 3DT.

Amiga owners: if your Amiga refuses to access the disk, try using the DISKCHECK utility on your Commodore Workbench disk to ensure it before sending off for a replacement. For details on using DISKCHECK, see the Amiga Facts and Tips section towards the back of the issue.

have a really huge text file or you want to fit just one more graphic picture on the disk? The answer is you use the Format program supplied.

You can format your disk's storage capacity to over 500 on a single-sided disk (twice this on a double-sided disk). That's nothing to be sniffed at either.

Select **Format** from the **DISK** menu and follow the prompts. By clicking on the boxes with the right mouse button you can highlight and select the options. Formatting will erase all data on a disk. Use with care.

Art Goodies All STs

Double-clicking on the **CONVERTART** 1000s will reveal two more folders, **SNAPSHOT** and **PCBITCHES**. Inside these folders you'll find useful programs for capturing GEM screens and converting graphic files from one program's format to another.

Inside the **SNAPSHOT** folder you will find:

SNAPSHOT.TOS

Run this program first. It will install a screen capturing routine which sits around in the background. Now run any GEM program as normal from the desktop, and when the screen you want to save is displaying, press the **Alt+meta** and **Meta** keys together. A flash will indicate that the screen has been saved to memory. The routine waits for any resolution screen.

SNAPVIEW.TOS

Once you've captured the screen in memory you must save it to disk. This is done by clicking on the above file. Files are saved with the default name of **SNAP1.MEO**. It makes sense to rename them. These are true NeoOffice files and can be loaded and modified within the art package.

SNAPVIEW.TOS

Displays all files with a **.MEO** extension on the current disk, in a rotating slide show. Space bar to exit.

Inside the **PCBITCHES** folder you will find:

PCBITCHES.PRG

A conversion program allowing art packages to read one another's art. NeoOffice to Degas and vice versa, Amiga BPP to NeoOffice or Degas, and Macintosh MacPaint to Degas format are all possible.

Desktop Accessories All STs

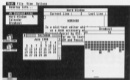
This folder contains 5 intriguing GEM desktop accessories. Getting them up

Calendar

Keep up to date with this handy utility. Selecting the accessory from the desktop brings up a calendar of years between 1980 and 2000. Use the scroll bar to roll back the years.

GLI

Were you warned on CP/M or MS-DOS computers? Do you dream of typing command lines rather than clicking fancy GEM icons? The accessory gives you a command line interpreter as a substitute for GEM - for example, entering **DIR C:\DOS** to it will copy the file **DIR.COM** from drive C to



and running is simply built on your copy of the ST Amiga Format disk you will see a folder called **ACC**, click on this to open it and you will see - amongst other things - five files ending in **.ACC** with names corresponding to the accessories described below. Copy these by dragging them out of their folder into the top level of the disk's directory. Now reset the ST and put this work disk in the drive. GEM will automatically load the accessories, and when you put the mouse over the **Desk** menu title at the very top left of the screen the accessory menu will drop down.

Breakout

A version of the classic Breakout game. Your task is to keep hitting the ball with your bat and try to get rid of the bricks.

Drive B

Well, getting around isn't the surprise. Read the documentation, set up a hard disk so that **MTEB.ACC** is loaded, and watch. Don't worry that **MTEB** doesn't appear on the Accessories menu, and rest assured that we have our own **Word400**

Word400

This is a rich text editor, with a couple of nice features for Pascal programmers. It can process files of up to 400 lines.

These accessories do, of course, all up your system memory, so you probably won't want all five on your usual boot disk. Make sure that on the disk you use to start GEM with you only have the **ACC** files for the accessories

AMIGA PROGRAMS

First, copy the disk as described at the end of the **Disk Extra** section. These programs run on both the Amiga 500 and the 1000. We have been unable to test them on Amiga 1000s.

VirusX All Amigas

By now you've read quite enough scare stories about the dreaded Virus on the Amiga to thoroughly terrify you. Cutting through all the popular press **NOX** installers, here are the facts:

Whenever you put a disk into an Amiga disk drive, the AmigaDOS oper-

ating system detects it and checks it. Some months ago a bunch of jokers called the Swiss Coding Association (SCA) wrote a program which hacked the disk checking part of AmigaDOS so that it would subtly infect all disks used.

This original SCA virus is fairly benign by comparison (it's later versions from unscrupulous program-

mers, some of them give you no warning at all before destroying vital data). **VIRUSX** is a public domain program written by American Steve Tibbet, which claims to erase all known viruses from disks, and it works in a very straightforward way.

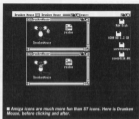
To run **VirusX**, just open up the **VirusX** drawer and click on its icon. An extra title bar appears on the main Workbench title bar, showing you **VirusX** is active. It immediately checks all disks in all drives, and from space it hangs around in memory checking all disks you use as you put them in.

The **VirusX** title bar is really just another window title bar with the usual close and toolbar gadgets. You can close **VirusX** down if you really want to by clicking on the Close gadget. Also, if you move the **VirusX** window so you can see all the Workbench title bar, then

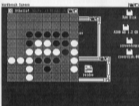
when you click on the MouseX title bar, a status bar at the bottom shows how many disks have been checked so far, appears on the Workbench title.



■ Warning Message: The warning message 'non-standard boot code' remains in disk in the drive might be infected. The menu bar at the top of the screen reveals that if disks have been checked for viruses, but none have yet been found.



■ Amiga icons are much more fun than ST icons. Here is Drunken Mouse, before clicking and after.



Othello All Amigas

An excellent version of the classic board game, sometimes known as Reversi.

A brief summary of the rules is given in the documentation file on the disk. Essentially, you are playing on an 8 by 8 grid of squares, and the object is to capture as the majority of the squares.

Each player puts a counter of their own colour in turn on a square as as to sandwich their opponent's counters between two of their own. The captured counters then change colour, but can be recaptured later on. You must make at least one capture with each counter you put down.

Once on a square, counters never move around but only change colour when the board is full, the player with the fewest counters wins.

To run Othello, just open its drawer and double-click on its icon. The Amiga always plays white, you play black and

have the first go. To make a move, simply click the mouse in the square you want to go into; the Amiga turns the captured counters for you and after a pause for thought makes its go.

If you want to end the game prematurely, just click in the Close-window gadget at the top left of the Othello window.

Drunken Mouse All Amigas

This is a great fun program, worth running just to see its icon! Open up the Drunken Mouse drawer, double-click on its icon, and be amused. If the joke starts to wear thin, you can get rid of it by clicking on the close-window gadget for the Drunken Mouse title bar which appears at the top of the screen in the Workbench title bar.

STAMIGA FORMAT

WIN ST AMIGA FORMAT FOR A YEAR!

We're throwing out a challenge to skilled ST Amiga-Format readers - design us an opening screen for our cover disk and we'll give you a free subscription to the magazine.

What we want is a small file (preferably no more than 20k, or just which can be run as a clickable icon from the Desktop for STX or Workbench for AmigaOS). The utility should be able to display a menu of all programs on the disk that month, and offer the option of displaying a documentation file or running the program and returning to the menu when finished. Imaginative features with graphics and sound score highly!

Remember that, although our cover disk is dual-format, ST and AmigaOS both think it is a normal ST or Amiga disk. Just write the program exclusively for your machine, and don't worry about the other's files.

PD AND SOURCE CODE

Some Public Domain programs are distributed with their source code - in the strictest program to that you can write if you want. Due to the enormous amount of space on our system disk we have not been able to distribute any source code for these programs, nor packages to the PD authors in question.

They would like to see more PD programs, including their own code, in any incarnation of Amiga PD's Source Program Services (SPS) or PD's Open, Model, Amiga, System 4.07. We'll give you 100,000,000. They have a complete set of 440 of the System 4.07 files, which contain the collected best of Amiga PD source material we have used as a basis for our site material.

HOW TO USE THIS DISK

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 follow these instructions carefully or you run the risk of permanently damaging the disk.

The first thing you must do is make a backup copy of the disk. Because of the special format, the normal built-in copying methods, as recommended in the Amiga and ST manuals won't work, instead you will need to format a blank disk and copy all the files you need 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 disk icon to open up the blank contents window.
3. Now drag the icon for disk B into the open window of disk A. This will copy all the files one by one off the master disk to your new disk. Make sure that the master ST Amiga format disk is write-protected the sliding tab should be back to that the icon is open and put it in the disk drive after each session.
4. You will now be prompted at various times to read disk A and disk B while copying takes place. There will be a lot of swapping to do on a single drive ST. Disk B should be the master disk, disk A your newly formatted copy.

If you want to not store on disk (helps and you understand) enough about the ST's DRAM system, you can set up a RAM disk using the utility provided on this month's disk and use that as an intermediate copy.

ON THE AMIGA

(assuming a single drive 4000)

1. Start your Amiga up with your normal Workbench boot disk.

1. Take a blank disk and initialize it in the usual way.

2. 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 items you see in the contents window onto the RAM disk icon.

3. When the disk activity light has gone out, put your newly formatted copy disk in the drive instead. Double click on the RAM disk to again its window up, and drag the items from that onto the new disk icon. This will copy the files one by one.

The files for the Interceptor demo are not copied - it isn't that they are not protected, just that they are too big to fit on the 4000's disk. Use the description of the demo for more details.

Running the programs

ON THE ST

When you turn the ST on and put your writing 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** - all it does what it says, double-click to run it. It brings 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. For technical reasons not all the programs can be directly run from this menu file: the Virus Killer, Microsoft utility loaders game and Disk Formatter can be run from within the **CLICK_ME** program.

The other items, **Ball Disk**, **Paint**, **Disk Accessories** and **An utility** cannot be run from **CLICK_ME**.

