Issue 135 • 8th June 1991 • 88p

TONS OF TIPS FOR YOUR MACHINE
see pages: 16-27, 30, 32-33, 46-47...

# NEW COMPUTER EXPRESS

FIRST NEWS • FIRST REVIEWS • BEST BUYS • YOUR WEEKLY GUIDE

## ATARI

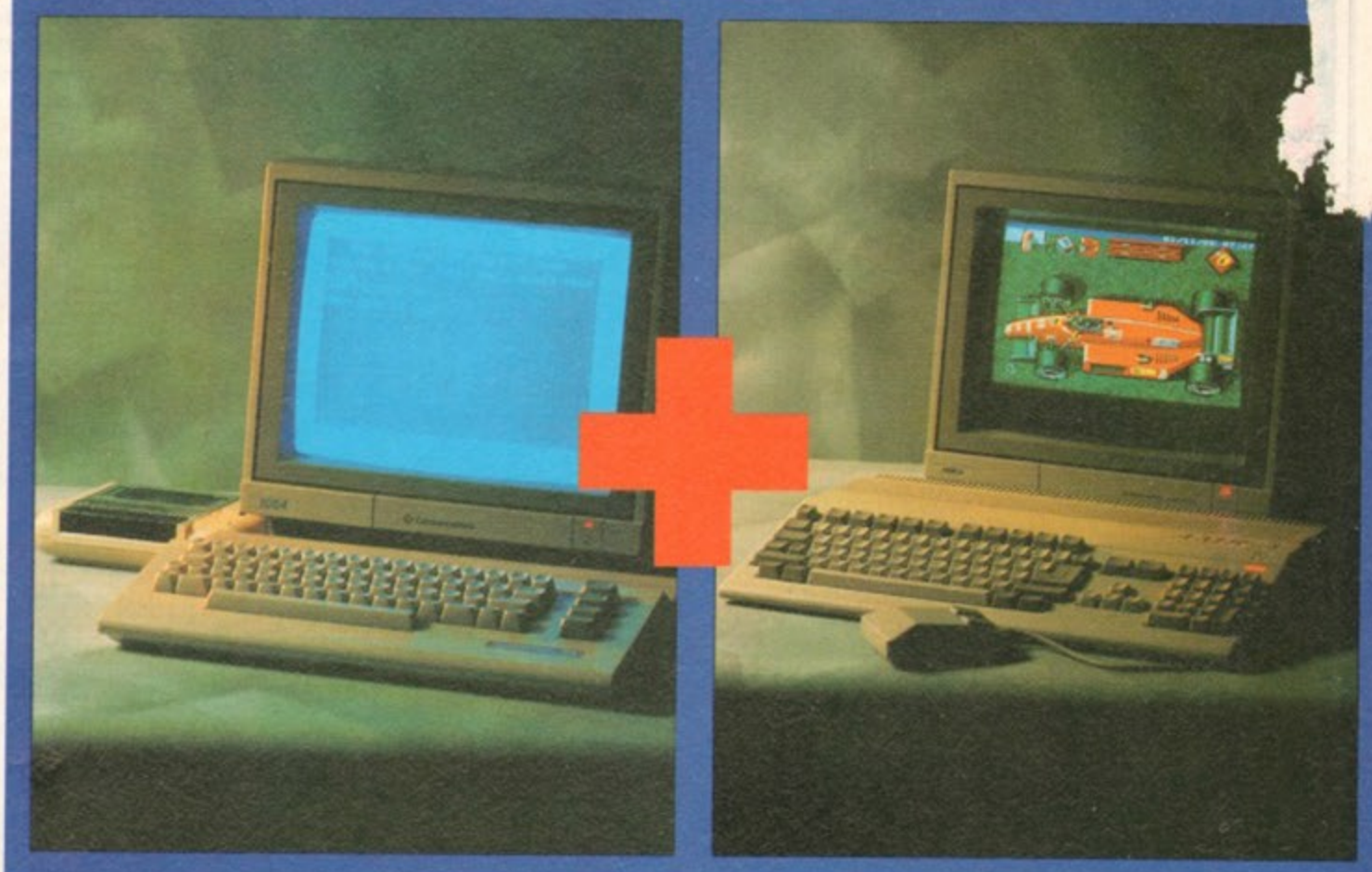
## AMAZING TT
We put the ST's big brother to the test!

## AMIGA

## SAVE £100!
is this the best pack for you?

# THEY'RE BACK!

## 8-bit is re-born. With a bang – or just a whimper? See page 5



## GAMES

## EXILE
Is this the future of arcade games?

## THE PANTHER IS BLOWN TO 64-BITS

We reveal Atari's next games machine on page 7

## SO YOU THOUGHT *YOURS* WAS ODD!

The things people do with their computers - page 55

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# Frontend

**Up front with no messing – Frontend brings you the intriguing, exasperating and generally conversation making pieces of news from the other side of the chip.**

## VIRGIN'S LAY OFF

*• A happy, smiling Richard Bransom, founder of Virgin Games saying: "Cheers then lads and thanks for everything . Trebles all round."*

**The strangest press release ever turned up on the news desk this week. It came from Virgin Games, and Frontend has the most sneaking suspicion that it was not written in the best of humour. Here, in its viperish entirety is the text:**

"VOMIT – you probably will if you join us to celebrate the redundancies of three loyal, loving, and long-serving staff.

"Virgin Games will be having a mega (*the manuscript is unclear here* ) on June 7th ... probably all day, but from 6pm for any of you who have jobs.

"So if you want to get totally wrecked, get your act together and get your arses to the Castle to say goodbye to Nigel, Alex and Nicole."

Frontend assumes while the wine will flow freely, an element of sour grapes might marr the taste. Any readers who wish to join in should go to Holland Park tube, turn right and enter The Castle at their peril. ■

## Bouncing into summer

*• Basket ball simulators are as big in the US as the players are on court . Now a new sim is out from the company which brought the world Kick Off.*

Anco, the publishers of *Kick Off*, *Player Manager*, and *Kick Off II* is to publish *Tip Off*, a basketball simulation.

The game will be the second part in a range of sporting sims all of which will be bound together using of overhead views, fast accurate action, and the word 'Off' at the end of their titles.

When finally released the game will only be available on the Nintendo Entertainment System (NES).

Happily though, a follow up to *Player Manager* for computer systems is being coded right now.

## Gazza lynx in the midfield

*• Gazza could be using his heavy blocks to greater advantage using an Atari Lynx and playing Klax.*

**Even before Paul 'It was all my fault' Gascgoine had time to emerge from beneath the magic sponge, Atari pounced on him with a free Lynx.**

The Sun reported that Gazza gets so bored in his hospital bed that he phones team mates up at 2am. He also has spells of panic reminiscent of other players who see him bearing down on them with studs to the fore. Atari's gift of a colour handheld games machine is aimed at stopping the boredom, and ensuring the panic attacks are confined to escaping from tight game situations.

Gazza could be playing right now include California Games, which involves kicking a bean-bag among other events, Klaxx a game entailing using a load of heavy, but well timed, blocks, and Slime World. ■

## T FOR YOU

**Programming can be, hip and trendy. Borland, which publishes *Turbo* C and C++ programming packs has decided to give away T-shirts to fashion conscious programmers.**

All you have to do to gain this sartorial splendour is to write to Borland Promotion, The Software Construction Company Ltd, 1 The Maltings, Green Drift, Royston, Herts SG8 5DB. By the way, there is also another offer. Borland distributors The Software Construction Company is offering the £100 Borland Runtime Library Source Code free if you buy either C++ for £233.82, or *Turbo* Pascal for Windows, which costs £151.57. ■

GET REAL! • GET REAL! • GET REAL! • GET REAL!

### WINDY CITY

The first birthday party for Windows 3 was a held at Comdex last week and was a rock and rolling affair. Manic rockers(??) Chicago appeared to add 'youth' to the event. Obviously Bill Gates, Microsoft CEO, prefers another type of music. He didn't show up.

## SUGAR DADDY

*• Sugar: there is only one thing he doesn't like to make a big deal about – charity. The press is also fairly reticent to give the man his due for the contributions made to needed causes, until now that is.*

Alan Sugar, who likes to keep publicity for his charitable donations to a minimum, has slipped up. His company, Amstrad, has just given away a brace of PC2286s.

The philanthropic gesture came as a result of the Kurdish refugee appeal. The PCs were delivered to the Red Cross Kurdish Refugee Apeal in Belgravia.

They are destined to cope with the massive amount of work which has accrued from the Wembley concert which included musicians such as rap-star and trouser man MC Hammer, recently recovered chanteuse Gloria Estefan, Old pros New Kids on the Block, and professional fund raiser Sting.

The gig raised £1.5 million in the UK and is expected to make £10 million by the time all the cash has been counted in, or rather spreadsheeted now that the Red Cross has the PCs. ■

GET REAL! • GET REAL! • GET

### MICRO-CHEATS

Viewers of cable TV in New York city were illegally accessing unpaid for channels by inserting a micro-circuit into the cable converter box. The authorities got around the problem by shooting 'electronic bullets' down the cables to 'take out ' the illegal boxes and leave the good ones.

## Computer star in a million

*• Good public relations doesn't have to be a nasty, sleazy affair. Star Micronics proves this by donating its millionth printer to a group of Welsh scouts.*

*Pictured here are Alice Griffiths (12), Jonathon Williams (15) and uniformed, Star's marketing director Roger Bayley (he wouldn't say how old he is).*

**Star Micronics has donated its millionth computer to the 1st Ebbw Vale Penuel Scout Group which is transforming the derelict hillside above Ebbw into a flowery dell.**

The young people are working with the help of the Prince of Wales' Committee, and have already planted over 300 trees. The project is part of the town's 1992 garden festival. Once the hillside has been fully replanted it will be used as a campsite for other scout troops during the festival.

Star's kind act is very much in keeping with the theme of its The World and its Future project launched earlier this year among school children.

Commenting on the move, Star's marketing director Roger Bayley said: "We are delighted and honoured to be able to help support the Prince of Wales' Committee's environmental work in the most appropriate way we could". ■

**Fabulous offers • Incredible quotes • Keyboard killers**

# TEN THINGS YOU DIDN'T KNOW ABOUT VIRTUAL REALITY

**Yes, Virtual Reality (VR) is becoming OK to talk about in the real world. Computer users have been aware of the situation for some years now, but how are we to react when our non-computer using friends begin to drop names like Lanier, and Cyberpunk into the lunchtime conversation. Hit them with some well informed fact that's how. So, read on for the most current VR breakdown anywhere.**

**1** If you want to enter VR at this stage in history you will need the following acoutrements: a DataGlove, an EyePhone, DataSuit, and a pair of Convolvotron headphones. Approx £28,000 for the full kit.

**2** Names to drop virtually anywhere: Jaron Lanier (30-year-old VR guru with no academic qualifications whatsoever), Scott Fisher, (39-year-old founder of Virtual Environment Work Station Project at NASA), Ken Goffman aka R U Sirius (editor of 'cult' mag *Mondo 2000*), Marvin Minsky, hailed as the 'father of articial intelligence.

**3** Forget William Gibson and check out Rudy Rucker. Not only has he written one of the best VR books around, *Wetware*, he also programmed *C-Lab* on the PC.

**4** Jaron Lanier's first game was a musical diversion called *Moon Dust* which was released in 1983. The money made from this enabled him to set up the now legendary VPL Corp (VPL does not stand for anything, fact fans, they were just the first three letters to pop into Lanier's head when interviewed by *The Scientific American*.

**5** Talking of books, US publisher Harcourt Brace Jovanovich has just paid out a six figure advance to Jaron Lanier for what is bound to be one the most informative and ground breaking computer-related tomes since James Gleik's *Chaos*.

**6** Two new outlooks on VR are 'CyberSex' and 'Teledildonics'.

**7** The UK is well placed to profit from VR with one of the world's foremost research centres, the National Advanced Robotics Research Centre in Salford.

**8** Matsushita in Japan is using a 'virtual kitchen' to demonstrate its products in a Tokyo shopping centre.

**9** Art + Comm is using VR to re-design the Potsdammer Platz in Berlin.

**10** US pilots 'flew' missions over a virtual Iraq before setting out on the real thing. ■

## Tilde killed

The European commission has decided that the ancient Spanish language just does not match up to the demanding standards of the modern computer keyboard.

Spanish, which has been spoken and written by such famous historical figures as El Cid, Salvador Dali, Pablo Picasso, and the poet Lorcas, includes a letter N with a tilde character (ñ). This indicates the Ny sound.

The EC wants this to be dropped from keyboards on sale in Spain. While the reasons have not been stated they appear to be based on commerical pressures from computer manufacturers, as well as the idea that such a nationally specific lingustic style reflects badly on 'Europeaness'.

The request from the Brussels-based EC has resulted in both sharp shock and anger from the Spanish Ministry of Culture, the Royal Spanish Academy, and the Spanish Computer industry.

It also follows the decision made in France last year to drop the Ç character from its alphabet. ■

*• Time is running out for the language of Dali. The European Commission has decided that thousands of years of culture simply do not meet the standards of a 102 key AT keyboard.*

## SHOOT FROM THE LIP

Just how do people in the insular world of computers talk, and write to each other? Do they make horrible mistakes? Do they produce comical statements? How many feet go into how many mouths in one week. FInd out in Shoot From The Lip.

*'I hate to say it, but I can't help thinking that if there had been more people like Rik Haynes (former Express reviewer) during World War II, him and the rest of his Nazi playmates would have been jackbooting their way up Oxford Street a long time ago'.* Part of a debate about CDTV in a letter written by freelance journalist Gary Whitta to trade magazine *Computer Trade Weekly*.

*'Similiar (Virtual Reality) applications will create 'virtual cadavers' for trainee surgeons, eliminating the need for human corpses'.*

Simon Worral writing in the *Observer* colour supplement.

*'The best security money can buy'.* The sales blurb on the packaging of *DASH* (Duplicating And Security Handler) software. So secure that when we opened the package there was no disk inside.

• Games • Wild Programming •

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SHOPPING EXPRESS

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## Low cost, high quality printing

The BLP Elite printer offers fast, PostScript printing for the Macintosh at a fraction of the price of conventional lasers, according to its manufacturer GCC Technologies.

The Elite costs $1,599 and the company reckons that it has been able to achieve this price thanks to custom designed circuitry such as the printer's high speed 16.67MHz 68000 microprocessor. The result is print speed and quality that matches printers costing thousands more.

Supplied as standard with the BLP Elite are 17 PostScript fonts, 2Mb of RAM and built-in AppleTalk, so it can be used as part of a network. It prints at four pages per minute and GCC boasts that it has a 40 per cent faster processing time than the Apple Personal Laserwiter.

Software includes a specialised envelop printing program, *QuickEnvelope*.

GCC can be contacted on 0101-617-890-0880. ■

The battle for 16-bit educational supremacy heats up

# AMIGA PACK SLASHED £100

**Commodore has whipped £100 off the price of its Amiga *Class of the '90s* - First Steps educational pack.**

Many parents have been persuaded to invest in an Amiga for their kids by the quality of the bundle, which consists of a standard A500 with 512K RAM, TV modulator, tutor video and nine software programs. The price has now been cut to £499.

Speculation that the price-cut is a direct response to Atari's recently introduced £399 educational pack for the ST has been predictably denied by Commodore. Education products manager Peter Talbot said: "The pricing on the whole Amiga range has changed, especially with our £299 offer to schools. This just brings the *Class of the '90s* into line with those changes."

He added: "The bundle has been such a success that I felt it was crucial to keep the momentum going. Obviously I'm delighted that Atari should attempt to emulate what we're doing in the education sector, it's a tremendous compliment. But the real thing about education is being here all the time, and not just dipping in and out."

Both Commodore and Atari have spent a great deal of time and money attempting to woo both schools and parents by offering their machines with 'useful' programs such as word processors, paint packages and standard learning tools. Both have enjoyed moderate success, although neither looks capable of challenging Acorn's traditional domination of the market. ■

*• Commodore has reduced the price of its First Steps bundle. Is it merely a move made to spike the guns of Atari's Family Curriculum?*

## An offer you can't refuse?

**Silica Systems is offering the Lotus 1-2-3 compatible spreadsheet, *MasterPlan* for £49. The software normally costs £129.**

The offer is open to new purchasers of the Goldstar GT212 286 PC. *MasterPlan* operates under the GEM enviroment which is bundled free of charge, and offers all standard 1-2-3 functions except macros and databases.

The PC comes with 1Mb of RAM, a 40Mb hard disk, and either a 1.44Mb 3.5-inch floppy drive or a 5.25-inch 1.2Mb drive. The package costs £703. Call Silica on 081-309 1111. ■

## Super Famicom: UK launch looms

Nintendo finally launched its 16-bit , Super Famicom console outside Japan, at the Computer Entertainments Show (CES) in Chicago last week. It is priced at $169 - roughly £95.

In order to consolidate the vast market share it all ready has with the Nintendo Entertainment System (NES), the company has renamed the Famicom as the Super NES. Nintendo is also predicting sales of two million units before the end if this year.

The long awaited launch of a machine which has only previously been available outside Japan as a grey import bodes well for a UK release by Christmas.

While this is excellent news for British gamers, it has caused Nintendo's main competition in the console market to dramatically re-assess the place and price of their machines. Sega is to slash the price of its Mega Drive (known as the Genesis in the US) and re-bundle it with Sonic the Hedgehog.

NEC has also announced price cuts on both its basic TurboGrafx machine and a higher end bundle of console, the game Bonk and a multi-play unit.

Historically, price cuts and rebundling of machines across the Atlantic do not immediately hit the UK market, but gamers should be prepared for good news on both of these fronts around the Christmas period.

This news comes at a time when Atari is also expected to release a powerful new console called the Jaguar (see page 7). ■

*• The Super Famicom - or is it the Super NES? Nintendo seems to be confused , but Sega and NEC are not. They have cut the prices of consoles.*

## Windows backed by top firms

**Borland and Lotus have both demonstrated new software running under Windows 3.0.**

Donald Casey, vice president of Lotus' spreadsheet division said: "Clearly our goal is to have every major application that we publish available on Windows by the end of this year".

And John Mandell, project manager of Borland's object programming division, reckons: "There will be an explosion of new development tools, and we're committed to using object-oriented application tools to let people develop applications quickly for Windows".

Microsoft has shipped more than four million copies of Windows, but Lotus and Borland are adamnant that it is not just the volume of sales which has convinced them of the value of the system.

As Mandell says: "Windows applications are inter-operable. You can have different programs working together easily, so you can get the best out of each of the different products.

"This capability has made users ecstatic about Windows, but has made developers absolutely frantic." ■

## Big Blue has to slim down

**Monster computer manufactucter IBM is slim down. Top brass at the world's largest company think it has become bloated and inefficient.**

Tough talking chairman John Akers has appointed a team to reduce administration staff. Akers is anxious over IBM's loss of market share over the past six years. In 1985 Big Blue could boast a 35 per cent slice of the world computer market. Now it hangs on to 23 per cent. ■

## Accolade's excellent adventure

**Bill and Ted are a couple of High School kids with terrible grades, and a seriously low popularity rating.**

The two Californian pals can only compensate with some loud electric guitars, and an excellent time machine which they happen to stumble across. So, it's inside the telephone box-shaped gadget, and off to check out those dudes that made history.

The rock 'n' roll dreamers get to jam with a bemused Beethoven, freak out Socrates and utterly confuse Genghis Khan. And all this just to pass an history exam...

Accolade has signed up the computer rights to *Bill and Ted's Excellent Adventure*, which will be out on the Amiga and PC later this month. The animated arcade adventure will take you through 12 levels of time travel, featuring pictures and digitised voices from the hit film. Other forthcoming Accolade titles include Tom Clancy thriller *The Cardinal of The Kremlin*, and *Gunboat*. ■

*• Bill and Ted: time travel frolics.*

# Faxing behind Windows

***EZ-Faxit* is a new Windows 3.0 fax management system from Calculus Inc.**

Calculus claims it requires as little as 4K of memory to run, so users should not find that memory is restricting their use of other programs. *EZ-Faxit* will convert a document to ASCII file format and send it to the fax machine for transmission. It can fax any fonts or graphics from a Windows application and is compatible with Bitstream's *Facelift* programs. The fax card is a self-configuring half card that does not use a communications port. It is available as a 4800 baud version at $299 or a 9600 baud version for $499.

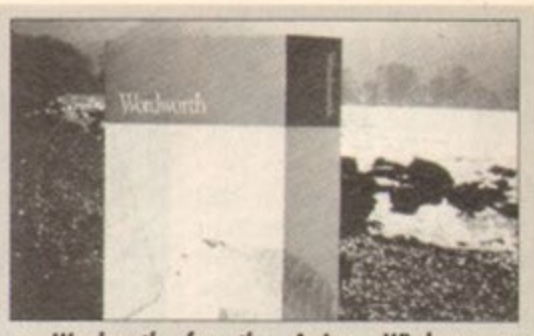
Contact Calculus on 0101-408-733-7800. ■

# Amiga in the write

**Amiga owners are to be offered a new word processor which operates under an easy-to-use windows environment.**

***Wordworth* from Digita International sports a Workbench 2 "look and feel", but will work under Workbench 3. Up to 255 screen fonts are available and there's a dictionary and thesaurus included.**

***Wordworth* has been written specifically for the Amiga (1Mb and up) and costs £129. For more information call 0395 270273.**




*• Wordworth for the Amiga. Windows on Commodore's prize machine? Apparently so.*

## Commodore's new machine can display Amiga standard graphics

# THE 8-BITS ARE BACK

**Commodore Business Computers (CBM) is secretly developing a new games machine called the C65 which is planned to fill the space between the C64 and 16-bit Amiga.**

The heart of the C65 will be the 6502 chip, which all ready provides the processing power for CBM's successful, but ageing, C64 8-bit computer, and the 64GS console.

Although the basis of the C65 is 6502, Commodore has moved it up one gear from the C64 by making it compatible with the IFF graphics file format. This compatibilty means that graphics produced with desktop publishing or paint packages such as *Dpaint* can be ported over from the Amiga. Consequently, the C65 is able to support 4,096 colours on screen, as opposed to the 16 available to the C64.

When it is released it will come with a 3.5-inch disk drive as standard, and will be able to run all existing C64 games. No tape cassette compatibility is planned.

We asked Kelly Sumner, UK marketing manager for Commodore about the machine: "There's no smoke without fire", he said, "There certainly is a product codenamed C65, but Commodore has no plans to release it before Christmas. People have seen the machine, and it has even got to the stage when C65s have been sent out for testing".

The 8-bit C64 has been a mainstay of the Commodore range of home computers since its launch in 1983. While its has been successful for the company, it has been undermined in popularity by the rise of 16-bit computers such as the Amiga.

In a bid to take it up market earlier this year, Commodore switched the C64 from cassette to cartridge, and also introduced the 64GS console. This left the company with no disk-based 8-bit games machine and allowed competing machines such as the Spectrum and Amstrad CPC to make the most of this market.

The C65, with its ability to show 4,096 colours allows Commodore to move back into this area with a vengeance.

However, Sumner is at pains to point out that the C65 is not an 8-bit Amiga. He said: "Although it is IFF compatible, it has no blitter chip".

The release date and price for the C65 have not be set as yet because, as Sumner notes: "It is not just a UK problem. Commodore in the USA really have the whip hand in these details. And although the machine can run C64 software, there would be no point in releasing it before there was a decent line in new software development to back it up". ■

*• An artists impression of the C65 - a mixture of C64 hardware and Amiga styling would give Commodore's new 8-bit machine an undeniable appeal in the floundering 8-bit games market.*

*• Kelly Sumner of Commodore commenting on the new machine: "There's no smoke without fire".*

## Not a C64 and not an Amiga – the blitter is the key

The C65 can reproduce Amiga standard graphics on its 4,096 colour screen, but it lacks a 'blitter' chip.

The word 'blitter' stands for Block Image Transferrer. In the Amiga it resides in the Agnus chip. The task of the blitter is to take care of the graphics, and image displays. It is able to move one 16-bit parcel of graphic information into memory every 280 nanoseconds. These pieces of information are then transferred to screen, where the blitter is capable of rendering them at 4,000 lines per second.

Confusingly for users, two years ago Commodore renamed the blitter as a 'blimmer' (Block Image manipulator), or 'bimmer' Bitmap Image Manipulator'. ■

## Commodore users speak out

John Bickerstaff, Chairman ICPUG (The Independent Commodore Products User Group) is blandly sceptical about Commodore's latest machine:

"They have developed many products which have never seen the light of day. Some that did weren't as good as they should have been."

On whether it could be the saviour of the 8-bit market he said:

"It depends if the people who use the machines understand what an 8-bit machine can do. C64 software has been enhanced much beyond recognition of the early days of the C64 and the users have grown to expect much more. What the user is interested in is the BUS speed so perhaps Commodore has improved that."

"If they are going to press for colour then a suitable monitor is necessary. An ordinary television will just not be good enough." ■

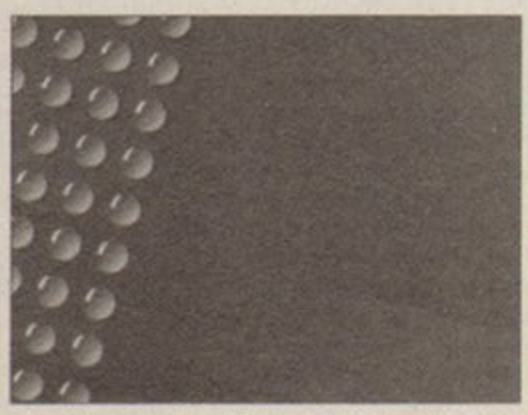
# Get to the art of the matter

**Five new libraries of full-screen encapsulated PostScript (EPS) files have been launched for the Mac.**

***Backgrounds of Multimedia*, comprises 40 full-screen 8 and 24-bit colour images which can be used in a variety of applications including 3D rendering, Mac animations, and video. Each image comes in two sizes, 640 x 480, and 1875 x 1405 pixels.**

***Natural Images 1&2*, features EPS graphics of water droplets, wood grain and marble; *Dimensions 1&2*, shows background images of ceramic tile, and futuristic grids; and *Potpourri*, shows graphics of confetti, 'splatters' and art deco patterns.**

***B ackgrounds of Multimedia* costs £280, *Natural Images 1&2* are £100 each, as are *Dimensions 1&2* and *Potpourri*. The *Full Page Images* CD costs £500. Call Artbeats on 081-200 8282. ■**



*• Spruce up your presentations or even your Mac screen with a new range of full-screen colour images.*

# Computer errors delay shuttle launch

**The launch of the Space Shuttle Columbia last month was delayed by 24 hours owing to computer failures, NASA has revealed.**

The first problem occurred in an interface between the shuttle's General Purpose Computers (GPU) and the craft's other systems. After failing an initial polling test, the whole system simply reset itself.