ON THE AMIGA

The Interceptor demo is self-booting - just turn on your Amiga, put the disk in, sit back and watch.

Each utility described in the previous pages is in a folder of its own with a **viewer** icon. Click open the folder you want. For detailed comments from the program's author click on the **README** file icon in the folder to run the program click on the main icon.

When you click on the documentation file, a new window is opened and the text is displayed as presented in a box. To continue reading the next section, press any key. To cancel the reading process click in the **Close** gadget at the top left of the text window.

DISK DOCUMENTATION

Many of the programs on ST Amiga Format Disk are Public Domain. It is our usual aim to provide complete on-line technical documentation. Such files, when available, are required by the PC users of practice. Some of the programs in documentation, such as they are, please don't blame us for misprints!

NEXT MONTH'S DISK

Next month's ST Amiga Format cover disk will contain still more of the most up-to-date and exciting games demos for both machines, with useful and diverting utilities.

There'll also be the unique **ST AMIGA FORMAT PRODUCT SELECTOR** - the world's first interactive buyer's guide. Just type in your specification - say, all word processors under £100 - and a list appears of what's available on your machine, where to go, and which is the best. Can you afford to be without ST?

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. Programs should be your own work, although we will also only a modest fee for good new Public Domain programs brought to our attention.

Here's how to go about securing international fame for yourself:

1. Only send in programs on 5.25" disks, we cannot accept printed listings.
2. Make sure your disk is clearly labelled with your name and address, the program name(s), and marked ST or Amiga.
3. Make sure there is 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 printed or any readable documentation file. Remember your address and a phone number where you can be contacted, include a stamped return envelope for the disk if you want it back.
5. Tell us **IMPORTANT!** there must be a legal statement that the program is yours and that you are prepared to assign public domain rights to ST Amiga Format, use the following wording:
The program carries the title listed is submitted 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 in a batch once a month, to please allow up to 45 days for return of your disks. We will only send back disks with adequate return postage and packing.

6. If you are sending us a Public Domain program of which you are not the author, please send all documentation and example files that should go with it, and if possible also the original author's name and address. (Obviously the signed statement in 5) is inappropriate in this case.

7. If you send us a disk with a virus on it, we reserve the right to send round the heavy mob in the usual heart and do-unspeakable things to your gut feelings. Seriously, now that you've got Virus-Killers on this month's disk, do check your disks very carefully.



GAME BUSTERS

If it don't look good and you're outta fuel; if you need more lives and ya wanna cheat, where ya gonna go? Gamebusters! Inside info to help you get further in your game playing.

Carrier Command ■ ST

To locate the enemy carrier, start an action game and set course for Islet (east of Thermopylae). Keep out of range of the island and wait ten minutes. As soon as the message "Islet is now an enemy island" appears, launch a Manta and head towards the north side of

Jinxter ■ ST & Amiga

If you can't do much after getting home, open the back door with one of the keys on your key ring and walk into the garden. Get the coffee and the gloves. When you feel the wire fence, wear gloves and then cut the wire with the cutters. (Shout to the mixer to open the window.



the island. The enemy carrier will be directly ahead of you.

A Manta can be loaded with missiles and a laser by loading the two on the same tank about five or six times.

It is best to attack an island from the rear to ensure the Warhogs are sent out in the right direction. Doing this also means you can use cruise missiles against island defenses.

Out Run ■ ST

During the game press the keys making up the word "STARCAB" followed by one of these keys to give the following effects:

- B - extended play
- 0 - save screen in Degas format
- 8 - information about program
- 5 - skip you through buttons
- 7 - no second bonus
- 6 - very useful - crashes program

Grid Start ■ Amiga

To personalize this game, load Deluxe Paint or Deluxe Paint 2 and insert the Grid Start disk. Select LOAD WINDOW and, from the file menu, choose the SCREENS folder. Load one of the files contained within.

Simply modify what you want and re-save (as a brush again). The



mixer are used in 18 counts to use care when loading and saving to pick the right count combination. When saving brushes try to get the brush the same size as the picture.

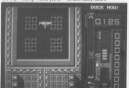
to the bonus screen while U gets you off it again. By continuously holding I and U it is possible to go through all the levels.

Goldrunner ■ Amiga

Pressing and holding function key [F1] for a couple seconds during gameplay will give you an instructional ship. Pressing I moves you an

Test Drive ■ Amiga

Don't say you find steering increasingly difficult as the night wears on? Good news for Test Drive players - when turning round a sharp corner press F10. The car will automatically be steered safely round it.





WIN A LASER

Yes, you stand the chance of winning a fantastic Epson GC3500 laser printer or a high quality LQ850, 24 pin printer in our easy to enter competition. Consider the questions below, pop a card in the post and you could be answering the door to a man delivering your very own laser or letter quality printer, courtesy of Epson UK!

Whether you print text from your word processor, pages from your DTP program, graphs from your spreadsheet or pictures from your art package, they will all look clearer, crisper, sharper and more eye-catching than they've ever looked before.

The Epson GC3500 is a new generation, 6 page per minute laser printer which provides full HP LaserJet and Epson F350 emulation to ensure compatibility with the maximum number of software packages. It connects to your micro like any other printer via the parallel printer port and opens up near typeset quality print to all your applications.

The LQ850, with its advanced semi-automatic paper handling, lets you cut, run single sheets for urgent letters without removing the pin feed continuous paper from the printer. The printer offers 2 LQ fonts at 60 characters per second, as well as a draft mode at a sprinting 240 ips.

Either printer will improve the print quality of your work out of all recognition, so buy yourself a private postcard, write down the answers to the three questions below (use the letters), and pop it in the post to us at: Epson laser competition, 5F Arisa Forum, 4 Queen Street, Bath BA1 1EJ

Cards must reach us by Friday, July 19th.



RULES

1. Entries must arrive on letter size Postcard, A4, July 19th, 1990.
2. The card must contain a name, address and telephone number. It must be clearly legible and must be accompanied by a self-addressed envelope with return postage.

1. What do the letters DTP stand for?
 - A. Desk Top Publishing
 - B. Dual Tone Printing
 - C. Don't Touch Please
2. Which of the following Epson printers was used to produce the postcard shown?
 - A. LX 800
 - B. LQ 850
 - C. GC 3500
3. How does a laser printer print?
 - A. By burning an image onto the paper
 - B. By exposing laser from a charged Selenium drum
 - C. By melting coloured wax on specially coated paper.

There was
Whose Lin
When aske
She said



ANIMAL FEEDS

The inclusion of a MIDI port on the ST has proved to be a very clever move. As Chris Jenkins discovered, STs have wormed their way into The Animal House studio in Clerkenwell as a cost effective alternative for sequencing.

As most of you will know, MIDI - the Musical Instrument Digital Interface - is a communications standard, similar to RS-232. It allows suitably equipped computers, synthesizers, sound samplers, effects units and other devices to exchange musical information, such as the pitch of a note, its duration, or its sound. Particularly of note, electronic musical instruments now come equipped with MIDI, and can therefore be controlled by an ST with suitable software.

Because MIDI allows the process of music making to be treated in the same efficient way as a word processor treats documents, it's brought about a revolution in studios of all sizes from back bedrooms four tracks to huge commercial setups.

Into the cage

London's Clerkenwell is best known as a business centre, but nesting in a

small maze is Animal House Studio, the first professional music studio designed around computers. Studio manager Clive Miles, formerly of progressive rock band Swirlin' Right, created the studio from the ground up. It's been in operation for six months, and is looked upon by musicians who appreciate the nature of high-tech, speedy operation and comfortable software. Clients so far include session musicians from bands such as Five Star, Do 'N' Be, and Howard Jones. Unlike some studios, which have had to try to integrate computers with existing equipment, Animal House had three 1840 STs installed "even before the walls were put up".

Computers have three main roles in music-making: recording and editing musical sequences, editing and cataloguing synthesizer and sampler sounds, and automating the process of mixing the finished multi-track tapes. Animal House uses an ST for each task.

The sequence

"We thought of using an Apple Macintosh, which has some great music software", explained Miles, "but the ST was the obvious choice because there are so many software packages and it's more reasonably priced". For sequencing, Animal House uses the Steinberg Pro-24 package. This was one of the first professional-standard MIDI sequencers, and has been kept in the forefront of development by regular updates. Used by bands including Marillion, Dave Niven and Ultravox, Pro-24 was the first software package to be seen live on 'Top of the Pops'. "Pro-24 is very easy to use", explained Miles, "you can load it in like a 20-track tape recorder". Pro-24 is now up to version V3, which features numerous improvements such as a display of the MIDI channel assignment of each track, and the ability to 'punch in' to a sequence and edit in real-time.

The £250 Pro-24 package, like

WAY IN

The studio house is available at reasonable commercial rates for any musician who wants to make use of its facilities. Ring them on 01-252 5412.

Inside the Animal House lies the Platinum Level IV mixer, synchronized Kates recorders and the Stein ST





■ The Atari 1040-ST running Steinberg's Pro 24 sequencer

Many other MIDI sequencers allow you to record a keyboard performance in slight form, edit it to eliminate mistakes, quantify it to correct timing, loop it, even revise it itself. By combining and merging many sequences into songs, Pro 24 can play an entire composition perfectly, over and over again if you require, while you edit the results. Engineer Russell Roney notes to get around 26 songs stored on each ST disk, and has never gotten out of memory on the 1040 ST.

Animal House has an impressive array of rack-mounted musical instrument modules, including Akai S800 and S612 sound samplers, Roland D840 and Super 35 synthesizers, and a Yamaha TX81Z module. DSI MIDI keyboard and DSI2 drum machines. All of these are connected via MIDI to the ST running Pro 24.

Because the connection is via a series of Akai MIDI-programmable MIDI Patch Bays, Pro 24 can take control of any instrument — in the middle of a performance, if you want — without re-timing. Say, for instance, you want a guitar lead-in solo, and a huge reverberation sound on just one beat of a snare drum; just select the MIDI program numbers you require on your effects unit, write them into the Pro 24 sequencer, and the change is handled for you automatically. Animal House's effects rack includes King, Roland Yamaha and Lexicon MIDI units, all of which can be controlled by the ST.

A hardware addition to Pro 24, the SMP 24 unit, also allows the ST to take control of the tape recorder. The ten Reelers II W units act as a slave unit to the computer. At \$2000 each, they cost a lot less than a 24-track recorder, which would cost around \$40,000, but using the ST, the ten Reelers machines can be synchronized together, giving a total of 24 tracks of tape to play with.

This is done using Pro 24, which generates SMP24 code through the

SMP 24 add-on; the tape machines read the code and stay in time with each other. Another \$20,000 saved by the ST! As a bonus, the SMP 24 unit gives you four independent MIDI OUT sockets for a total of 64 MIDI channels. (See times the standard MIDI channels, 1-16.) This means that timing errors, often caused when synths receive uncorrected MIDI information aimed at other ports, can be eliminated.

The Mix

If you think that's a clever trick, just imagine the skill and co-ordination required to create a final mix on a 40-channel mixer. Bear in mind that with all the tape channels and all the sequencer channels playing at once, there can be up to 128 audio signals in the final mix. Only a computer can perform the mix flawlessly, and here the ST comes into its own again.

Automated 'Solid State Logic' mixing desks, where the motorized faders are controlled by a central computer, cost over \$20,000. Animal House's solution is another 1540ST, the Megalog automation system. Megalog is an introduction-level desk (not containing 40 VCA's [Voltage Controlled Amplifiers]). It converts into special-mean points in the Platinum Level 32 mixing desk, and takes control of the overall volume for each mixer channel. The Megalog software is pre-programmed with the mixing settings for each channel, the master tape is run, and the Megalog unit performs the final mix flawlessly. The result is a perfect mix, which can then be mastered for cutting.

The Sound

Of course, nothing would happen if the synthesizers and samplers were not provided with sounds to play, and this is where the third ST comes in. Modern synthesizers have so many sound

programming parameters that it would be prohibitively expensive to provide a hardware knob to adjust each one — besides which, the resulting instrument would be the size of a small car. The solution is 'digital voices.' There's just one control knob; each sound parameter, such as volume, filtering, reverb, FM algorithm and so on, is assigned a number, and you tap in the number you want and adjust its value with the knobs. A laborious way of working.

MIDI provides a solution, because it allows synthesizers and computers to exchange the digital information which describes each sound. Patch editing packages by companies such as Hybrid Arts, Composites, C-Lab and Serum present a graphical display of the sound parameters of a synth. Using the mouse, you can edit the sound quickly and efficiently, then save it to a disk. Most synths, such as the Yamaha DX7, usually use sound storage cartridges, which store around 30 sounds for about \$40. Compare the software alternatives, where you can save something like



■ Megalog automation system. MIDI patch bays, computers and synths controlled again by the good ol' ST

2000 sounds on one 3.5-inch disk!

Animal House can provide the necessary ST sound editing software for any common synthesizer. It's also possible to use the ST to patch sound samples from the Akai samplers. Using packages such as Digipatch, you can display a waveform representing the sound held in the sampler's memory. Using the ST's mouse, it's then possible to edit, loop and truncate the sound, achieving much better results than would be possible by ear using the sampler's own limited controls. The power of the ST's 68000 processor also allows Digipatch to create original sounds using the complex principle of 'harmonic synthesis.'

Despite having all the facilities of a 'music programming suite' in addition to the more conventional studio equipment, anyone at Animal House is keen to stress that it's music, and not computers, that comes first. Live elements such as guitars, drums, bass and vocals are well provided for with accurately controlled recording areas. The results, whether acoustic or electronic, are stunning, and a tribute to the talent of the musicians as well as the flexibility of their computers. ■

SMPTÉ

The Society of Motion Picture and Television Engineers (SMPTÉ) has made its digital audio recording rules available to the home user. The new standards are intended to be implemented in a number of home systems, including the recently announced Philips DV 10000 and Pioneer DV-001. DV stands for digital video, and DV 10000 is the new standard digital audio code for video.

WHO, WHAT, WHERE?

Steinberg's Pro 24 is available in 1000 from Steinberg Technology. You can reach us on 0400 400000 for more info.

DATTEL ELECTRONICS



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- ▶ Full verify option
- ▶ Copy to one hard drive program takes the system out of disk loading

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DATTEL JAMMER

- ▶ To complement the Sample Studio the Jitter Jammer gives you a 40 column keyboard to play and record your sampled sounds
- ▶ Features:
 - ▶ 4 real 1 note sounds
 - ▶ 4 real sequenced 1/16 1/8 1/4 1/2 notes
 - ▶ Single and beat sounds
 - ▶ Stereo sounds or instruments
 - ▶ Load and save sequences
 - ▶ Works as standard ST for sounds



MIDIMASTER

- ▶ Full Midi interface for A500/5000/1000 (Please state model)
- ▶ Compatible with most leading MIDI packages (i.e. D/Midi)
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- ▶ Fully type isolated
- ▶ No need to pay MIDI — Full Midi standard

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PRO SOUND DESIGNER

How did they get the screams into *Barbarian*? Or the red alert into *Star Trek*? They used a sound sampler, and now you can too. Richard Montelro investigates Eidersoff's Pro Sound Designer. Just released is an Amiga version to complement the already successful ST package.

004-95 ST, £79.95 Amiga ■ Eidersoff, Ltd 4 Starline, Lander Trade Centre, Baddley, Essex SS11-6SL ■ 0800 567 742

After the graphic impact what attracts you to a game? Sound — that's what. But let's face it the ST's sound chip — which is 80% better than those on the Amstrad CPC and Spectrum 2 — isn't capable of anything startling. Even the Amiga's custom sound chip which offers four voices, stereo output and both amplitude and frequency modulation still falls short of perfection. For this reason programmers have looked for alternative methods of sound-generation. And what better way than by using real, everyday tones and sound effects?

Of course, to grab real sounds you need specialised hardware. Hardware that can digitise, or 'sample', it. Eidersoff, based in downtown London in Essex, have the right equipment — Pro Sound Designer.

Sordid details

One mouse-click box protruding proudly from the parallel port consists of the necessary circuitry for converting analog sound data to the digital signal that the ST or Amiga understands. Plug a miniature jack into the socket on the side and you can transfer sounds from

FUTURE SOUNDS

Pro Sound Designer is a fun package and should be used as often — that's what Eidersoff would like us to believe. Their reasoning may have something to do with their September product launch which, if all goes according to plan, could see the hottest sampler-computer expansion board for the ST or Amiga.

The Modular Sampling System (MSS), as it's being provisionally called, is set to rock the sampling fraternity: it's a substantial motherboard with processor, operating system, clock sampling system, provision for 32 extra devices, up to 32 megabytes of RAM, networking capabilities and open architecture to allow third party additions. The ST version is due out first with the Amiga model following 'fast. As Eidersoff's software production manager, Dave Wood, enthuses: "It will far surpass the Amiga Pro Sound capabilities including multi-channel output. People can buy what suits their pocket." Of course, the price isn't coming cheap; it's aimed at professional musicians and artists. The base unit is likely to cost upwards of £1000. The more you want, the more you pay.

Like IBM's PC which has several slots for expansion cards, MSS will be totally user configured. The base unit will probably consist of motherboard, processor and operating system. To that you add and edit. The software will detect what you've got plugged in. For instance, if you install a 16-bit sampling board, extra software features would become available. Eidersoff hope other manufacturers will catch on to the idea of producing extra cards or modules for their board.

AMIGA SPECIFICS

Because the Amiga has built-in advanced sound and processing hardware, it can replay four samples simultaneously — that's two different digitised sounds per stereo channel. Hook up your machine to an amplifier and speaker, the output is fascinating.

Up to eight samples can be stored in memory at any time. Each sample has its own dynamic gain of memory, which means that the buffer grows or shrinks according to the size of the sample. The function keys can be thought of as the buffers. They are used to access samples, although eight buffers are available. Stereo samples take up two, so you may only fit in four different samples in all.

Pro Sound Designer has two

second buttons. One is used for capturing stereo samples, the other for stereo samples. If you record a stereo sample you get two wave forms in the large window.

At 500 and 80000 computers have, as part of their offering, an 'anti-aliasing filter' which smooths high-frequency signals. Since the double-decker the sounds of drums, cymbals and so on the Pro Sound software has a function allowing you to disable the Amiga's anti-aliasing.

Unfortunately you have to pay extra £2.50 or so, the price hasn't been fixed yet for the software. Eidersoff hope to allow you to play stored digitised samples from your own 84500 or G programs. This does reduce the package's usefulness.

EXPORT XXX

If you're one of our transatlantic readers, you'll be glad to know that there will be an American version of Amiga Pro Sound Designer and combine that the software will go down a storm, even as export restrictions will prohibit the Future Sound and Perfect Sound. The US version will have individual volume controls for each channel, unlike the UK version, and 16 bit display-concentric.

Features



performance



range of sound



memory



format



value

Pro Sound (Amiga) ■ £79.95

for

- Four samples can be played simultaneously
- Samples can be compressed
- Eight samples can be held in memory
- Sound-editing features

against

- Sounds can't be used in your own programs without paying extra
- Editing can be slow

Amiga Pro-Sound Designer

Up to eight samples can be held in memory. Each is assigned to a function key.

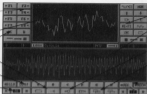
Incoming sound waveform. Notice there are two waves: one for the left channel and the other for the right channel.