A second failure was detected in the number four GPU. The shuttle has four GPUs which run in parallel and compare results. If one GPU comes up with different figures to the other three, then it can be overridden and its figures ignored. Number four GPU was found to be producing incorrect data. While an in-flight failure would not have jeopardised the mission, NASA explained that the error had to be investigated. ■

## NIBBLES

### Mighty oaks

Recession what recession? UK-based Acorn is to sell 1.57 million shares in the troubled optical storage company Literal, to Italian Olivetti. This represents a 4.58 per cent holding in Literal, and will make Acorn £1 per share profit. Literal reported a $6.1 million loss over the last nine months.

### Virus info

A bi-weekly database of virus information is to be released as shareware. The PC-Virus Index, as used by Scotland Yard, from Hove-based Clough and Partners has been compiled over the last 18 months with help from London University. Subscriptions cost £20 a year for individuals or £195 for a site licence.

### Wrist aid

Compurest is a low pressure wrist pad produced by USA-based Ergonomic Designs which helps relieve Repetitive Strain Injury (RSI). Costing $35, it fits around your wrist and distributes arm weight over the maximum possible surface area. The company claims this reduces wrist distortion which leads to RSI. Over 147,000 cases of RSI were reported in the US last year and it accounts for 52 per cent of occupational illnesses.

### Chemical spill

Nineteen Hitachi employees fell ill following a chemical spillage at the company's Oklahoma premises last week. The chemical involved, 1,1,1-trichloroethane, is used in the cleaning of circuit boards. Hitachi claims that its hazardous materials team responded rapidly to clear up the spill. However, a few hours later 19 members of staff suffered headaches, nausea and breathing difficulties. All were admitted to hospital, but have since been discharged.

### Apple layoffs

Apple US is to cut 1,560 jobs – 10 per cent of it's workforce – in this financial quarter. The redundancies will be across the board and will include some management positions and a restructuring of the company. The cuts have come about, Apple claims, because, with the success of the Classic, its market profile has changed from dealing in high profit margins to being a volume dealer.

Philips signs Super Mario and Princess Zelda

# NINTENDO DEAL BOOSTS CD-I

**Nintendo, the world's largest producer of video games, has agreed to produce titles based on its most famous characters for Philips' Compact Disc Interactive (CD-I) computer system.**

At the Second International CD-I conference in London last week Philips announced the deal with Nintendo. When CD-I machines become available in Japan and the US later this year, and Europe next year, games based on *Super Mario, Princess Zelda, Link* and *Donkey Kong* will be ready.

All the characters have enjoyed phenomenal levels of success in the US through Nintendo's remarkable take-over of that country's video entertainment market. CD-I, endorsed by such major names as Sony and Matsushita, makes use of Compact Disc technology and is being heralded as the most important computer launch since IBM unveiled the Personal Computer in the early 1980s.

The machine is as easy to use as a games console, but is many times more versatile and useful. Dozens of interactive programs based on education and entertainmen are nearing completion. The Nintendo characters will join such familiar names as Time-Life, ABC Sports, Panini and even Sesame Street.

**Robert Maxwell called CD-I "a publishing revolution" and predicted that it would make him "a lot of money"**

American Interactive Media (AIM), the principal developer of CD-I titles, will develop and market the Nintendo games, while paying the Japanese company a generous royalty fee.

Nintendo estimates that one in three US households owns a Nintendo Entertainment System – *Super Mario* is now more recognisable to American children than Mickey Mouse or Ronald MacDonald.

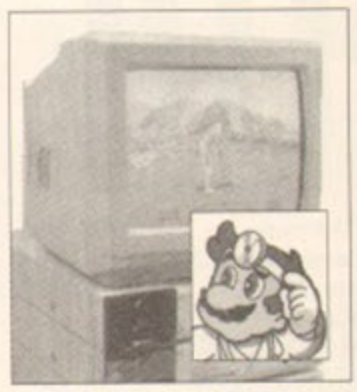
Philips is clearly pleased with its scoop; the firm aims to make CD-I the standard home computer format of the next decade, and is playing with Nintendo–style sales projections. Dr Bernie Luskin, president of AIM, commented: "We're delighted that these favourite video games characters will be available on Compact Disc Interactive. By joining the impressive line-up of popular figures and properties already included in AIM's CD-I title catalogue, they will further increase the appeal of our product line."

He added: "The technology will bring a level of interaction and realistic gameplay with titles featuring the Nintendo characters, never previously experienced by Nintendo fanatics."

Over a thousand delegates from around the world were in London to check up on the latest developments in CD-I, and all left with high expectations.

Speaking at the conference, publishing magnate Robert Maxwell called CD-I "a publishing revolution" and predicted that it would make him "a lot of money". Some had pointed to Philips apparent disregard for the grass roots video entertainment business as a basic flaw in its strategy. Rival Commodore has made good progress in signing up computer and video games producers for its CDTV system. But Philips' signing of Nintendo must be seen as the most important hardware/software collaboration of recent years.

● Next week you can catch up on all the latestCD-I news in our special feature. Don't miss it...■



*• Super Mario – more familiar to US children than Mickey Mouse – gets himself on CD-I.*

## New claim in copy cat suit

**Apple has produced new evidence to support its copyright complaints against Microsoft and Hewlett-Packard, and has included the successful Windows *3.0* and New Wave 3.0 products in the suit.**

The case, which began in 1988, centres on a licence signed in 1985 by Apple which allowed Microsoft to use elements of the Macintosh front end display in its software developments, such as Windows. Apple feels that Microsoft has overstepped the limit.

The new evidence includes threats made by Microsoft to stop Macintosh developments, as well as a verbal statement from Microsoft in which it "implicitly promised" that later versions of Windows would resemble the Macintosh front end less.

Apple is requesting that the court scraps the original licence, which has been described by presiding Judge, Vaughn Walker, as a "poorly written contract".

The current series of hearings will determine whether the case will proceed to a jury trial, as Apple would like, or if it will be dismissed. The next hearing takes place on 14 June. ■

## IBM cuts prices on PS/2

**IBM is cutting the prices of several of its Personal System/2 (PS/2) models from between 6 per cent to 24 per cent in the US.**

The cuts range from$220 for the the Model 30 286 with 1Mb of RAM to $2,800 for a 25MHZ 386 with a 320Mb hard disk.

These cuts follow similar price cutting measures made by IBM rivals Compaq, Texas Instruments and Dell.

Industry observers see these cuts as part of a natural development to make room for the new 486SX machines which IBM has just begun to produce. ■

*• Put your business on the right track with a Xerox XT PC package.*

**PC for under £300?**

The Xerox XT is a complete and adaptable PC package for just £299. Supplied with a 3.5-inch floppy drive, 640K of RAM, a mono monitor, keyboard and MS DOS 3.2, its distributor, Crown Computer Products, reckons that it is perfect for educational purposes and small businesses. Crown can be contacted on 0704 895815. ■

## Imagine all the Archies

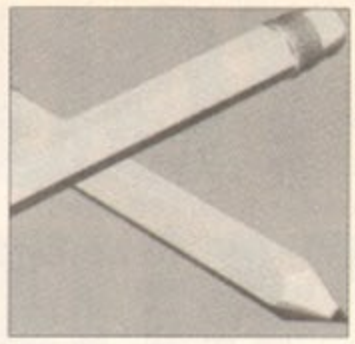
*• Post modern designs from the Archimedes at a price which would put many other desktop publishing packages to shame.*

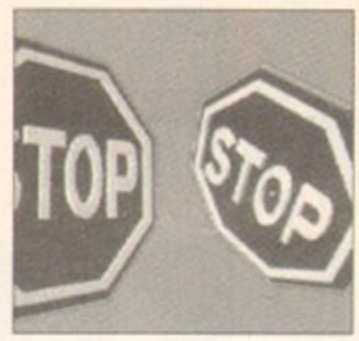
A new desktop publishing package is to be released for the Acorn Archimedes - and it costs a measley £39.95.

*Imagine* comes from Topologika, a company better known for text adventures such as *Giant Killer*. It features split screen image editing, built-in maths facilities, and on-screen help.

Users can make use 256 and 16 colours, brushes, fills, spray paint effects, and there is also an undo function.

The £39.95 price tag includes two disks and a manual. Add-on disks of clip-art images are also available for £9.95. ■






## Zingy design for the PC

***Zing* is the name of the latest PC desktop publishing package from the States.**

It works under both MS-DOS , and Windows operating environments, and offers functions such as 3D lettering and graphics, and 16.7 million colour support. There is also full file compatibility between the Apple Mac and PC.

Price was not avaible as we went to press. ■

## Workstation worth the Risc

**IBM is set to launch a low cost RISC-based workstation this winter, according to sources at the company.**

The company is expected to officially announce the RS/5000 range in August. With prices starting at around $5,000 the range will compete in the same market as the Sun Sparestation.

The machines would be cut down versions of the company's RS/6000 range in terms of both size and power. IBM has recently cut the prices of the RS/6000 range and this has been seen as a move to accommodate the new machines. ■

# ATARI CONSOLE: PANTHER TO GO

**In a sudden change of direction Atari has abandoned its 32-bit Panther console in favour of a revolutionary, 64-bit RISC-based games machine – a design that the company feels sure will be "the technology leader into the 21st Century".**

While details of the new console, codenamed the Jaguar, are a closely-guarded secret, according to insiders the Reduced Instruction Set Computer technology involved could allow the Jaguar to run Virtual Reality games.

The announcement comes a few weeks after Atari UK's Managing Director Bob Gleadow stated that the Panther hardware was complete. At a major press conference held last month, Gleadow implied that a pre-Christmas launch for the Panther was likely – the final date would only be governed by the availability of games titles, he said.

Now all development work on Panther software has been called to a halt by Atari USA's president of software development, Larry Segal.

In a letter to the software houses that had Panther development systems, Segal explained that Atari will 'forgoe' the Panther console in favour of 'a spectacular game system that we feel will be capable of being the technology leader into the 21st century.'

At least six UK software houses were working on Panther software, but it seems that none of them had actually completed a game when the decision to scrap the project came – less than six months before the scheduled international launch.

Segal is keen to maintain their support for the Jaguar: 'Those of you who have placed time and energy behind the Panther will be compensated for your support,' he wrote, 'We have no intention of causing you financial distress... we will give you every opportunity to adapt your development schedules to this new system.'

Apparently, Atari was developing the Panther and Jaguar consoles in parallel, but the Jaguar suddenly began to overtake its stablemate. According to Craig Erickson, Vice President of Software Development for Atari USA, Panther had reached the stage at which the casing was ready to go into production and the hardware engineering was complete.

Erickson explained: "The Jaguar was progressing faster than we anticipated, and we asked ourselves why we were putting Panther out instead of Jaguar.

"At that point we decided to drop Panther and push all our resources behind Jaguar."

While a few Jaguar development systems are believed to be in the hands of major USA companies, the Jaguar console is unlikely to be publicly unveiled this year, according to an Atari UK spokesman. ■

## WordPerfect delayed

**The launch of *WordPerfect* for Windows has been delayed.**

**Originally due for launch this spring, it will now not be available until late August at the very earliest.**

**Executive vice president of the WordPerfect Corporation, Pete Peterson, predicted: "Unexpected problems could push the release date into September. However, given the fact that we are this far along the release cycle we would not expect the release date to slip into October."** ■

## Post haste

**Post code information on 23 million British homes is now available on CD-ROM disk.**

You can get hold of The Royal Mail Postcode Address File from WSA Consultancy, which will throw in a Hitachi CD-ROM drive free. The package, which costs £2,500, includes Ordnance Survey grids, business names, mailsort selection codes as well as fast search . WSA's offer lasts until November. Call 0992 553341. ■

## Share and enjoy

**The complete range of PKWARE utilities, including the public domain/shareware standard compression program *PKZIP*, is now available through Shareware Publishing.**

*PKZIP* compresses data by as much as 96 per cent so that large files can be fitted on to floppy disk or safely transferred over a modem. It is the most popular compression program used by Bulletin Boards in the UK. Available for £29, it comes bundled with *PKUNZIP* to decompress the files.

Other utilities in the range include *PKLITE* which allows a program to be run in compressed form and programmers' compression toolkit.

For more information contact Shareware Publishing by calling 0297 24088. ■

**PSS' wargaming classic *Waterloo* is to be re-released at a new budget price of £11.73.**

**Mirror Image has resurrected the two-year-old strategy masterpiece for the ST, PC and Amiga.**

**The 3D generated battle scenes caused a critical sensation when the game was initially launched.**

**A spokesman offered: "It changed many people's perspectives of war games when it first came out, and was really responsible for bringing the specialist genre of war gaming to a much wider audience."** ■

## Talk to your PC

**For people who can't use a keyboard or stylus to enter data into their PC, IBM, and Dragon systems, is launching an advanced voice recognition system in August.**

Targetted primarily at disabled users IBM VoiceType has a 7,000 word speech recognition vocabulary which includes 2,000 user-defined sounds as words. It can also be used to create sentences of up to 1,000 characters from one sound command.