This box clears all the samples from memory.

Cuts a portion of the sample.

Plays a sample non-stop.

Playback speed.



Anti-aliasing for improved audio range.

Graphical representation of a sample.

Magnify function for detailed editing.

Merge copy option.

Two record buttons. One for mono sampling, the other for stereo sampling.

your Hi-Fi straight into the mixer's memory.

The Pro-Sound software lets you edit the sampled sounds. You can vary the rate at which sound is fed into the mixer, cut and paste portions of the sample and play it back at various speeds. Both Amiga and ST software is similar - indeed, layout and menu selection is identical. Certain functions are specific to each machine and these are detailed in a separate panel.

Identical too to make their products look exciting - the Pro-Sound software is no exception - they also take care that their products work as well as they look. The result is that Pro-Sound has a very friendly user interface and a lot to offer. 'Trendy' metallic grey icons,

selected in typical Hi-Fi fashion, set the scene. Two windows - for displaying the incoming sound waves and for showing the samples shape in memory - complete the screen.

At the bottom of the screen are two rows of cassette-tape style icons which are used, logically enough, for recording and playing back samples. The sampling rate, measured in kHz, can be reduced to save memory, but sound quality is directly proportional to the sampling rate, so you have to strike a reasonable compromise.

Once a sound is in memory and shown on screen as a oscilloscope-style trace, sections may be cut, copied or merged. By using the merge option it is possible to combine two sounds -

great for echo effects. Similarly, cut and paste gives you the power to create 16-bit 16000hz choruses. Samples can be played backwards, speeded up or slowed down.

Pro-Sound lets you compress sounds and save the compressed versions. The practical use of this is that a high quality sample can be taken and compressed to half its length, but then expanded at half its playback rate. Thus a 50% memory saving can be made with little loss of quality for most sounds. Unfortunately the colour ST version of Pro-Sound can't do this - only the Amiga and mono ST versions. Another feature not available in colour ST versions is playing a section of a sample with fade-in or fade-out.

Lots of fun can be had with Pro-Sound Designer. Indeed, it's been general that way. It's a good looking and a good performer - most important though, it's enjoyable to use. The quality and range of features make it very attractive not only to home users, but also to software houses for adding sophisticated soundtracks to their games. ■

ST SPECIFICS

As the ST's printer just hasn't any power lines, a nine volt battery must be connected to the Pro-Sound hardware. This is achieved via a couple of ugly wires soldered to the circuit board. There's also an additional socket which can be used for sending sound output to a Hi-Fi.

In the colour ST version of Pro-Sound, sounds generated by the ST's

W81149 sound chip can be edited from the chip editor section of the software. This allows you to alter the chip registers and create sound effects, but that's all - there's no note-by-note composer facility. The mono ST Pro-Sound doesn't have this sound chip editor, but does have the Amiga version sound compression and fade effect, as explained in the main review.



■ ST Pro-Sound Designer in action

The function keys - icons

of which are held in the top left of the screen - are used to store the positions of the two pointers defining the start and end of the sample, and current playback speed. Only the pointer positions are used and not the actual part of the sample. So, if you load another sample or cut bits from the current sample, you'll replay whatever is between the pointers and not what was there when you set the function keys.

Completed sound effects can be saved and translated for use in BASIC, C or machine code programs.

GOLD DISKS

Several hardware products are currently being developed for Pro-Sound. On the Amiga is a cassette rack, for making Deluxe Paint pictures and animation sequences with ease. Also, and a 'Sound editor' for the Hi-Fi format with extensive memory editing up to 8000 and better cut and paste features.

Already out for the ST Pro-Sound are Pro-Light and Pro-Track, at £7.95 each. Pro-Light makes colours in line to the music. Pro-Track allows a sample to be played across an instrument's scale. Amiga versions are promised. ■

Pre-Sound (ST)

■ £64.95

for

- Samples taken from 2000 to 16000hz
- Editing is fast
- Samples can be used in your own programs

against

- Colour and mono versions different
- Merging causes volume loss

Features:

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10



WHAT IS DTP?

With high resolution graphics and fast processing speeds, both ST and Amiga are well suited to the graphic-intensive application of Desk Top Publishing. But what is DTP and what makes it different from word processing? Simon Williams hits the headlines...

When word processing took off, in the mid 1970s, it was largely to provide the same manipulation of words as computers had done for numbers a decade earlier. Companies such as Pitag had marketed dedicated computers for producing letters, reports and other corporate communication that only these corporations could afford. With the advent of the micro in the early 80s, the term word processor came more and more to mean the software which would provide the same kind of facilities as the specialised machine had earlier.

Both the dedicated word processor and the early micro relied for their characters on a set of letters, numbers and punctuation marks built into a ROM within the machine. Memory was still dear and graphics applications were uniquely hungry for memory. At the good old days when Space Invaders was addictive and Lunar Lander was capital 'W'!

As RAM grew cheaper and micros came with more of it, programmers and marketing people started to think of new and exciting things to do with it on their faster, modern micros. Why, thought some, should people be restricted to one typeface, usually a fairly ugly one, in one size, in one format on the screen, and relying on the character set of the printer for the look of the final document?

DTP - 4 WP

DTP tries to come on the screen what will finally appear on the paper. The celebrated baroness WYSIWYG says it!

fairly plainly - What You See is What You Get. In fact, what appears on the screen is only ever a loose approximation to what is printed out (WYSIWYGELATWYGT), as the resolution of the average micro's screen is a lot lower than even the humble 1/6 pin dot matrix printer. A Desktop Publisher is mainly concerned with the look of the final page and less with the contents of the writing. To this extent most DTPs only provide rudimentary text editing facilities, ignoring matters such as typography, the incorporation of graphics, colour use and line shading and page layout.

SETTING UP

What do you need to set up a DTP system? Well the first requirement is a micro, and both Amiga and ST are eminently suitable. It's a distinct advantage to have 1 Mbyte of memory or more as most DTP packages use a lot of it, it's possible to use the base machines (ST 520 or 4000) for DTP but there are limitations, particularly with the restrictions of single disks. If disc swapping is your only form of exercise during the week you'll probably be reluctant to give it up. For the rest of us, two drives are almost essential for serious page making.

The advantages of better quality printers are never more obvious than when printing a DTP document. The basic rule is to go for the best quality printer you can afford. 24 pin dot matrix is a good deal better than 9 pin, while a laser printer is best of all but also the most expensive by a long way. A recent development which may help to bridge the gap between dot matrix and laser output is Hewlett Packard's ink jet printer, the DeskJet. Output from this printer is near laser quality, while the price is rumoured to be around £300.

There are numerous DTP packages available for the two machines. On the ST, Fleet Street Publisher and Timesworks DTP are well regarded, while the Amiga user should look up Page Server and Publisher (2000) New DTP products, for both are on the horizon and ST Amiga Terminal and more than a dozen as they're available.



■ ATARI DTP

Atari offers readily integrated complete DTP systems, which can print a Mega ST, the Flex Board Publisher software and Atari's own laser printer. The interesting thing about the Atari line is that it makes use of the means by the Mega ST to complete each graphics page, rather than relying on separate memory which would not move into the printer itself. Prices start at a very reasonable \$2465.



■ The Atari DTP system, based on a Mega ST and sporting Atari's own laser printer. Commodore are known to be flexible in their own DTP package.

Almost all DTPs use the same method of handling blocks of text or graphics. They demand that you lay down marked boxes, or frames, which can be filled with copy or pictures. The frames and their entire contents can then be moved or rotated very easily. Also, there are other facilities to stretch frames and to crop and scale graphics. When frames are laid over other frames most DTPs will automatically re-flow the text within the outer box to fit around the new one.

The sizes and styles of text which most DTPs can produce allow a wide variety of effects and support a number of different types of documents. You could, for instance, use the same piece of software to produce an internal company report, newsletter for a club or parish, flyer for a new product, or book manuscript. You can usually adjust the size of each font, the space between lines of text (leading), the width of each column in a multi-column page (measure) and the space between characters (spacing).

As well as being able to import graphics from a variety of sources, including art packages and digital picture scanners, most DTPs offer basic facilities for drawing lines, boxes, circles,

and ellipses so that you can design layouts and features to highlight portions of your documents. Many packages also offer a number of text and fill patterns to vary the design and give weight to areas of the page.

DTP is an application distinct from word processing. Its purpose is to lay out text and graphics to make up attractive pages once the copy has been written.

It continues to be a growth area for both ST and Amiga users and need not cost the earth if you're prepared to accept a pin dot matrix output. If you can afford a laser printer (or can charge a special company expense) you can produce near typeset quality output for a fraction of the cost of a manually-composed document, and have full control over its final appearance.

COME THE RESOLUTION

The resolution of a screen or printer is simply defined as the number of dots per inch that it can display. This figure directly affects the apparent "sharpness" of the image. At low resolutions diagonal lines and curves appear jagged and the viewer is very aware that all images are composed of dots. As the resolution increases so lines get smoother and the eye glances over the space between the dots and begins to see the image rather than its components. When you reach the resolution of newspaper photographs (about 120-dpi, but with a varying dot size) most people are prepared to accept them as "true" photographs.

The resolution of monitors is normally well under 120 dpi, with colour monitors displaying lower resolution than monochrome ones. The ST colour monitor (SC1234) has a resolution of 40 dpi, while the monochrome (SB24) provides 80 dpi. The

Commodore 1084 is normally supplied with the Amiga, tops out around 50-dpi.

An interesting subjective effect is that the number of colours a monitor can display has a bearing on the apparent resolution of the screen. The more colours that can be displayed, the higher the perceived resolution. This fact is often exploited by games producers to make their games appear better.