Based on Dragon Dictate, a dictation system developed by Dragon, IBM VoiceType will cost around $3,000. It requires a 32-bit PS/2-compatible system. ■

# ARE YOU TAKING PRECAUTIONS?

**Computer viruses and hacking could cost £1,000 million in the UK next year, yet little is being done to protect systems from attack. *Express* reports on an increasingly dangerous menace.**

## THE YEAR OF LIVING DANGEROUSLY

*Express* has reported two computer related crimes, or schemes related to computer crime for each month of 1991. These range from hacking to computer viruses. What follows makes disquieting reading. It is the calendar of computer crime for this year:

### JANUARY

- The Saddam virus discovered in the UK
- 5,000 US forces's PCs are infected by the Jerusalem virus.
- Bejing virus which showed the message"Bloody June 4, 1989' the date of the Tiananmen Square massacre, arrives in UK.
- The British Computer Society carried out a study which claims that the forthcoming national census is a prime target for hackers and viruses. The computer centre for the census, based in Hampshire, is unprotected.
- *Express* reported that equipment is freely available which will enable anyone to snoop on computer systems. Electro-magnetic emissions from micros can be picked monitored and read for valuable data.

### FEBRUARY

- Shadow home secretary Roy Hattersley claimed that there are too many loopholes in the Data Protection Act, and that it should be reviewed with great urgency.
- The French have written a Trojan Horse virus (this is a virus which resides in a system awaiting a certain set of circumstances or a specific trigger before activating) which will disable weapons such as Exocet missiles.
- A *Which Computer* report claimed that 50 per cent of the companies interviewed has never even heard of the Computer Misuse Act.
- A loss of £500 million was attributed to a series of computer errors by the Foreign and Commonwealth Office .

### MARCH

- A number voters in the Ribble Valley by-election were disenfranchised by a rogue computer which dropped their names from the electoral role. So far the cause is unknown.

### MAY

- Scotland Yard decided that it had to team up with Interpol to counter the threat of viruses.
- The Government launched a scheme whereby independent security experts would check the computer systems of UK firms.
- Spanish Telefonica, virus discovered at Oxford University.

**Computer virus attacks are on the increase according to two independant reports, one from the US and one from the UK.**

Dyan Dyer, president of Command Software services spoke at Comdex in Atlanta and stated: "A year ago less than one per cent of computer users had experienced a virus attack. Today, 11 per cent have and within a year nearly all will".

In a report produced independantly of the US findings, by UK-based SD-SCICON, it was claimed that: "It is only a matter of time before a security lapse leads to a massive loss or another major disaster - yet the majority of users are not doing anything about it".

Backing up this worrying claim were some cold, harsh facts: "Only 22 of the 152 organisations surveyed had appointed anyone with specific systems security responsibility, even though 89 of them were concerned enough to ask for details of ways of combatting poor security".

Large organisations, such as local government departments, were picked out for specific blame. Only two out of 27 IT departments contacted expressed interest in security.

Central government offices were only slightly better off, with only 3 out of 19 data processing departments saying that they had considered taking precautions against attacks from viruses or hackers.

Linda Graham of SC-SCICON told *Express* this week: "The survey certainly included government and local government departments, as well as companies from the size of ICI downwards. When they were approached and asked about computer system security they were more than interested.

"However, when they realised that they had to pay for such security they was normally a rapid back-down. One of the problems is that organisations don't really take the problem that seriously until something happens. It's a rather like being bitten by a pit bull terrier, until it happens to you, you don't really realise how much of a danger it can be".

Ms Graham also pointed out that, despite much uninformed media attention about "mad hackers" and teenage whizzkids with modems, the major threat comes from ignorant or apathetic employees, or ex-employees with grudges she said: "Because the greatest menace comes from within, it is more difficult to track down".

*• How Express broke the story of the Spanish Telefonica virus attack on Oxford University. This is the first case of a Multi-partheid virus seen in the UK.*

Any idea of an organised conspiracy to plant viruses was quickly disdained. The problem comes from disgruntled individuals, and specifically employees: "You have to deal with employees and tell them not to bring in unauthorised or unauthenticated software". Her answer to the problem of ignorant, or grudge-bearing employees was simple: "In many firms you can get fired for bringing in such software".

## THE EXPERT'S OPINION

For an overview of the situation relating to computer viruses, we spoke to Ed Wilding of specialist journal, *The Virus Bulletin* who told us: "While the level of scare-mongering in the UK has fallen over the last year, the number of actual viruses, or reports of viruses has increased. Clone viruses, those which are refinements of existing, known ones, are still appearing. However, the escalation of distinct, new viruses has been enormous".

**"It's a rather like being bitten by a pit bull terrier, until it happens to you, you don't really realise how much of a danger it can be."**

This is compounded by the fact that most small to medium companies have not even appointed officers with specific interest or knowledge of computers. "People in charge of IT security are normally those who merely have general security brief," said Graham.

## WARNED IN THE USA

Dyan Dyer, whose company Command Software Systens, produces virus security products, spoke at Comdex Atlanta. She traced the main areas of concern in the virus and hacking war not to single user machines but to business users. And specifically to the rapid proliferation of Local Area Networks: "A single virus can take down an entire network, and close down an entire business, where only a few years ago it might have infected only one PC," she said.

The newest, and potentially most worrying type of virus is called the Multi-partheid virus. While conventional diseases affect either the boot sectors of disks or append themselves to files, Multi-partheid forms do both. This makes them a lot more difficult to keep track of.

*• Edward Wilding of The Virus Bulletin: the most worrying new aspect on the virus scene is the multi-partheid strain. This effects both files and boot-blocks.*

Wilding said: "The first of these we have seen in the UK is Spanish Telefonica (see *Express* 133 - 25 May) which hit Oxford University, and also cropped up at City University in London. Viruses such as this are particularly nasty as they have incubation periods of up to one year in which time the user will unwittingly pass on the infection.

We asked whether attitudes to data security had improved among UK computer users: "Bear in mind that *The Virus Bulletin* is subscribed to by companies rather than individuals," said Mr Wilding. "And in this sphere, yes attitudes are definitely getting better. Companies are begining to make systematic changes to the ways in which they approach security". ■

## NEW SKIDS ON THE BOOT-BLOCK.

Listed below are the five most predominant viruses on the PC in the UK at this time.

- NEW ZEALAND II - This flashes the message "Your computer is stoned" and then infects the boot block of a hard disk.
- JERUSALEM - Also Jerusalem 'B'. A parastic virus which appends itself to .COM and .EXE files.
- CASCADE - This has been around for a number of years now, but has changed. Previously it would cause screen characters to fall from the top to the bottom of the screen. Now it merely replicates itself, filling a hard disk with useless files, without giving the tell-tale sign.
- JOSHI - like New Zealand in effect, except it prints the message "Happy birthday Joshi" on January 5.
- EDDIE and EDDIE II - variations on a theme. Again these viruses

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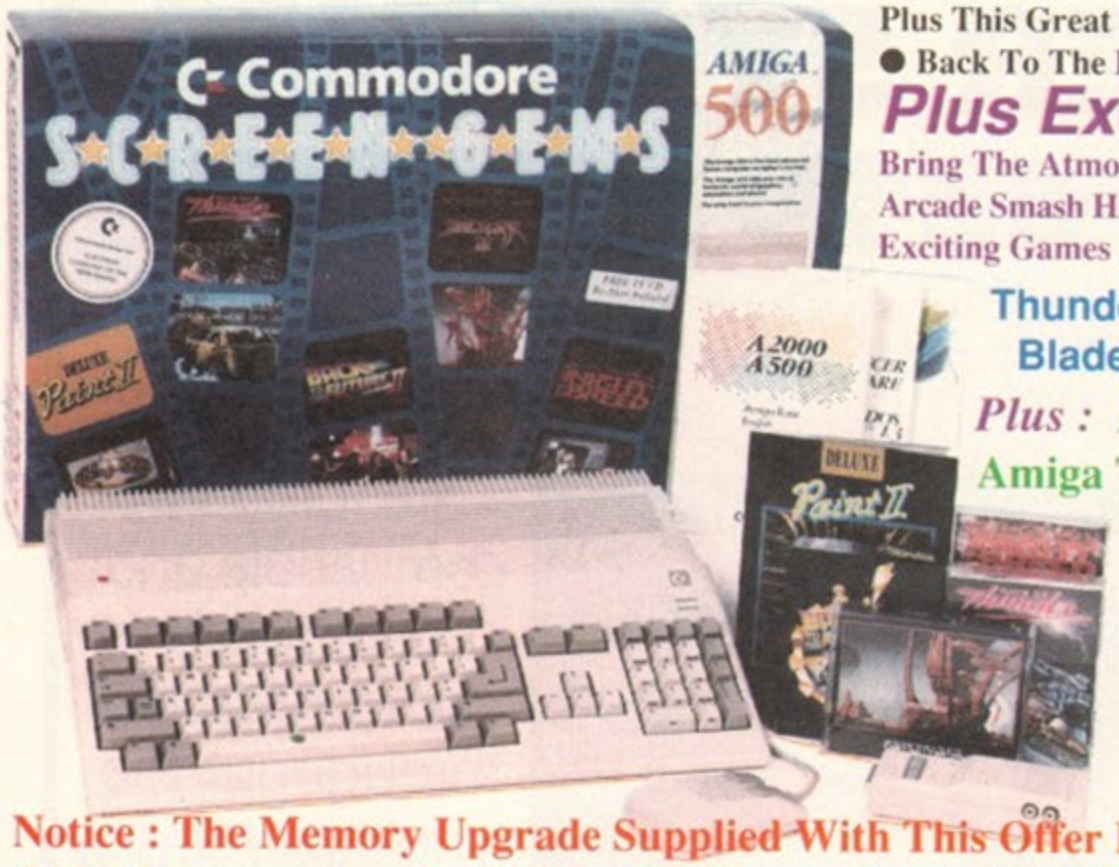


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# WHAT'S NEW

Express' handy reference guide to the newest and most interesting technology around

## Protect-a-net

**PRODUCT:** Network protector
**NAME:** NP08

The NP08 is an in-line device to protect networks and video equipment from the sort of spikes and surges that can occur on any electrical circuit. These spikes and surges can cause software and hardware failure and effectively pull down a network.

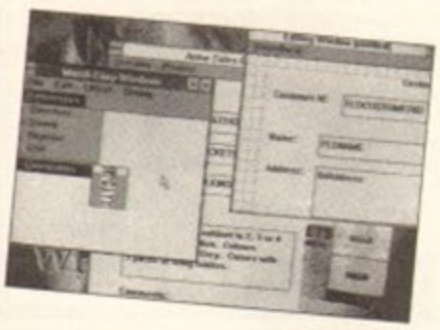
The network protectors are simply fitted in line with existing networks and equipment. They are available with a range of different connectors to suit most existing systems.

The feature that makes the NP08 interesting is that low loss and low line resistance help maintain the integrity of the signal, an important feature in computer network protection.

**Price:** £64.63 inc VAT per unit.
**Availability:** Now
**Target users:** Installers of computer networks and video systems.
**Contact:** Telematic Direct: 0727 833147
**Perceived competition:** The company is unaware of any competitor in this field.

## World on the Window

**PRODUCT:** Windows application builder
**NAME:** *Easy Windows*



***• Windows. While the world holds its breath for the release of Windows 3, other people are making the most of the current version with EasyWindows.***

This software bundle will run on any 286 or 386-compatible PC. It enables users of Microsoft's graphic user interface (GUI) Windows to develop their own programs which make use of icons and visual images.

While writing the program, the screen image is displayed concurrently. Basically, you will need to be using a 4th generation language (4GL) such as C in order to get the most use from this system.

The software comprises three different modules:

*EasyMake* – an applications builder, used to create Objects and Dialogue boxes. *EasyRun* – which simply runs the applications once you have produced them. And finally, *EasyDatabase* – this is responsible for accessing all stored data. It makes use of industry standard SQL commands.

**Price:** £116.32
**Availability:** Now
**Target users:** Windows developers, and anyone with a need or desire to tailor their GUI to their needs.
**Contact:** March Systems: 0734 404079
**Perceived competition:** No one as yet.

## 1Mb of RAM for £65

**PRODUCT:** Memory expansion board
**NAME:** Megaboard

The Megaboard is a 1Mb memory expansion for the Amiga 500. The great thing about this board is that it can be connected alongside existing 'short' 512K expansions. According to Evesham Micros: "The Megaboard fits between the A500 and current upgrades to provide a further 1Mb of RAM, thus achieving a total of 2Mb". The board is connected to the gate array (GARY) to page in the extra megabyte.

**Price:** £64.95
**Availability:** Now
**Target Users:** A500 upgraders who want to throw away 512K 'short' upgrades.
**Contact:** Evesham Micros: 0386 765500
**Perceived competition:** None as it is a niche product.