Printer resolution starts at about 150 dpi for 8 pin printers, rises to over 200 for 24 pin printers (initially as much as 350 dpi in multi-pin models, up to 600 dpi, the standard for laser printers. Above this are high-end laser printers at 600 dpi, and photo-laserwriters like the LetterJet 130 and 300 series which are used to produce ST Amiga-format at 1200 dpi. These machines are capable of twice this resolution, but with a screen throughput.



■ Laying another frame over the first automatically re-flows text in the outer frame.

In this paragraph, each word is ^{small}script, _{sub}script, and ~~del~~script, and **bold** normal, large, very large, and *italic* list are *italics* and SMALL dotted line under the character.

■ Sample output from the FlexBoard Page Editor.



PROGRAMMING

GETTING GOING

What essentials are necessary to get the most out of your ST or Amiga, particularly if your interest lies in programming? Jeremy Vine and Mark Burgess offer some pointers.

WELCOME TO THE ST...

So you've just purchased your Atari ST computer. You've this great idea for a piece of software and you're convinced that you could do the job yourself. However, for you an experienced programmer or a newcomer to the world of bits and bytes, you will need a certain amount of assistance in creating your program. What essential tools do the books will you require?

In building up the essential programming toolbox, you will require a cross-section of books, utility programs and programming languages - all designed to make your task the little bit easier.

Reference books

A good place to start is by reading. The Atari ST is supported by a wealth of written material in supposedly guide and avoid the ST user. In practice, not mentioning preferred as being the 'essential' and 'definitive' guidebook to the Atari ST is what it claims.

Books tend to split into either the general purpose 'everything you need to know about the Atari ST' book or the 'take look at this specific subject in great detail'. There is nothing wrong with either approach, and you can find great books in both these areas. What you choose depends on your needs. If the ST is your first computer, you will probably need a general guidebook to explain the jargon and different elements of a computer's operation. Many books tend to help you learn yourself a programming language, but be careful in your selection. Books which teach programming are often written with no specific machine in mind. This can cause problems if, for example, the implementation of the language you are using is different from the one the author had in mind.

By and large this is not a problem. What is more likely is that your version of, say BASIC, will contain commands not included in other BASICs. These commands will usually relate to specialised features of the ST, such as Graphics and Sound.

The following lists many of the ST books available:

ABACUS - Atari ST Tricks and Tips; Atari ST Graphics and Sound; Atari ST Copy Users Guide; Atari ST Files and Paths; Atari ST Introduction to BASIC Programming; Atari ST 3D Graphics; Atari ST Disk Driver; Inside and Out; Atari ST Basic Training Guide; Atari ST Internals; Atari ST for Beginners; **BASIM** - Atari ST Application Programming; **COMPUTE** - Computers ST Atlas; Intro to Sound and Graphics on the ST; Elementary ST Basic; Atari ST VDI; **GLENTOP** - Using LDD on the Atari ST; The Complete Atari ST 68000 Programmers Reference Guide; **GUIBA** - The Atari ST Expanded; **IMBEX** - Mastering Sound and Music on the Atari ST

TOG and OEM

If you are a newcomer to the ST, you might be unaware of the operating systems at the heart of the machine. To confuse the issue further, the ST has not one but two operating systems. But first of all, what is a DOS (Disk Operating System)?

Simply put, the purpose of a DOS is to process commands written by the user. It manages the firmware within the computer and provides the user with a number of utilities that make the everyday tasks of computing easier. A DOS is a program, or more accurately a

number of programs that process commands within the micro. These operations are often related to the disk drives, hence the term DOS.

But the commands that you type can sometimes be less than friendly. Atari overcame this problem by placing a friendly 'text shell' into the system. In essence, **DESI** (Desktop Environment Manager) for the acronym hungry) provides a somewhat user-friendly interface for an awkward, unfriendly operating system. A good reference



■ A Mega ST with the luxury of a hard disk - ideal for building a program development system around. If you can afford it.

MIND YOUR LANGUAGES

There is no shortage of programming languages for the ST and programmers are spoilt for choice, often with several implementations of the same language. The list below is by no means comprehensive but gives a very good indication of what is available.

ASSEMBLERS

Comp Concepts - Lisa Fast 68000 Assembler
Rumba - Rumba Assembler
R2000 - Rumba (Assembler/Debugger)
Metasigma - MOC Assembler

BASIC

Comp Concepts - Fast Basic (Basic Interpreter for ST on ROM cartridge)

Genlog - GFA Basic compiler
Hilbert - PowerBasic
Hilbert - Basic Compiler
C
Megamax - C
Mark Williams - C For the Atari ST
Metasigma - Lascal C
LISP
Metasigma - Cambridge LISP
Mortada - B
MUC Metas - M - Modula 2/3/4
Pascal
Optimized Systems Software - Personal Pascal
Program Software - ProPascal



BUYING BOOKS

You don't have to hunt high and low through advertising pages just to buy a book. Buy full-blown bookshops can order any book you want, so long as you know the name of either the author or the book title. Tell them to look it up in HENNING'S *Books in Print*, the definitive list of all books on the market.

Some of the books mentioned in this article are American, which is good luck on. Tell your bookseller the publisher's name, and you will probably find there is a UK edition too.

book should provide you with all the necessary information to get inside the system, though you will need to be a competent programmer to benefit from all the information provided.

In the Public Domain

By the time you've put together your essential library of programming languages, utilities and reference books, you could easily have spent far more from the cost of the machine. There is, however, a way of obtaining software at little or no cost — and it's perfectly legal.

Public Domain software is available to everyone to use for no cost. This will find adverts for PD software in all magazines — just write off for a catalogue (sent at S&L). A lot of PD software typically costs around £2, which is the material cost of the disk plus the fees/copying charges.

Whether your programming experience or requirements, there is ample material to assist you. Don't be afraid to make use of other people's routines,

providing they approve. Take program listings that are available to you and study the way in which they work. Other people's experience is the best way of increasing your own knowledge.

Jeremy Cole is a freelance journalist and author of *The Art Of Computers*.

WELCOME TO THE AMIGA...

For most people, buying a computer system means not only buying a computer but also selecting software and buying books. Amiga buyers can expect to spend several hundred pounds on software over and above the basic Workbench utilities provided free with the machine. Here is a brief guide for anyone thinking of purchasing an Amiga for programming.

Getting at the hardware

An unfortunate but important feature to look out for in any piece of Amiga software is its compatibility to running the machine. Unfortunately for the Amiga's reputation there are a large number of programs on the market in a state of some completion and which crash frequently, making them impossible to use in any serious way. This is particularly true of some programs just after their release.

One of the attractive features of the Amiga is that it holds exciting possibilities for programmers. The Amiga package provides a head start in the form of a BASIC interpreter which allows access to many of the Amiga's powerful graphics and sound facilities. To explore the Amiga at the operating system level, however, either for writing Workbench utilities or to explore the Amiga's multitasking requires programming either in C or in Modula II. The best bet for anyone new to 'foreign languages' is C, owing both to its near found popularity and also the fact that all the Amiga programming manuals are addressed to the C programmer.

The Lattice C compiler is a fast featured compiler and sells for around £165. However, a word of warning for

anyone wishing to use the Amiga primarily for programming, it is quite impossible to run a C compiler without two 3.5" disk drives. Doing so would be economically wasteful, with all the disk usage involved.

Amiga C compilers supply little in the way of documentation of the Amiga's special library of routines. Programmers certainly require at least two of the full programmer's manuals which describe access to the Amiga's software interface. A set of four manuals is available from Addison Wesley. The titles are:

The Amiga Installation Reference Manual: The Room General Reference Manual: Libraries and Devices

The Room General Reference Manual: Disc

The Amiga Hardware Reference Manual

Each book costs around £30. Due to the great expense, it's worth buying them one at a time. The first two manuals will probably satisfy the needs of most programmers, though it is worth buying just one to appreciate their high technical nature before going for books on the remainder. The *Installation manual* describes how to control screens, windows, menu gadgets and registers the elements of the Amiga's input system. The *Libraries and Devices manual* covers sound, graphics, disk interface and input/output. The *Exec Hardware manual* are concerned with the more technical features of the multitasking operating system and are therefore of limited use to the majority of programmers.

Words from the wise

If there were one single piece of advice to offer Amiga buyers it would be 'buy a machine with two disk drives'. It is almost essential for any prolonged use. Regular users expecting to employ the Amiga for business would also be advised to use a hard disk, despite the originally high prices (between £1000 and £1500), particularly if some enterprise company produces a sensibly priced interface in the near future.

For buyers the most useful thing to do is to browse through magazines to check for advertisements and lists of new products. Joining an Amiga Users Group could also prove very useful. This can be an efficient way of getting to know what is available for the Amiga and often has benefits in the form of discounts on software products.

Finally do not rush into buying anything. Check the columns and ask people's advice about books and software. Good advice makes it quickly possible to pin down the products which are both best suited and at the best price!

Mark Burgess is a freelance computer writer and author of *AmigaDOS: a Sublinal Guide*, which is recommended entirely impartially.



■ Amiga 2000 with a second floppy disk - this one's a 3.25" drive.

CLI OR WIMP?

The Amiga is fortunate in having both a CLI and WIMP interface: that is the ability to accept commands either as typed commands like `DELETE` and `COPY` or from menu selections with the mouse. The typed AmigaDOS commands are extremely useful and offer many facilities not available from the Workbench, the Amiga's WIMP interface.

Inexplicably the manual which is supplied with the Amiga barely mentions the CLI, and does not give a complete list of commands available. *Random Books' volume entitled The AmigaDOS Manual* sells for around £25, and mentions this. It describes using the text editors ED and EDT on the Workbench disk, together with a complete command list.