***• Behind the Sherlock Holmes hat lurks a pleasant upgrade board for the Amiga.***

## King video card

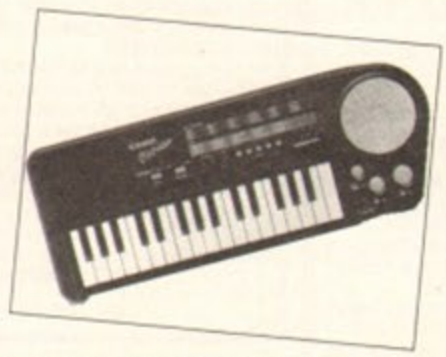
**PRODUCT:** Vision Dynamics video card
**NAME:** Elvis

ELVIS is an entry level video (or vision) card (hence Entry Level VISion =ELVIS) designed to run on a PC and operate under Windows 3. It can handle both the NTSC and PAL video standards. And it is capable of producing broadcast quality images for use in presentations, training and multimedia in a commercial environment.

**Price:** £1,116
**Availability:** Now
**Target users:** Commercial users of multimedia and video imaging of any kind. On line security systems can benefit from this product too.
**Contact:** Vision Dynamics: 0442 216088
**Perceived competition:** This is an area which is due for great expansion, although at the moment no names come to the fore.

## Scan-tastical?

**PRODUCT:** Colour handscanner
**NAME:** ColorArtist



***• More colours than a crowd of rainbows wearing very bright clothing. This handscanner takes the average 4,096 colours and more than trebles them.***

The manufacturers claim that this piece of kit can handle 262,144 colours on screen as opposed to the 4,096 which is normally the standard with handscanners.

It is *CorelDRAW!* compatible and supports both TIFF and PCX file formats. It will also work with both the Mac and the PC – although the latter requires a SCSI box before contact can be made.

**Price:** £468.82 (PC), £821.32 (Mac this includes the SCSI box)
**Availability:** Now
**Target Users:** Desktop publishers who require high-end colour reproduction.
**Contact:** American Pacific 081-903 6646
**Perceived competition:** Genius and DFI.

## R-R-Rapman

**PRODUCT:** House/Rap portable keyboard
**NAME:** Casio RAP–1

***• It might not look computer related to you, but remember that in order to produce those wonderful melodies, this keyboard requires some fairly hefty processing power.***

RAP–1 is an inexpensive electronic keyboard with a built-in 'scratch' disk. This is a device that sounds like the scratching found in rap and house music. As well as the rap scratcher, the keyboard has 25 tones, three separate drum pads and a 30 rhythm percussion section with eight rap and three house beats

**Price:** £69.99 – £89.99
**Availability:** June from high street electronics retailers and music shops.
**Target user:** People who want to buy a keyboard that reflects the current style of music.
**Contact:** Casio: 081-450 9130
**Perceived competition:** None

## Big power!

**PRODUCT:** Emulator to allow workstations to connect with mainframes.
**NAME:** 3270LINXix

The 3270ix is a combination of an interface card and software. It enables UNIX systems and workstations to connect to IBM mainframes via an emulation bridge. Users can also produce programs that enable the UNIX systems to interact efficiently with mainframes under software emulation. Applications can also be created that mask complicated mainframe operations from UNIX users.

**Price:** On application
**Availability:** Now
**Target users:** Corporates/mainframe users/developers wanting a painless and seamless interface between mainframe and UNIX systems.
**Contact:** Sintec: 0753 811888
**Perceived competition:** None in the United Kingdom. ■

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# EXPRESS MAIL

**Write and tell Haydn Fitz-Williams what you think! Reach him at: *Express Mail, 30 Monmouth Street, Bath BA1 2BW.* Sorry, no personal replies, even with an SAE and remember, only SOME letters win a fiver!**

## My ST is . . .

**Is it necessary to shoot Atari in the foot? The ST, Mega ST, STE and TT are the best value computers and workstations on the market and the company should be treated accordingly. If you persist in attacking companies that have an interesting and innovative model range and praising those who produce unreliable rubbish, you can't be doing anyone a favour, least of all yourselves.**

*Tom Ryder, Scunthorpe*

**YOU'RE QUITE RIGHT**, it's not necessary to shoot Atari in the foot. They seem quite capable of that job unaided. As for your jibes about praising unreliable rubbish, would I be getting warm if I guessed that you had an ST and that your letter was a thinly disguised MSTIBTYA (My ST is better than your Amiga) letter? I thought so. Now if you'll just go away and knock together a balanced argument in favour of your opinions instead of the four pages of drivel which had to be severely cut to wring some sense out of it, we'll start to listen to your arguments.

## Closing the door

**Now that the Door to Door story has gone and no doubt the villains are being brought to justice, it's time to do something to protect your readers from the next bunch of unscrupulous cowboys to arrive on the scene. Why doesn't *Express* join some sort of scheme to protect its readers from being ripped off by every Tom, Dick and Harry who can think up an exciting sounding product and place an advertisement for it?**

*Malcolm Dowthwaite, Cleveland.*

Publisher of *Express* Steve Carey replies: "This is something we've been working on for a while. After all, it does us no good if some crook advertises in *Express*, cons our readers out of their hard-earned and then runs off without paying the bills.

"The trouble is, we've looked at some of the existing schemes and been somewhat disappointed: the reality does not match the promise. Certainly you should never let one of those schemes lull you into thinking you're 100 per cent safe. You're not.

"Our sister magazine *Amiga Shopper* (second glorious issue on sale now) has a Mail Order Ombudsperson, and depending on how that goes we may well follow suit.

"Watch this space..."

## Charity begins

**I was listening to the car radio and was horrified by a charity appeal I heard for Ethiopia. The supposedly well-meaning person being interviewed was asking for cash for laptop computers so the people administering the goods at this end could be more productive. He had a very lucid argument that if the efficiency at the distribution centres here could be improved, the goods might reach the needy even more quickly.**

**As the interview rolled on, it became obvious that he was in fact the warehouse manager and that the jobs that he wanted six laptops at £1,500 each for could be done with a notebook or an abacus. It's too easy to want technology for the sake of it and I think that this appeal could do Ethiopia more harm than good.**

**In real terms, what he was asking was for £9,000 to be spent that could have kept 36 people in Ethiopia alive for a year ... so that he could have half a dozen computers to play with.**

*Mary Jones, Dartford.*

**WITHOUT LISTENING** to the interview, it's difficult to comment, but six laptops to count sacks of food and so on does sound a bit over the top. If the charity in question (and you failed to tell us who it was or on which radio channel it was on) would care to write or fax us with their side of the story, we'll open forum on it.

## Know all

**Do you think we're all idiots? Anyone who buys your magazine must have some rudimentary knowledge of computers, and would obviously know what things such as MIDI and digitiser mean. Yet recently you have been explaining such basic terms in boxes and spelling out acronyms in full in brackets after the word (eg FAST (Federation Against Software Theft)).**

**Why? Don't you have enough to write about so you fill in the space with needless patronising explanations? I, for one, want to see more hard facts and less wibble. If someone wants to learn about computers, they should go and buy the *Penguin Dictionary of Computer Terms* or similar.**

*I Sorenson, Chigwell, Essex.*

**FOR SOMEONE** as computer literate as yourself, I'm sure that reading information that you already know must cause you to yawn, but not everyone has your encyclopaedic knowledge or a dictionary of computer terms to hand.

The purpose of the boxes and explanations is so that every reader can understand the content of the page without recourse to reference works. If you read an article in *Express* that didn't explain itself to you, I'm sure that you wouldn't want to be forced to take your magazine to the reference library in order to read it.

## Should we fly the UNIX flag?

**I still regard the UNIX feature which you published some months ago as one of the best pieces I have ever read in your magazine, but coverage of this subject since seems to be have been non-existent.**

**As I think UNIX is going to be pretty major pretty soon, how about a regular column, perhaps in *Shopping Express*?**

*Charlotte-Anne Poster, Chertsey, Surrey.*

**UNIX IS A TRUE** multi-tasking environment and operating system and is becoming more popular as home and office machines become more powerful. The problem is that it's all or nothing. A hybrid UNIX/MS-DOS machine would have all the quirks of each system without the advantages. For UNIX to become more popular and warrant more coverage, we'll have to wait for the power PCs to become more common and UNIX software to become available. The trend is heading that way, with no difference in price between the bottom of the UNIX workstation price list and the top of the PC prices.

***• The legendary – nay, near mythical – UNIX-based NeXT: is this the look of the future?***

## Pay it again SAM

**Since I bought my kids a SAM Coupé it has spent more time in a cupboard than in use because of the lack of the promised software. The Sinclair Spectrum that it was supposed to replace gets more use because of the failure rate of the Spectrum emulator. To rub salt into a rather expensive (£250) wound after MGT went bankrupt, partners Miles and Gordon dumped their public limited**

company and resurfaced telling us that all was well.

This I could have put up with until I got a £562 phone bill run up by my kids paying the outrageous 0898 phone costs to ring up the SAM Hotline. No doubt all of this money will gravitate towards the coffers of messrs Miles and Gordon. They should be stopped for milking a failure in this way.

*Robert Watson, Headingly, Leeds.*

**WE RANG** Alan Miles of SAM Computers and put your complaints to him. He said: "After MGT, we came back out of loyalty to existing purchasers. We had to make sure that they didn't have a plastic box that no-one supported."

On the subject of your telephone bill he had this to say: "As well as the 0898 phone number, we publish a newsletter and welcome calls from our consumers. We don't receive any income from the 0898 line as it is run on our behalf by another company. The responsibility for the use of the telephone does have to rest with the parents."

## Bad service

When I go to my local software store (which I won't name) I sometimes wonder if the people in charge want to stay in business.

I'm sure most games software shops are wonderful places where customers are treated with care, but in my experiment this is not the case. Over the past six years I've been a regular customer of three stores around the country (at different times) and all have been pretty grim.

If there aren't tons of youngsters hanging around, chatting to their pal the supervisor, it's a grumpy old sod who wants to know why you want to see a game before you buy it.

I would like to suggest that some sellers of software get their act together.

*Name and address withheld*

**IF THE SERVICE** is bad, vote with your wallet and your feet. Take your cash elsewhere. It's a good policy to demand (politely) that a shop shows you a game working before you buy it. This way, you'll know that the program is to your liking. In the olden days of tape-loading, a shop could resist this based on the amount of time loading every game took. Nowadays, though, most machines have disk drives and the overhead time is less, so they should be more willing.

## On-line mail

Own a modem? Then squirt us a letter. *Express* has its own conference on CIX. Why not give this on-line service a ring on 081-390 1244 and talk to us direct!

You can also leave E-mail for us on Prestel and Micronet - get in touch on 011112623, or on Telecom Gold @84:txt152

## Feminist attack

In reply to Ms Ramshaw (*Express* 133), I must write in to defend *NCE* from her unreasonable attack on the magazine.

The lady must be either devoid of a sense of humour, crazy or a loony feminist in managing to find sexist innuendo in *NCE*. The latter seems probable in view of her bitter and twisted attack against the staff of the magazine.

I have re-read the headlines mentioned in the letter and the stories that appeared with them several times and I am unable to find anything remotely offensive to either sex in them.

If Ms Ramshaw does not wish to buy an interesting, well edited, humorous and above all entertaining magazine that is her choice. The magazine will not miss Ms Ramshaw or her misguided and nonsensical attempt to rubbish it.

*Graham Nimmo, Cupar, Fife.*

**AS BOTH** our Production and Art Editors are women, I hardly think that the rest of us in the *Express* office would get away with being sexist for long. However, Ms Ramshaw is entitled to her opinion and we wouldn't dream of suppressing it. Then again so is John Morton who was so angry that he rang *Express* with this message: You can tell Ms Ramshaw that women are only fit for one thing. Two if you include frying bacon."

Now that's what we call sexist...

## Cash maker

Here's a way to use your computer to make cash in your spare time. Interface it to one of those hoopy electronic laser tills used by large supermarkets and DIY places. Write a program that takes every fourth purchase and duplicates it, increases the price of loose fruit and veg by 36p a pound, adds VAT to everything and adds six quid before giving you the total.

Now no-one would get away with this for long, so there has to be an algorithm that takes into account the amount of customers and the average price of the goods. As the amount of goods and customers rises so does the 'mistake factor'. This way, when it's busy and embarrassing to make a fuss, more 'extras' will occur. When it's dead quiet, the mistakes won't happen at all.

When you've perfected it, you will be able to sell the benefits of your wonder-till computer to all of the small shopkeepers in a bid to help them claw back some of the ground that they've lost to the major chains.

So you don't think that it will work, huh? When was the last time you scrutinised your bill at the risk of delaying 94 people behind you at a busy checkout?

*Madeline Frobisher, Wembley, Middx*

**AND I SUPPOSE** you'll be telling us that the Pay and Display machines, photo booths, chocolate vendors and bank hole in the wall machines are designed to rip us off too... Hang on though, maybe you do have a point after all.

## Brave world

A 1969 BMW 2002Ti? Belt along? Do us a favour! Perhaps it belts along when you've been used to the plodding Fiat Uno, but come on. Live in the real world!
Meet me at the traffic lights on Marylebone St/Baker St Friday at 23 hrs and I'll show you the meaning of belt along with my 3 litre Alfa 75.

*Boy Racer, Aylesbury*

**IF YOU WERE BRAVE** enough to sign your letter with a real name we might consider running out the *Express* Firebird (400cu inches and a definite Alfa Eater). You may think that you have the car but you haven't the guts to identify yourself and that suggests a no contest

## Favoured few

When I started to buy NCE a year or so ago you ran a column for every machine thinkable. Over the last year you have dumped them until there are only those left that support mainstream computers.

I haven't an axe to grind as I own an Amiga, but I wonder if it's prudent to ignore the thousands of computer users who don't use one of your favoured few machines.

*Colin Moore, Lincoln*

**WE MAKE DECISIONS** based on the mail that we get, telephone calls and faxes that we receive and the results of our reader surveys. The evidence speaks for itself. A huge percentage of our readers own PCs, Amigas and STs, a smaller percentage own CPCs, Spectrums and Archimedes and the remaining teeny amount accounts for the rest. Thus when we organise our machine coverage, it is based on what our readers own and what they want. ■

# ON THE COUCH

*Express*' resident psychoanalyst, Clare Anthony has had more mail this week than she can handle. So much so that the famous leather couch needed reupholstering with ecologically sound syntho-cowhide. Queries came in floods relating to 8-bit angst, and NeXT neurosis. However, this week's star letter comes from Alan McLennan of Esher.

*Dear Clare,*

*Please don't be to harsh with me. This is the my first time, writing to a magazine. I feel that you should know that I am by nature a nervous individual.*

● MACHINE OWNED: Amiga 500

● FAVOURITE SOFTWARE: *Lemmings*

● DESIRED MACHINE: Amiga 500

Now then Alan, *Lemmings* is it? No desire to upgrade to an Amiga 3000, a Mac, or even move to a CPC? Interesting. First, let's deal with the inate retention problem you seem to have. This inability to think any further than an Amiga 500 means, in my opinion, one of two things. Either you are utterly content with your lot, or you have a fear of moving into new territory.

The *Lemmings* aspect would appear to suggest that contentment is not your lot. While it is a good game, your comment that "I can't help playing it. I play with the little furry things all night. They're so real don't you think?" underlies the frankly static view which your ego is enforcing on the twin dynamics of Eros and Thanatos. I feel that you should up your ambitions for the future.

What we have here, readers, is a classic case of arrested development combined with retentive instinct. A blinder of a case history!

DIAGNOSIS: Go out and but a Spectrum. Start using a random fractal generator to introduce some feelings of change. Stop being so sickenlingly dull, tedious and boring now, and maybe normal people will stop, as you say, "falling asleep when I talk to them".

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# AMIGA

- **Passport leaves Amiga musicians in the lurch**
- **Roctec poised to invade the UK Amiga market**
- **Naksha takes on Pandaal scanner software**

## PASSPORT MOVES ON

In a shock announcement last week, US-based Passport Software revealed that it is to cease development of Amiga products in favour of the more profitable PC and Mac music markets. Even the ST has taken second place to these two platforms which form the bulk of computers used by American musicians.

This decision effectively means the end of Passport's existing range of Amiga music software, including its top of the range sequencer, *Master Tracks Pro* and its budget sequencer, *Trax* (a fine program). From now on, updates will be almost certainly restricted to correcting bugs, so don't expect anything particularly stunning.

Also on the music front, Dr T's Software is soon to launch a major upgrade to its successful and highly regarded sequencing system, *KCS*.

Now renamed *KCS Omega*, the program has been totally revamped to give it a more Workbench 2.0-like user interface. The graphic editing tools of Dr T's *Tiger* have now been built in as standard, so there's no more messing around with fiddly stream editors.

☎ Find out more about both *Passport* and Dr T music products by phoning UK distributor MCMXCIX on 071-724 4104.

## ROCTEC STORMS UK

No one could blame you for never having heard of Roctec Electronics, but you can bet you bottom dollar that you'll be hearing an awful lot about it in the future.

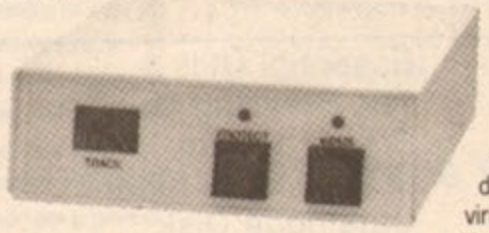
Based in down town Hong Kong, Roctec specialises in external disk drives for a range of different machines including the Amiga. However, it is currently extending operations to cover a lot more than just disk drives.

First up is the RG300 genlock for the Amiga that was reviewed back in *Express* 131. For a stonkingly low price of just £117, the RG300 offers full fading and dissolving functions, plus all the other kind of genlock-like functions you would expect.

Also new is a nifty little device called the RV300C RocKnight which should sell for about £30-40 in this country. It is basically an anti-virus device that has been specifically designed for the Amiga to stop your disks from being infested by boot-block viruses like the *Lamer Exterminator*.

The RocKnight features a powerful virus-prevention function which stops all write operations to all drives including the Amiga's internal drive. Taking this further, an extra write-protect function stops all write operations, regardless of where the data is being written to, removing the need to manually set the disk's write protect tab.

Every time the Amiga attempts to write to the boot block of a disk, the RocKnight sounds a warning beep which allows you to detect when a virus is at work. You can then activate the virus-prevention function to prevent further contamination on your hard drive.



***• The RV300C RocKnight, a powerful anti-virus device, is just one item from the impressive new range of Amiga peripherals from Roctec.***

For the inquisitive among you, the RocKnight also boasts a handy track display which shows the position of your drive's head during disk operations.

A UK distributor for the Roctec range of products is yet to be appointed, but I'll let you know more as soon as Roctec has made a decision.

☎ In the meantime, the RocGen is available from Silica Systems on 081-309 1111.

## LICENSEWARE EXTENDED

Following on from the phenomenal success of its licenseware scheme, the AMOS PD library has announced that the range is to be extended to cover programs written in just about any language, not just AMOS.

Now you can send in programs to the AMOS library, even if they aren't written in AMOS. The library is after just about anything, from games to utilities and applications.

If you think your program is up to scratch, then why not send it in for appraisal? The great thing about submitting your work to a licenseware scheme is that you are virtually guaranteed to receive some form of payment for your programming efforts. In fact, for every disk sold the programmer makes at least 80p, sometimes even £1.

This may not sound like an awful lot, but if your disk proves to be successful, you could eventually be looking at a royalties cheque amounting to several hundred pounds.

According to Sandra Sharkey (there Sandra, I can spell your name correctly!) of the AMOS library, some licenseware programmers have been doing very nicely out of the scheme. One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programmer in particular, Len Tucker, has received several cheques of considerable size and has even been commissioned to write commercial educational software on the strength of his PD efforts.

☎ Phone Sandra on 0942 495261.

## SCANNER UPDATE

Those of you eagerly awaiting the arrival of Naksha's forthcoming hand scanner will be pleased to know that you don't have much longer to wait. According to Naksha general manager, Jay Savoor, the scanner should be available within the next couple of weeks.

It had been delayed by the development of Naksha's scanning software, *ExpressIT!*, which the company originally intended to bundle with Electronic Art's *DPaint 2*. However, in a move which is sure to raise a few eyebrows, Naksha has decided instead to cease development of its own software and go instead for the software used by a competitor's product, namely Pandaal Marketing's *DAATAscan Pro*.

Obviously Naksha isn't claiming that Pandaal's scanner is a better product. However, the company was so impressed with the accompanying software it has decided to license it for use with its own scanner.

Written specifically for the Amiga, the *DAATAscan* software offers high speed scanning in realtime with up to 64 shades represented as greyscales. It offers powerful clipboard functions, image cropping, rotating, flipping and inverting of images. Expect a full review of the Naksha hand scanner soon.

## PUBLIC DOMAIN DEMOS PICK OF THE WEEK

**If you want to know what's hot in the world of Amiga demos, then this is the place to be. Every week I'll be looking at all the latest demos from Seventeen Bit Software, premier supplier of Amiga demos.**

**DEPECHE MODE DEMO (Disk 926) – I had to feature this disk, just because I'm totally and utterly mad on anything to do with Depeche Mode. Hear such classic Mode tracks as *Shake the Disease*, *Little15*, *See You* and *Photographic* on your Amiga.**

**JUGGETTE DEMO 2 (Disk 1032) – The Juggette saga continues with this latest Movie Setter animation. I'm not going to say too much about it; suffice to say that it's well worth seeing just for a chuckle .**

**ARNIE 'TOTAL' DEMOS (Disk 868-871) – Fans of Steve Wright's radio show will love these clips from the spoof Arnie sketches. Is this a Uzi 9mm! see before me?**

**UZI 9MM!!!!!!MUSICAL MASSACRE (Disk 1029) – If you want listen to a little music to wile away the hours then treat yourself to this disk containing 12 excellent *Soundtracker* tunes.**

**☎ Phone Seventeen Bit Software on 0924 366982**

# PC

- **Lotus *1-2-3* for Windows enters final Beta testing**
- **Quattro Pro for Windows previewed in the US**
- ***Twilight 2000*, a new tactical RPG from Paragon**

## A TESTING TIME

The long awaited version of Lotus *1-2-3* for Windows is entering the final stages of beta-testing.

Lotus *1-2-3/W*, as it will be known, was previewed at the Spring Comdex in the USA. The Windows spreadsheet incorporates 3.1's ability to stack worksheets on top of one another for 3-D file linking, as well as its ability to solve multi-variable problems with the Solver feature. It is also faster than 3.1.

*1-2-3/W* features a "revolutionary icon bar concept". Basically this is a floating 'Icon Palette', a box of symbols that you can click on to access common functions.

The moveable palette can be changed to suit your needs and is comparable to those featured in *Ami Pro* and the upcoming *Freelance Graphics* for Windows product.

Intriguingly, the interface will arrive in two modes: the new Windows interface and the "Classic" *1-2-3* interface familiar to many DOS users.

*1-2-3/W*, which is due to ship during the summer, will require 2Mb of RAM, although 4Mb is probably a more realistic target.

## IT MAKES NO AUTO-SENSE

If you plan to use Lotus *1-2-3* version 3.1 on the new 486SX machines, think again. There are problems with the program's auto-sensing feature which looks for a maths co-processor; when the program looks for the co-processor chip, it grinds to a halt.

The problem is the lack of a maths co-processor in the new 486SX chip. Usually, version 3.1 of *1-2-3* looks at the main processor and then looks to see if there is a maths co-processor attached.

However, if it sees a 486 chip it automatically assumes that a co-processor is present. Hence the ensuing chaos when the new 486SX fails to come up with the goods. The upshot is that all entries placed within a cell turn to zero.

*1-2-3* does have a 'work-around' which asks you to enter the starting

**(Continued on next page)**


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batch file and disable the auto-sensing feature using a "Dash-S" command. This fools the program into thinking that it is running on a 386.

Lotus has a new version of *1-2-3*, called *V3.1 Plus*, which should be out in a month or so, but it is not known whether this version will suffer from the 486SX problem.

☎ Lotus is on 0753 32443.

## QUATTRO FOR WINDOWS

Philippe Kahn, enigmatic president of Borland International, teased the good people of Demo '91, a show held in the States, by giving them a quick look at the Windows version of *Quattro*.

Features of *Quattro Pro* allow you to directly manipulate and modify objects by clicking on the right mouse button. Even while running multiple applications under Windows, it is possible to access the characteristics and properties of an object directly, according to Kahn.

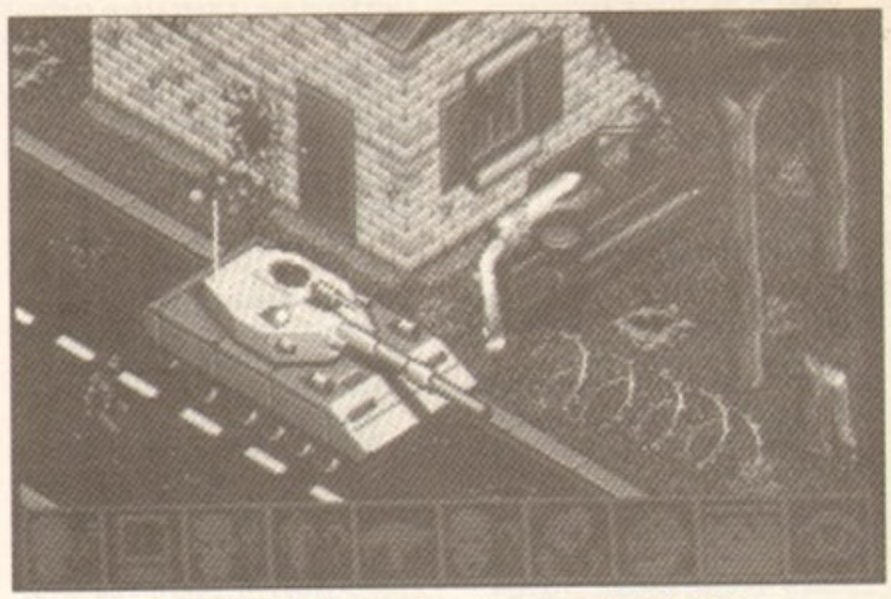
Sporting an icon ribbon across the top of the screen the Windows version of *Quattro Pro* features tools and functions that can be accessed in a single keystroke. Under Windows, *Quattro Pro* also features tabs across the bottom of the screen.

There are rumours that *Quattro Pro* for Windows is expected to work with Microsoft's Pen Windows operating environment without any modifications.

☎ Contact Borland on 0734 320022.