The *AmigaDOS Manual* documents these com-

mands in a rather terse and formal way, which will be of little help to inexperienced computer users. However, it does offer additional information to C programmers about the filing system commands and the multitasking 'locks' - this is the system which prevents more than one program from writing to a file at the same time. Other books with a more helpful attitude to AmigaDOS include the *AmigaDOS Reference Guide by Computer* and *AmigaDOS: a Sublinal Guide* by yours truly, which is available from Data Press. Beware the flurry of cheap books from the States which were sold out during the early stages of the Amiga's career. These are both expensive and contain no more information than your own Amiga Owner's Manual.



BACK TO BASICS

So many languages, yet BASIC is undoubtedly the most popular. Richard Montelero compares dialects with the supplied offerings from Atari and Commodors.

ST

Ever since Atari bundled ST BASIC with their machines, the language has come in for criticism. It's been held up for lack of speed, poor documentation and a number of bugs. Atari recently released a revised version, which now

comes with all new ST computers, but is not fully compatible with previous releases.

Third party companies noticing the problems with ST BASIC also get in work producing their own versions. There are no less than eight BASICs to choose from, but a good proportion of these run from the DPM environment and can therefore be discarded. Consider the following as the pick of the crop.

Fast BASIC

Computer Concepts ■ 640KB disk, \$89.95 cartridge

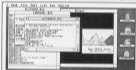
If ST BASIC was a car it would be a Ford Fiesta. On that scale Fast BASIC would be a Ferrari Testarossa. It is fast, but then it would be very hard to produce anything as slow as ST BASIC. Unlike many BASICs, Fast BASIC doesn't require line numbers - although you can use them if you wish. And, like BASIC of old, it includes an inline assembler. Fast BASIC is available on cartridge or disk. The cartridge system offers an icon to your desktop which, when clicked, starts BASIC instantly - that and having extra RAM space are the main advantages of the cartridge version.

ED to test programs can be stored in memory at once and each program

has its own call or segment of memory. Segments aren't fixed in size. Each occupies as much memory as its program needs - they needn't all be the same size, nor be concurrent. Each segment is displayed on screen as an

icon-oriented.

Commands are plentiful, except when it comes to accessing OEM and lower levels. Assembler can be mixed with BASIC which is one way round the problem, but it does mean you have to



code (giving the program's name). Any program can be called up (simply by double-clicking on the appropriate request icon or from the drop-down menu), modified, executed or dumped to the printer. However, programs in segments can only be run individually, not simultaneously.

The editor is very quick. At first sight it looks like a simple text editor, but control key sequences and just down menus reveal its hidden talents. Cursor control is complete and complete screen cursor flash can be switched off. There's a choice of text size; three in medium or low resolution and four in high resolution. A jolly various size can't be mixed on screen. Daily commands must be entered in upper case otherwise they are treated as variables at run-time. You can configure the interpreter, so Fast BASIC contains an optional capitalising function which automatically converts commands to uppercase once the line has

been entered at 6600 and show its various flags. Documentation is in three 1/2 spaces.

Fast BASIC is relatively easy to use, most of the time. It's just a case of pointing and clicking. As you get to know your way around the system you'll find plenty of labour-saving short cuts. Program creation isn't much of an effort either. With a decent editor, stacks of powerful and cleverly-named commands, and various key-finding facilities its plain sailing - most of the time.

The compiler for Fast BASIC, too. Computer Concepts can supply a full-time interpreter. This is simply the normal integer minus program development functions. Cost is \$71.95.

| | |
|--------------|-----|
| features | 4.5 |
| performance | 4.5 |
| ease of use | 5.5 |
| manuals | 5 |
| format value | 5.5 |

John Karmay left and Thomas Kurts, pictured here, are none other than the dynamic duo responsible for the most popular programming language ever. The language more people know than



Swedish, Danish and Swedish combined. The language that preceded BASIC and FORTRAN. The language that has been converted hundreds of times to hundreds of machines. The language that was completed in May 1964. The language that was put into the public domain stream. The language that uses near-English commands. The language whose acronym means Beginner's All-purpose Symbolic Instruction Code. Okay, that's it. We can't give you any more basic clues. If you haven't worked out what it is by now, you don't deserve to be told.

GFA BASIC

Genesis ■ \$149.95

After seeing Computer Concepts' Fast BASIC, Gemtek responded by importing GFA BASIC from the land that produced "Mirroring slash Technik and software for Kemmer." That was a year ago. Versions have been drifting in our view - version 1 (GFA like the month) is claimed to be more than a slight improvement. GFA is also fast - the Lamborghini Countach of BASICs. It certainly gives Fast BASIC a run for its money. As for ST BASIC... well, its last standing, "Version 2" is roughly 20% faster than the earlier GFA.

The editor looks among the vile, the custom can be moved in character, line or screen increments. Other word processor like options allow you to jump to the top or bottom of the program quickly. UNDO undoes all changes to a particular program line, word or sentence can be searched for and modified, and blocks of code can be copied, deleted, moved or saved. A built-in syntax checker sifts out most mistakes and program logic is shown automatically by

various degrees of indentation.

GFA insists on one command per line, which can be annoying if you're used to the old school of BASIC programming which maintains that the more you can fit on a line the better. GFA's method guarantees your programs look neat and good some way to ensuring better structure and fewer bugs.

GFA BASIC has a very full complement of commands. Unusual programming is catered for with instructions like GO (GOTO REPLACES GOTO), WHILE AND multi-line IF. There's ELSE, using the graphics commands it is possible to draw boxes, boxes with rounded corners, circles, arcs, lines, polygons, circles and ellipses. In addition, objects may be filled with a pattern or color. Commands like GET and PUT also software sprites to be manipulated quickly and efficiently. Other instructions simulate letter operations and these are particularly useful for text screen handling.

Included on the GFA disk are a number of sample BASIC listings, a run-time version of GFA, you can run GFA,



BASIC programs with it, but you can't edit them - unless if you want to show off your programs to your friends and a utility that will convert ST BASIC programs to GFA format.

Gemtek publish a compiler for their BASIC which can seriously pump up the speed but just as seriously deflates your bank balance. Contact price is \$149.95.

| Features | 4 |
|-----------------|-----|
| Performance | 4.5 |
| Ease of use | 5 |
| Manuals | 5 |
| Formatted value | 4 |

Power BASIC

Hibbit ■ \$29.95

Most BASICs are interpreted, but then Power BASIC isn't like most BASICs. It adds itself to the ever growing list of compiled languages. Development takes longer, but the extra benefits gained from a compiled program - speed and the ability to run as a stand alone file - seem make up for lost time. With its foot on the gas to read like the much more Porsche 911.

Many compilers require you to write source code using one program - a text editor usually - and compile from another. Moving between sections wastes a lot of time. Thankfully Hibbit have cut out this needless operation. Program development, compiling and testing takes place from the same environment. A 20% faster languages don't have the fault brought out this item.

Hibbit's editor looks partial



July 20th compatible editor with IBM PC and Windows key sequences. Hibbit is, but, quite frankly, who wants Microsoft or PC key compatibility?

INTERPRETERS VERSUS COMPILERS

BASIC is available in both forms. An interpreter reads the program line at a time, converts it to machine code and then executes the code. A compiler, on the other hand, reads the whole program, decides what actions are required and then generates machine code for the whole lot. Essentially, interpreted programs can be run at sight of where compiled programs pass through two stages before being ready to run.

The first difference, therefore, is development time and for that matter ease of development. Low-level languages are harder, slow. Programs can be checked up quickly and errors removed relatively smoothly. With compilers it's a case of entering, many of code and hoping everything is correct. Usually mistakes only come to light during compile

time. Program production is comparatively slow.

Of course, compilers have their good points. Why do you think of many languages - like Pascal, C and Modula 2 - are available only in this form? The reason is speed - not development speed, but runtime speed. A compiled program consists of machine code (the stuff that bits and bytes) that a processor reads and which makes for fast execution. That's part of it. The other contributing factor is that the final compiled code can be run on its own; it needs no interpreter with which to run.

These days compilers are gemmations. Some compilers are fast and have intelligent editors capable of catching bad input errors. Similarly, some interpreters can execute programs at speeds approaching compiled code.

Windows command compatibility but who wants Windows compatibility? It's not even available for the ST and was invented in the days when computer keyboards didn't have cursor keys

(which forced the peculiar control sequence "function key").

The editor is IBM based, which means program length is restricted to the amount of available memory, about 160K on a 520-ST. What's very irritating though is that the editor's default font size is 10,000 characters. If you reach the limit you can still ST, but along we lose your current data.

ST BASIC users will feel at home with Power BASIC. The commands are identical. So similar, in fact, that Hibbit have deliberately replicated several ST BASIC bugs. The advantage of the compatibility (perhaps the idea is that ST BASIC programs can be loaded into Hibbit's BASIC and compiled with no modification. It can also compile programs from Microsoft's Quasicomp with only minor changes, opening it up a huge range of source programs from the IBM PC world. After turning a translation routine, the compiler can also copy

ADVANCED-GFA USERS

For the fun-01111330
Genesis 801 44141330
can supply you with the
most GFA BASIC
Advanced
Programming Aid
\$1.50 to the price and
you'll get a 2.5 inch disk
imprinted with sample
BASIC programs.



PROGRAMMING

And then animate

NesCinema 11.0 (the graphics package) has hidden features. If you have the package, try clicking the right mouse button while the mouse pointer is in the cursor bar of the last R of GRAABER, the animation section will appear.

Desktop disorientation

You're probably familiar with the GEM desktop; the screen on which you spend half your life pointing it to insert or move files and windows with the help of a mouse. What you may not know though, is that there are a contingent of keyboard controls that can do the clicking.