## TWILIGHT 2000

New from the American games software house, Paragon Software (producers of *Megatraveller*), is the upcoming release of *Twilight 2000*.



***• Krakow has to be saved in the post World War III scenario of* Twilight 2000.**

It is a mixture of tactical action and role-playing set in the aftermath of World War III in which you must travel through terrain devastated by high-tech weaponry and nuclear radiation. Your mission is to rebuild and defend the city of Krakow, Poland, against the usual mob of killers and mad militia gunmen.

*Twilight 2000* is a promising game. For example, you only create your own character via the usual RPG character creation routines. The three other party members, that you command, will respond to your orders based upon their own personality traits.

Featuring "hundreds of weapons and vehicles", a mix of 2-D scaled overhead sequences, 3-D simulation arrangements and bit-map 'meanwhile' screens, *Twilight 2000* could be one to look out for.

## DECENT CHAP

Something else to look out for is that very decent chap who writes the PC Column for *NCE*. Why not put a smile on his hard- working face by sending him chatty letters, news of your latest whizz-bang product, moans, groans, hints and tips to *New Computer Express*, Future Publishing, 30 Monmouth Street, Bath BA1 2BW.

**Paul Rigby**

## DESKTOP PUBLISHING SPECIALIST SHAREWARE

**Continuing this series of Shareware/PD for specialist users with part two of a look at programs for DTP.**

**First out of the hat is a handy utility called *WHAT?format*, a file format recognition utility. Version 30 recognises 70 major file formats, including 30 word processors. It will not only distinguish between *WordPerfect*, *WordStar* and *Word*, but also between different versions.**

**Originally written for a typesetting house which received a lot of raw text on floppy disks, *WHAT?Format* can also be used to automate various kinds of file processing and hard disk management.**

**Code to Code 4.0 automatically manages cryptic codes left in text files by typesetting and DTP. Now codes can be automatically translated from typesetting to DTP or DTP to typesetting in addition to code stripping and code-free editing.**

**Use DOS wildcards from the command line to process all files with one command or use the menu system. Features include, graphic arts calc, on-line help, DOS shell and complete docs.**

**For further information contact: PD & Shareware Library, Winscombe House, Beacon Rd., Crowborough, East Sussex, TN6 1UL.**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ROLO/BLACK BOOK/ADDRESS/TODO Various useful DAs
SCREENLOCK DA Asks for Password and then it blanks the screen, Wont reactivate the screen until the same password is entered
MACPROTECT Password protects applications, for use in unsecure environments.
SYSPWD Startup password protection program for use with Hard disks.
FLINTLOCK Similar to SYSPWD.
dCAD A good financial calculator.
PAINTSHOW Reads lists of MacPaint files and shows them in slide show fashion.
MACBILLBOARD Print billboard sized pictures using a standard printer, Good giant jigsaw maker.
BANNER Print a large simple text message on an imagewriter printer.

GAMES G03

GOLF Popular version of solitaire.
HEARTS Another Popular card game.
KING ALBERT Another clone of Solitaire, variation on Klondike.
KLONDIKE The all time classic Solitaire
MAC SEVEN Stategy card game
DECK EDIT Customise the graphics on the cards. Only works with certain card games.
TRICK TRACK A dice game played in some pubs.
PLUS: Ax'Headroom, Automata, Pyramid, High Roller, Mouse Craps, Loto & Bill's Casino

GAMES G06

STUNT COPTER Drop the stuntman into the hay wagon from the helicopter
TORPEDOES Sink passing ships with your torpedoes.
TRON CYCLES Try to block your enemies cycles before he blocks you.
UTAAN ATTACK Destroy the ships before they reach the bottom of the screen.
WIZARDS FIRE Three games in one! Breakout, Pressure and Wizards fire (just like Missle Command.)
ZERO GRAVITY Keep your man in the middle of the zero gravity to get the lowest score.

GRAPHICS GR10

STARTUP SCREENS Are you sick of the normal startup screen, then why not get this disk. All you do is put one of the startup-screens into the system folder and when you startup you will be greeted by this screen instead of the WELCOME TO MACINTOSH screen. Screens include the Batman logos and pictures, plus many more.

COMMS C01

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This is the best communications program all round, it is also the most popular program of its kind for the Macintosh. All other communication programs are measured up against this one. Use it to call up other Bulletin Board Systems or call Compuserve etc... You can connect to almost any other computer.

EDUCATION E01

BRAIN BUSTERS Maths games for kids.
GRADE Teacher gradebook program.
GRAVITATION 2 dimensional orbital simulation.
MACGRAPH Outstanding mathmatical function graphing program.
MECHANICS 5 Small graphics programs that illustrate various prinsciples of physics.
MONSTER MATH Add up numbers and evade the monsters.
OYSTER Demo system that enambles you to create your own tutorials
TINY TAFEL Geneology program that will help you get back to your roots.
TOOLS FOR WRITERS The only shareware version we have seen. With it you are able to check your writing for vague words.

EDUCATION E02

GEOLOGY Various graphic programs that can be used for picture aids in geology classes. Requires MacPaint or Superpaint.
ADD Basic math tutor.
HELOMAT Fly the helicopter through the obstacles and shoot the problem that matches the answer.
MATH DRILL Drills you in basic math.
MATH MOUNTAIN Answer the maths questions to get the mountain climber up the mountain.
MATH MUD Give the correct answer to keep the boy from falling in the mud.
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MAC STACK 22

MATH FLASHCARDS Flash cards for addition, subtration, multiplication and division.
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HEATHERS NOTES Teaches notes on the keyboard, using pre-recorded notes, voices and musical sounds.

DA's DA01

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PROGRAM P01

DATAFLOW A Mac Flow Charter. Debug programs before coding them.
DIALOG CREATOR Make your own dialog boxes and then move them using Resedit or similar.
DISARM Diassemble 68000 resource code.
EDIT 2.1 A text editor for programmers. Suto indent, search and replace, time stamping and more.
LAYOUT Customise your finder. Change icon spacing, default fonts, and more. Be very careful this package is very powerful.

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# ST

- **Pirates crack the 'save game'-less cartridge**
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## HACK 'N' CRACK

There can be few people who own a computer who have never come into contact with pirated software in one form or another. In fact, I'd go so far as to say that the vast majority of people have pirated software at some point. This job is made a lot easier thanks to so-called cracking cartridges which enable the user to dump the computer contents on to disk.

The point is, are these cartridges illegal? You can use most of them for purposes other than copying games and this is the argument that the manufacturers use to defend their very lucrative market. However, I was recently criticised for writing a rave review of just such a cartridge.

The reason I raved about it was because there was no "save game" facility built into the hardware. Therefore, I reasoned, you couldn't pirate games with it.

Wrong! I received a sackful of letters from "cracking" groups who gleefully told me that cartridges like this are perfect for hacking into games, because they enable you to examine in detail the programs' workings, lift out sound and graphics and alter sectors directly on a disk.

I've now taken a stand; I won't review any of these cartridges because they promote piracy. I'm also sick and tired of the useless arguments hackers use to defend their illegal activities.

The bottom line is that expensive or not, rip-off or not, piracy is illegal. If you feel that 'the men in suits' are stitching you up, then either stop buying their programs or else write your own.

Ultimately the people who really suffer from hacking are the programmers themselves. They get by on an up-front lump sum payment and a very small royalty deal. There are few filthy rich programmers out there.

The fewer people that buy their games because they can obtain a ripped off copy, the less the programmers want to continue producing games. Wouldn't the ST be a wonderful machine if there were no games for it!

Right, moan over.

***• Most manufacturers of so-called 'cracker cartridges' argue that they can be used for other purposes than just copying games, but they are still a godsend for any pirates.***

## GO FASTER STRIPES

We all know that the ST has the fastest processing speed of any rival 16-bit machine, but there are times when you need a little extra bit of speed.

That speed can now be yours, because the accelerator market, after a year-long lull, has just exploded with three new packages on the market.

*Quick ST* will be familiar to a lot of ST users. *Quick ST 3.0* is now available and it improves greatly on earlier versions. It differs from other packages because it is entirely software driven.

Having been placed in the auto folder the program installs itself at boot-up. It allows you to access other functions such as custom desktop pictures. Custom fonts and icons are built in and these can be edited.

The main speed improvements will be in programs which use graphics, such as DTP programs. *Quick ST 3.0* now boasts vastly improved software compatibility and is available direct from the states at $34.95 (about £20) from Branch Always Software, 14150 NE 20th Street, Unit 302, Bellevue, WA 98007, USA

☎ Tel 0101 206 885 5893.

Dave Small is the genius responsible for the Spectre GCR Macintosh emulator. He's now turned his attention to acceleration and has come with a board based on a 68030 chip which can push your 8MHz ST up to

**(Continued on page 24)**


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Amiga A500 Screen Gems + 1 Meg Pack ..... £309
Amiga A500 Screen Gems Pack + free disks + 10 extra games pack..... £345
Amiga A500 1 Meg Class of 90's .. £459
Amiga A500 1 Meg Class of 90's (First Steps) ..... £459
Amiga A1500 Computer ..... £549
Amiga A1500 + 1084S monitor ..... £759
Amiga A1500 + Philips CM8833 MKII... £725

**SPECIAL OFFER**

**While stocks last**

Amiga A500 + TV Mod + Mouse + system disk + manuals....only £269

**ATARI COMPUTERS**

Atari 520STFM discovery pack includes 4 games..... £240
Atari 520 STE Turbo Pack includes basic STOS and 7 games + Joystick..... £310
Atari 1040 STE extra pack includes ST Words, ST Calc, ST Basic, ST Graphics, Hyper-Paint, STOS, 1st Basic, Print Game..... £399

**AMIGA/ATARI DRIVES**

1 Meg 3.5" internal..... £49
1 Meg 3.5" external..... £60
1 Meg 5.25" external..... £90

**ACCESSORIES**

512K Ram + clock ..... £39
Joystick..... £10
10 Blank disks in library box..... £8
Mouse Mat..... £3
Amiga/Atari Mouse ..... £29

**MONITORS**

Philips CM8833 MK II Colour Monitor + FREE Lead..... £189
Commodore 1084S ..... £199
SM 124 (Atari) ..... £99

**PRINTERS**

Star LC10 Mono ..... £129
Star LC200 Colour (9 pin)..... £180
Star LC24 200 (24 pin) ..... £210
Star LC24 200 Colour..... £245
Panasonic KXP1124i + lead .. £239
Panasonic KXP 1123..... £180
Panasonic KXP1624..... £329
Citizen 120D +..... £120
Citizen Swift 24 + Colour Upgrade ..... £259
Citizen Swift 9 + Colour Upgrade ..... £185
Epson LX400..... £126
Epson LQ400 (24 pin) ..... £199

**LASER/INKJET PRINTERS**

PLEASE CALL FOR PRICES

**BEST PRICES MAIL ORDER – 0903 700714 – 10.00AM TO 12 MIDNIGHT**
**PHONE US NOW FOR THE BEST PRICES, THE BEST SERVICE AND THE BEST SUPPORT.**

# ATARI

## ST Accessories

| | |
|---|---|
| SM124 Mono Monitor | £109.99 |
| Megafile 30 Hard Disk | £399.00 |
| Megafile 60 Hard Disk | £529.95 |
| External 3.5" Disk Drive | £69.00 |
| Golden Image Hand Scanner | £199.00 |
| Forget-Me-Clock II | £19.95 |
| ST Monitor Switch Box | £14.95 |
| STE Stereo scart lead | £12.99 |
| STFM scart lead | £12.99 |
| STE Stereo MKII 8833 lead | £12.99 |
| STFM MKII 8833 lead | £12.99 |
| Joystick/Mouse extension lead | £4.99 |
| Replacement Mouse lead | £3.95 |
| Standard Parallel lead | £5.95 |
| Internal PSU for STFM/E | £100.00 |
| Replacement ST keyboard | £100.00 |
| Mouse Mat | £3.50 |
| 2 x Midi cables | £6.99 |
| 14 pin din plug (ST disk drive) | £2.30 |
| 14 pin din socket (ST disk drive) | £3.00 |
| 13 pin din plug (ST monitor) | £2.00 |

## Hard Drives

**★ NEW ★ NEW ★**

We are now *official stockists* of the latest in high quality / low price ST hard disk drives from Protar. All Protar hard disk drives come with a full 12 month REPLACEMENT warranty (no lengthy repairs!!), a DMA through port, device number switching and *Protar hard disk drives are the only manufacturer with the ATARI COMPATIBILITY seal of approval.*

**★ PHONE NOW ★**

Phone us today for prices. Hard disk sizes ranging from *20MB to 440MB* including removable tape streamers.

## STE Ram Kits

| | |
|---|---|
| DIY 1 - 512k upgrade | £29.99 |
| DIY 2 - 2mb upgrade | £89.00 |
| DIY 4 - 4mb upgrade | £159.00 |

All STE Ram Kits come with instructions and DO NOT require soldering in most machines.