Say you wish to find out the contents of several disks. Standard procedure is to insert a disk in the drive and double click on the drive icon. Fine so far. When it comes to inspecting another disk the previous directory window must be removed, another disk inserted in the drive and the drive icon double clicked. What a performance! A handy trick is simply to insert the first disk in the drive and double click the drive icon. Whenever you wish to view the contents of further disks simply swap disks and press the [Esc] key. The currently opened directory window will automatically be updated. Yes, it's that simple. Note this only works if you are at root directory level, i.e. not in any folder.

When you want to select a group of files or folders for moving or copying, say, it is usual to press the left mouse button and drag the mouse over the desired files. To really view them want all the files in a given area — or you may want some that you can't reach in a single mouse drag. Easy. By holding [Shift] down and clicking the mouse button when the pointer is over a file, selections are added to the currently active selection. Thus it is possible to highlight as many or as few files as required.

How do you move the pointer if you're mouseless? By holding [Alternate] and pressing the cursor

keys in any direction. To select an item, i.e. to do a left button mouse click, press [Insert] while still holding [Alternate]. Pressing Insert twice simulates the double-click action of the mouse. The right mouse button can be simulated by pressing [Ct].

Pause for thought

Sometimes it's nice to sit back and take a break from the action. Sometimes it's necessary to test on-screen movement for a more

detailed look. Sometimes your pet armadillo will need an instant to be let out at the wrong moment. Unfortunately many games don't have pause modes (and if they do the screen often becomes cluttered with ugly messages) and who's ever heard of a serious application with a pause mode?

Assuming you haven't got a printer connected, press [Alternate] and [Help] together. Everything freezes while the computer works out why it can't send data to the

printer (approximately 20 seconds). Of course, this won't work with every program. But for those it does work with, it can be pretty useful. For instance, we use this feature to freeze the action of a game to allow us to photograph the screen.

Single disk driving

If your system consists of a single drive, copying files and running applications which require data to be stored on a second disk can prove confusing.

To copy any type of file to a floppy a matter of selecting the files you want and dragging it to where you want to put the copy. However, if you want to copy a file from one disk, sitting in drive A, to another disk, don't drag the file and plank it on the drive A icon, doing so will copy the file onto the original disk — not very useful. Instead drag the file to be copied onto the drive B icon. Thus you haven't got a second drive. GEM knows this. A message asking you to insert disk B in drive A will appear. So just that, insert the disk you wish the file to be copied to. Copying takes several minutes, that is, you'll need to swap disks often. By taking note of the messages all will go smoothly.

It is best practice to have data files on the same disk as an application disk. For a start these groups will work the same. Some applications use messages or report entry files from time to time which means a disk with the necessary files must always be present in drive A. Data must obviously be stored somewhere — the best idea is to force it to drive B. Of course, it can't actually be saved to drive B if one doesn't exist, instead it forces a message requesting you place a different disk in drive B (the data disk, if you like). Normally you can force a program to save to drive B by altering the directory string. Change the A: to a B: at the end of the file name.

Clever keyboard

The ST's keyboard is intelligent. It can't reach the dollars or take a small smile for a waltz, but it does a

Protexxt party tricks

There appear to be a number of interesting and undocumented commands taking in Amos's word processor. From the command mode (where the cursor is adjacent to the 'w' prompt type [w] and press return — you'll be treated to an explosion of characters. Agreed, it isn't very useful, but try [ctrl] or followed by return. In fact, almost any number can follow [ctrl]. You'll enter a memory number; a section of Protexxt that will let you explore the market depths of your computer's memory. Try hunting around memory locations \$4000 for fun.

Not only can you view any part of memory — control is via the cursor cluster — but you can also

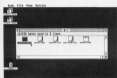
edit memory. Yes, yes, you can amend Protexxt's messages and so on. Either hexadecimal entry or ASCII entry is permissible (the [Tab] key toggles between modes). Remember, though, entering any odd value could cause Protexxt to crash thereby losing all your data. We certainly don't recommend you do it if you haven't a clue what memory hexadecimal and so on are. After all, if we had jump of the nearest off, would you?

The mouse also has some undocumented properties. When in command mode, moving the mouse will scroll through any previous commands typed in at the prompt. Pressing the left mouse button will execute the command displayed.

PROTEXT: Screen 1 to 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2100, 2200, 2300, 2400, 2500, 2600, 2700, 2800, 2900, 3000, 3100, 3200, 3300, 3400, 3500, 3600, 3700, 3800, 3900, 4000, 4100, 4200, 4300, 4400, 4500, 4600, 4700, 4800, 4900, 5000, 5100, 5200, 5300, 5400, 5500, 5600, 5700, 5800, 5900, 6000, 6100, 6200, 6300, 6400, 6500, 6600, 6700, 6800, 6900, 7000, 7100, 7200, 7300, 7400, 7500, 7600, 7700, 7800, 7900, 8000, 8100, 8200, 8300, 8400, 8500, 8600, 8700, 8800, 8900, 9000, 9100, 9200, 9300, 9400, 9500, 9600, 9700, 9800, 9900, 10000.



■ The Protexxt word processor contemplating its own novel, genius. All drops you into a memory editor.



1



2



3



4

■ How to "load" BASIC so that when you click on any file ending .BAS BASIC is loaded and that file run automatically.

good job of decoding mouse, key and joystick data. Out to the IBMx HRC601 8-bit processor handling the keyboard, it is possible for traffic to go to and from the main keyboard. For a chip with RAM, ROM, IO lines and serial interface this is no problem.

But what if you want to give the keyboard more intelligence? Easy really. Just employ the 6801 and meet a Hitachi 68P01 — price is around \$25 from the Magna catalogue — which handles any 8-bit ROM, but needs a socket for an EPROM (720 or 88 256). From then on it's up to you. The potential is there for using the joystick ports as uncommitted I/O input/output ports. Do note that this operation invalidates any guarantee and should only be undertaken by seasoned hackers and board-levelers.

Installing applications

It's a hassle to have to load an application graphics package. And

sequencing word processor, spreadsheet or whatever) and then load previously saved data. It's so much easier to double click on the data file and have the application boot up and the data file load itself into the application. For instance, it is possible to alter the desktop so that double-clicking on a BAS file causes ST BASIC to load with the clicked file in it ready for further editing or running.

This example assumes ST BASIC is the application you wish to install. From the desktop open a directory window of the ST BASIC disk. Single click on the BASIC.PPG file so it goes black but doesn't quit, just down the Options menu and select Install Application. You will be asked for the document type enter text. Press (Return) or click on OK. Again bring down the Options menu, but this time choose Save Desktop. Ensure the disk is not write protected.

Doing the above means you can double click on any file with a .BAS ending. ST BASIC will auto-

matically load and the BAS file you clicked on will load into ST BASIC. As you saved the desktop, you will be able to do this whenever you switch on the machine and insert that disk with ST BASIC on it.

Slightly useful

In all pre-beta versions of ST ROMs there is a bug which results in a crash if you press the underline character (_) when the cursor is in the directory string. The directory string is located in the top of all file selector windows.

Not useful at all

The ST's keyboard is controlled by a clever HRC601 processor which handles both ROM and RAM. But by holding down the left mouse button when switching on your machine, the keyboard processor can cope with either left or right button being depressed at power up, but it can't sure what to make of the two button signal and consequently both keys. The mouse pointer won't move and a horrendous clicking will be heard. The reset button cures this.

MONEY FOR NOTHING

Well, that's not altogether true — but almost. We want your tips, or anything and everything ST related, for it is by on hardware needs, getting the best out of software, low level ROM calls or simply how to use the desktop to better effect. We want them. In return, the star bucks each month will all be £10. Now that can't be bad money for free discoveries.

Just your OMs (to, full to Desktop, ST Amiga Forum, 4 Queen Street, Bath BA1 1J). Label your letters clearly. We publish several magazines each month, and we certainly don't want your friendly hand-drawn type reaching the eyes of prospective donor or buyers.



PROGRAMMING

WORKBENCH

Two pages strictly for Amiga owners — discover unknown secrets to make life with the Amiga even better!

CLI

Most of the clever technical tricks you can do with the Amiga involve the CLI, or Command Line Interface as it is more fully known. If you're only familiar with running programs by clicking on friendly icons from the Workbench display, you're in for a bit of a shock. The CLI seems very unfamiliar at first, but once you've got the hang it lets you really get on the Amiga's paws.

In all cases in chapter 7 of the Amiga manual, but here's a quick summary of how to get to the CLI prompt.

1. Start your Amiga up with your usual Workbench disk (of course, you're using a copy of your master-disk, aren't you?)

2. Open the disk icon, then the System drawer.

3. If you see a CLI icon in a blue rectangle with a 1+ in it, go to step 4. If there is no such icon you've got an old system disk; close the System drawer, tap the Preferences icon, and turn the preference marked CLI to ON. Close on Save to get back to the Workbench, re-open the System drawer and you'll see the CLI icon there.

4. Double-click on the CLI icon, and a new window opens up with a prompt of 1+. This is where you type your command lines. You can resize this window by dragging its lower right corner around in the usual way, but there's no Close-gadget at the top left. You can still use the Workbench icons normally simply by resizing the CLI window and moving it out of the way.

If you want to get rid of the CLI window entirely, just type `exit` at the 1+ prompt. (Make sure you've clicked on the CLI window to activate it before typing, or nothing will happen.)

Damaged disks?

The Amiga can be really picky with disks at times. How often have you got a valued disk in the drive

only to see the dreaded message: One command in the file is corrupt, which is the command to load the Workbench after the usual Mac AmigaDOS screen appears.

Usually, the DISKDOCTOR program (not mentioned at all in the Amiga manual's index, which might lead you to suppose that you need to buy it separately. Not at all, DISKDOCTOR is a stunningly useful utility on your Workbench disk which can recover most corrupted disks. Indeed, if you find that this month's ST Amiga Format cover disk won't load properly, try using DISKDOCTOR on it before scanning and sending it off to Diskette for replacement.

However, DISKDOCTOR can only be run from the CLI, not the Workbench:

1. Start up the CLI as previously described.
2. Type `DISKDOCTOR unit` and press [Return].

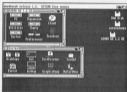
You are now prompted to insert your suspect disk in the disk drive. Do this and press [Return]. DISKDOCTOR now checks your disk, and if it finds any damaged sectors will report a 'hard error'. When it has checked the whole disk it will reorganise the file to avoid the bad sector and write them back to the disk.

Because of the secure way the Amiga stores its data, DISKDOCTOR can usually recover most files from a disk. However, since a disk is almost to be trusted you might not want to trust it again. Format a fresh disk and copy all your files onto it from the damaged one.

Start the day the Amiga way

Wouldn't it be nice to be greeted in a civil and personal way by your Amiga every morning? The secret lies in the file `STARTUP_SEQUENCE` on your boot disk.

`STARTUP_SEQUENCE` is a text file in the 0 directory of the disk. When your Amiga starts up it automatically reads the file, which contains a set of command lines. These commands are ordinary CLI commands like `CD "C:\Workbench\1.1"`, which makes the Amiga enter the text in quotes to the screen. One command in the file is `LOADWB`, which is the command to load the Workbench after the usual Mac AmigaDOS screen appears.



- About to double-click on the CLI icon...
- A typical CLI window opens. The `DIR` command, incidentally, tells you how much free space there is on all your disks.



The first thing to do is to make up a useful copy of the Workbench disk. The Amiga master disk is not to be trusted, so you haven't got any room to create your own files on it. Make up your own working copy as follows:

1. Take a blank disk and copy the whole Amiga Workbench master disk in the usual way (put your blank disk in the drive and drag the Workbench disk over onto it).
2. With your copy now in the drive, reformat the Amiga.
3. Get to the CLI prompt as previously described.
4. Delete some useless files by

typing very carefully

```
DELETE:DELETE:ALL
```

(twice)

```
DELETE:DELETE:ALL (then exit)
```

Now you've got room on the disk to start doing things. To modify the startup prompt as you want, first you need to edit the file, usually the Amiga has a text editor or its master disk (not mentioned at all in the manual, of course) at the CLI prompt, type

```
ED "STARTUP_SEQUENCE"
```

You are now in the text editor; you can use the cursor keys and delete keys to modify the text of the screen.





A fun way to add it is to make your Amiga speak to you. Press (Return) to open up a blank line at the start of the file. Use type in the following:

```
*****
*****
*****
```

Now save the modified file by pressing (Esc) and typing a file name and (Return). You will be returned to the C-CLI prompt.

Next for the disk drive light to go on, then reboot your Amiga. My prints, it speaks to you! The voice may be a little dated, and you may find that speaking words phonetically gives you better results. Type (space) rather than (tab) letters, for instance.

You can of course put any text you like inside the quotes of the (SAY) command, and have any further drives or (SAY) commands.

Life with a single drive

Once you start using your Amiga for serious applications — anything except text-entry games — one thing becomes apparent. Only having one disk drive is a pain. To copy one disk to another takes half a dozen disk swaps, and every time you type a (C) command you have to put your boot disk back in the drive.

A good way around all this is to use the (FDD) disk. First, you need to understand what happens when you try to run a command on the Amiga: imagine you are at the CLI and you type (C) to get a directory of the current disk. The Amiga needs to find a file on disk, called (DIR), which contains the (DIR) program. It first looks in the current directory, and then the C directory of your boot disk. What this means in practice is that if you have a disk other than your boot disk in the drive, you will be asked to swap it.

It is possible to make the Amiga look for the commands in the RAM disk instead, so you need never swap disks to run simple CLI commands. With your normal boot disk in the drive, get to the CLI prompt and type:

```
COPY C:\DIR TO RAM
COPY C:\DIR TO RAM
COPY C:\DIR TO RAM
COPY C:\DIR TO RAM
COPY C:\DIR TO RAM
COPY C:\DIR TO RAM
COPY C:\DIR TO RAM
```

Now if you want to work on another disk, just put it in the drive and type (C) (DIR). This tells you onto the new disk in drive C. Now you can use all the commands like (DIR) from the RAM drive without swapping disks. Of course, if there

are other commands you use then you should copy the files for these into the RAM disk too. The final line, (PATH RAM: ADD), is what tells the Amiga to look in the RAM drive for files.

It's a good idea to put these commands in your (STARTUP-SEQUENCE) file to save typing them in every time. As described in the "Start the day the Amiga way" tip, add it by typing (C) (DIR) (STARTUP-SEQUENCE). Now go to the end of the file, by using the cursor-down key, to just before the line which says (ENDCL). Type in the new lines as below. If there is already a line in the file saying (PATH RAM: ADD) then you needn't repeat it again.

If you want to be left at the CLI prompt when the startup process finishes rather than in the pretty coloured Workbench, then delete the (LOADWB) line from (STARTUP-SEQUENCE). Now save the modified file by (Save) and (reboot) to test it.

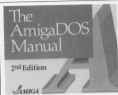
If you have removed the Workbench line from the startup sequence and then find you wanted the Workbench after all, just type (LOADWB) at the CLI prompt.

DigiView distortion

A handy tip for anyone out there using NewTek's DigiView digitiser with a colour video camera, for general frame-grabbing. If you are suffering from colour signal distortion interacting with the digitiser (which normally expects mono input), and you aren't afraid to do a little wiring, then help is at hand. One small item will turn all your colour video signals into genuine monochrome. What you need is an 8-bit loudspeaker to found in any old transistor radio.

1. Firstly, of course, turn off the power to the digitiser.
2. Get hold of a spare video lead and cut it in half. The cable will have a central core and a shielded outer sheath — strip an inch or two back from either side of the break.
3. Connect the central core from one half to one loudspeaker terminal, and the other central-core to the other terminal. Join the two leads together (leaving them all dry).
4. Check there are no short circuits — wrap some insulating tape around the braided part to make sure.
5. Turn on the power, and connect the video directly into the back of your Amiga monitor. If you have one, the picture should have faded or gone altogether. If so, the camera should now work better with DigiView's digitising system.

If nothing works, check your wiring, or else give up and go back



■ If you're going to do much work with the (S), you'll need a good book such as the Amiga manual is very handy. "The AmigaDOS manual" from Dataphone Books is a good reference work, if a little pricey at £25 or more.

to your old lead. It's worth seeing and check those with identical that all video frequencies electrical impedances may give varying components such as subcomponents can appear as complex components.

Modem users!

If anyone out there owns a modem and software then try giving (SOSFOR) a ring. This is a free membership bulletin board, and the system operator is Steve Cole. There is an Amiga section with a few (operational) demos and programs (you can use (Modem), (Modem), (Modem), (Modem) and other protocols). Be nice and leave a message for the (loop) before you ring off! The number to-dial is 0705 544456.



I NEVER KNEW THAT!

If you've got any special wishes that make your life easier with an Amiga, we'd like to know. We'll pay £30 for the best Amiga tip received each month, whether it's a deviously obscure CLI command, a tip for a specific package, or just a cheap way to build an Amiga-style cage. Send your suggestions to Workbench, ST Amiga Format, 4 Queen Street, South Hill, Epsom, Surrey, Surrey, Surrey, Surrey.

This month's contributors:
 ■ Matthew Gates, Winchester
 ■ Ron Taylor

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ESCAPE SEQUENCE

Pilgrim's progress

Bob Jeffrey Armstrong, better known to the American computer-owning public as Sam Ellison, Cain, if we may use first names, makes his living by giving seminars on light interludes at selling trade shows, and generally being read - St. Angelo Forum and St. Elmo at May's COMDEX show in Atlanta.

An ex-Silicon Valley techie, he saw the light and founded C.H.I.P. - the Church of Neuronic Information Processing. During a transcontinental experience his book, *The Binary Bible*, was devoted to him by G.D.S. - the Giver Of Data.

The Binary Bible is a wonderful

SPAMIGAL

ST Amiga Format swoops onto the shelves on the third Thursday of each month. Watch out for issue 2 on July 21st.

... until next month, it's goodbye from me (Ed), and goodbye from him (other Ed).



high-mash of computing and religion in John's affirmations of the CHIP are known as OOStoples. In case you're wondering, his point in the picture is a tiny supercomputer, and there's a microprocessor attached to his forehead.

He also sells a variety of computer products. One that particularly caught our eye was the "Programmer" - a new Commodore keyboard.

Real science fiction

Sometimes it's very difficult to date back truth from fiction - especially

where science fiction is involved.

Real sf/fantasy SF fans all know that the hottest name of recent years is William Gibson, copinger of the "cyberpunk" movement. His last novel was *Neuromancer*, an incredible story which had people cybernetically plugging into computer networks and launching virus attacks on one another's systems. (It was published in 1984, long before real viruses ever happened).

Now from the States comes news of a computer game set in the *Neuromancer* world. The real corker is that the gaming design is by none other than Dr. Timothy Leary,

quint of the beautiful people of the flower power era. What when psychedelic meets cyberspace this could be the first computer game to simulate a highly illegal state of mind.

Oriental surprise

While not strictly relevant to SFs and Amigas, one recent story is too good to miss. ICJ, the LA mainstream computer manufacturer, was negotiating to buy silicon chips from a teen supplier in Japan. Normally ICJ's quality control insist on a failure rate no greater than 25% in a batch, but for the Japs they decided to ask for only 10% failures.

When told that ICJ insisted on 10% as the failure rate, the Japanese looked puzzled. They went away and ICJ, prepared to be tough, The Japanese came back and said, "OK, it's a deal. But these failed chips you want us to supply, do you want them with the good ones or separately?"

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