## ST Software Packs

*For contents of the ST software packs - see the listing of ST computer ranges on the opposite page or phone us for details.*

| | |
|---|---|
| Discovery 1 Pack Software | £16.99 |
| Discovery 2 Pack Software | £16.99 |
| Extra Pack Software | £39.99 |
| Tenstar Pack Software | £29.95 |
| Power Pack Software | £34.99 |
| Curriculum Pack Software | £39.95 |

## ST Midi Software

| | |
|---|---|
| Gaits Sequencer One | RLNG |
| Dr.T Tiger Cub | RLNG |
| C-Lab * *ALL PACKAGES* * | RLNG |
| Steinberg * *ALL PACKAGES* * | RLNG |

## TT

*The amazing 32Mhz TT030 is now available in the following configurations :*

| | |
|---|---|
| 2mb ram, 40mb h/disk | £1699.99 |
| 4mb ram, 40mb h/disk | £1999.99 |
| 8mb ram, 40mb h/disk | £2199.99 |
| Hi res colour monitor | £440.00 |
| 19" Hi res mono monitor | RLNG |

## Mice

| | |
|---|---|
| Contriver 5-in-1 | £21.00 |
| Contiver Trackball | £29.99 |
| Golden Image Optical | £RLNG |
| Logitech ST | £29.95 |

# PRINTERS

## ACCESSORIES & RIBBONS

All of our printers come with a parallel cable to suit Atari ST, Amiga and all standard PC etc (other cables available at extra cost - ask for details). All printers carry a full 12 months warranty. We only sell genuine UK stock - we do not offer inferior "grey imports".

## CITIZEN

* *2 YEAR WARRANTY* *

***SPECIAL OFFER!*** *All Citizen Swift 9,24 and 24X printers come with a FREE colour kit and colour ribbon until the end of May 1991.*

***SPECIAL OFFER!*** *For a limited period only we are offering a CITIZEN PRINTER STARTER PACK with all Citizen printers. The pack comprises of : 3.5" disk full of printer drivers for the ST, Amiga & PC; 200 sheets of fanfold tractor feed paper; 200 fanfold tractor feed address labels; 5 tractor feed envelopes all for only £12.99 on top of the price of the printer*

| | |
|---|---|
| Citizen 120D + (9-pin) | £139.00 |
| Citizen Swift 9 (9-pin) ★FREE COLOUR KIT★ | £199.00 |
| Citizen 124D (24-pin) | £209.00 |
| Citizen Swift 24 (24-pin) ★FREE COLOUR KIT★ | £299.00 |
| Citizen Swift 24X (15" 24-pin) ★FREE COLOUR KIT★ | £399.00 |

*CITIZEN RIBBONS*

| | |
|---|---|
| 120D / Swift 9 Black Ribbon | £4.50 |
| 124D / Swift 24 Black Ribbon | £4.50 |
| Swift 9 / Swift 24 Colour Ribbon | £16.00 |
| Swift 24X Black Ribbon | £7.50 |
| Swift 24X Colour Ribbon | £18.00 |

*CITIZEN ACCESSORIES*

| | |
|---|---|
| 124D / Swift 9 & 24 Semi Auto S/Feeder | £39.99 |
| 124D / Swift 9 & 24 Automatic S/Feeder | £79.99 |
| Swift 9 & Swift 24 Colour Kit | £34.99 |
| Swift 24X Colour Kit | £39.99 |
| Swift 24 Font Cards (6 different) each | £35.00 |

## star

***TELESALES (0903) 700714***
***10.00AM TO 12 MIDNIGHT***
***MONDAY TO SATURDAY***

| | |
|---|---|
| Star LC10 Mono (9-pin) | £155.00 |
| Star LC200 Colour (9-pin) | £220.00 |
| Star LC24-10 Mono (24-pin) | £215.00 |
| Star LC24-200 Mono (24-pin) | £260.00 |
| Star LC24-200 Colour (24-pin) | £295.00 |
| Star XB24-10 Mono (24-pin) | £475.00 |
| Star XB24-15 Mono 15" (24-pin) | £600.00 |

*STAR RIBBONS*

| | |
|---|---|
| Star LC10 Black Ribbon | £3.50 |
| Star LC10 Colour Ribbon | £5.20 |
| Star LC200 Black Ribbon | £5.00 |
| Star LC200 Colour Ribbon | £10.00 |
| Star LC24-10 Black Ribbon | £4.75 |
| Star LC24-200 Black Ribbon | £7.50 |
| Star LC24-200 Colour Ribbon | £11.00 |

## Other Printers .....

| | |
|---|---|
| Canon BJ10E Portable Bubble Jet | £289.00 |
| Hewlett Packard Desk Jet 500 | £459.00 |
| Panasonic KXP 1124i (24-pin) | £279.00 |

*ACCESSORIES*

| | |
|---|---|
| Canon BJ10E Sheet Feeder | £59.99 |
| HP Desk Jet Epson FX Emulation Card | £59.99 |

*RIBBONS / INK*

| | |
|---|---|
| Canon BJ10E Ink Cartridge | £19.99 |
| HP Desk Jet Ink Cartridge | £14.99 |
| Panasonic KXP 1124i Ribbon | £9.00 |

**LASER PRINTERS & PLOTTERS AVAILABLE ON REQUEST – PLEASE RING US WITH YOUR REQUIREMENTS**

# AMIGA

## Accessories

| | |
|---|---|
| 512K Ram upgrade with clock | £29.99 |
| A590 20Mb Hard Disk | £284.95 |
| External 3.5" Disk Drive | £65.00 |
| Golden Image Hand Scanner | £199.00 |
| Amiga Stereo scart lead | £12.99 |
| Amiga Stereo MKII 8833 lead | £12.99 |
| Standard Parallel lead | £5.95 |
| Mouse Mat | £3.50 |
| 2 x Midi cables | £6.99 |

## Software

| | |
|---|---|
| Mastersound Sampler | £36.95 |
| Deluxe Paint version 3 | £64.95 |
| Vidi Amiga video digitising | £99.99 |
| Astra Software Pack | £29.95 |

## 8833 MKII Colour Monitor

*The Philips 8833 MkII is the perfect colour monitor for ST and Amiga owners. With its stereo sound and super quality picture it really shows off the full capabilities of the STE and the Amiga. The Philips 8833 MkII also comes with 12 months on site warranty FREE!*

| | |
|---|---|
| 8833 with STFM cable | £249.99 |
| 8833 with STE cable | £249.99 |
| 8833 with Amiga cable | £249.99 |

# LYNX

## Games Console

*The Atari Lynx is a superb full colour hand held, games console using plug-in cartridge games. The Lynx can be used with either batteries or a mains power supply unit. All our Lynx machines come with instructions and mains power supply unit.*

| | |
|---|---|
| Lynx Console | £95.00 |
| Lynx Console (with free California Games cartridge) | £117.50 |
| Carrying Case | £14.99 |
| Carrying Pouch | £11.99 |
| Car Power Adaptor | £9.50 |
| Sun Visor/Scratch Shield | £6.99 |
| Mains Power Supply | £14.99 |

ALL GAMES £19.99 EACH :

| | |
|---|---|
| Blue Lightning | California Games |
| Chips Challenge | Electrocop |
| Gates of Zendocon | Gauntlet III |
| Klax | Miss Pacman |
| Paper Boy | Rampage |
| Road Blasters | Robo Squash |
| Rygar | Shanghai |
| Slime World | Xenophobe |
| Zarlor Mercenary | |

# ZY FI

## Stereo Speakers

*ZY FI amplified stereo speakers are suitable for the STE, AMIGA & SEGA MEGADRIVE. They come with a power supply and offer full range stereo sound for only* **£37.50** *including VAT + delivery*

# ATARI STE PACKS

## WE ARE PROUD TO ANNOUNCE OUR NEW STE PACKS WHICH OFFER YOU THE VERY BEST DEALS AT THE VERY BEST PRICES !!

## PHONE TODAY - (0903) 700714

ALL ATARI ST PRICES INCLUDE VAT AND UK DELIVERY. ALL PRODUCTS CARRY A FULL 12 MONTH WARRANTY. PLEASE RING US BEFORE ORDERING TO CHECK STOCKS AND CURRENT PRICES.

| | 512k | 1mb | 2mb | 4mb |
|---|---|---|---|---|
| **ATARI STE STANDARD PACK.** consists of the computer with mouse, tv lead, manual and all connecting leads etc. The Standard Pack is supplied with NO software. | £269.00 | £299.00 | £329.00 | £409.00 |
| **ATARI STE DISCOVERY 1.** consists of the Standard Pack and STOS, First Basic, NeoChrome and 4 games (Carrier Command, Space Harrier, Outrun, Bomb Jack) | £279.00 | £309.00 | £339.00 | £419.00 |
| **ATARI STE DISCOVERY 2.** consists of the Standard Pack and First Basic, ST Tour, NeoChrome and 4 games (Dragons Breath, Super Cycle, Indiana Jones, Anarchy) | £279.00 | £309.00 | £339.00 | £419.00 |
| **ATARI STE TENSTAR.** consists of Standard Pack and Asterix, Chess Player 2150, Driving Force, Live + Let Die, Onslaught, Pipemania, Rick Dangerous, Rock n Roll, Squeek and Trivial Pursuit II | £289.00 | £319.00 | £349.00 | £429.00 |
| **ATARI STE POWER.** consists of Standard Pack and 20 top selling arcade games (for individual game titles see the black box on the bottom left of this page). | £289.00 | £319.00 | £349.00 | £429.00 |
| **ATARI STE EXTRA.** consists of Standard Pack and Kuma word processor, database, spreadsheet & business graphics as well as First Basic, Hyper Paint, STAC Adventure game designer and Prince game. | £289.00 | £319.00 | £349.00 | £429.00 |
| **ATARI STE CURRICULUM.** consists of Standard Pack and also 3 levels of educational software (from 5 yrs to 50 yrs !!!), a word processor, a spreadsheet, a database, HyperPaint and Music Maker II software. | £299.00 | £329.00 | £359.00 | £439.00 |

# AMIGA PACKS

ALL AMIGA PRICES INCLUDE VAT AND UK DELIVERY. ALL PRODUCTS ARE UK STOCK AND CARRY A FULL 12 MONTH COMMODORE WARRANTY. PLEASE RING US BEFORE ORDERING TO CHECK STOCKS AND CURRENT PRICES.

**AMIGA A500 BASE PACK** A500 computer, mouse, tv modulator, manuals, Workbench, etc supplied 'bare' with no games software * STOCKS VERY LIMITED - SO HURRY * — **£299.00**

**AMIGA A500 1MB PACK** A500 computer with extra 512K ram expansion, mouse, tv modulator, manuals, Workbench, etc supplied 'bare' with no games software. * OUR RAM EXPANSIONS *DO NOT* INVALIDATE YOUR WARRANTY * — **£325.00**

**AMIGA A500 ASTRA PACK** A500 512k computer, mouse, tv modulator, manuals, Workbench, etc supplied with 10 great software titles (see A500 1MB ASTRA pack below for details) — **£325.00**

**AMIGA A500 1MB ASTRA PACK** Amiga A500 computer, 512K Ram expansion with clock and battery back-up, mouse, tv modulator, manuals, Workbench etc disks, plus the ASTRA 10 games pack including the following games : Datastorm, Dungeon Quest, E Motion, Grand Monster Slam, Kid Gloves, Powerplay, RVF Honda, Shuffle Puck Cafe, Soccer and Tower of Babel — **£350.00**

**AMIGA A1500 BASE PACK** A1500 1Mb RAM (expandable to 9Mb) computer with 2 x 3.5" 880k disk drives built in, and a mouse. The A1500 base pack is supplied with no software. — **£599.00**

**AMIGA A1500 PACK** A1500 1Mb RAM (expandable to 9Mb) computer with 2 x 3.5" 880k disk drives built in, mouse and the following software : Platinum Works, Deluxe Paint 3, Populous, Simm City, Battle Chess, Their Finest Hour (Battle of Britain) and 2 books : "The A-Z of Computer Jargon" and "Getting the most from your Amiga" — **£555.00**

## IT'S BACK !! - THE POWER PACK !!

Due to massive customer demand, we are proud to announce that we now have further stocks of our best selling Atari ST software pack comprising of.....

Afterburner, R-Type, Gauntlet 2, Super Hang-On, Space Harrier, Star Glider, Overlander, Super Huey, Pac Mania, Nebulus, Eliminator, Predator, Xenon, Bombuzal, Bomb Jack, Double Dragon, Black Lamp, Out Run, Star Goose and Star Ray.

All of the above games are available in the Power Pack Software pack for only (STOCKS LIMITED - SO HURRY) -

**£34.99** - thats less than £1.75 each !

(requires double-sided internal disk drive)

*IF YOU WISH TO PLACE AN ORDER THEN PLEASE SEND YOUR CHEQUES, BANKERS DRAFTS, POSTAL ORDERS, CASH ETC. TO :*

## BEST PRICES (DEPT NCE), UNIT A, GRAFTON PLACE, WORTHING, WEST SUSSEX. BN11 1QX

VISA

*OR USE YOUR ACCESS OR VISA AND RING OUR TELESALES ORDER HOTLINE AT ANYTIME BETWEEN* ***10.00 AM AND 12.00 MIDNIGHT,*** *MONDAY TO SATURDAY, AND SPEAK TO ONE OF OUR FULLY TRAINED STAFF ON :*

Access

# (0903) 700714

All prices include 17.5% VAT and free UK delivery (average 4 - 5 days) unless otherwise stated. All prices / specifications / special offers are subject to change without notice. Goods usually despatched same day when cleared payment is received before 2pm. Personal cheque clearance takes 7 days. Please make cheques/PO's out to BEST PRICES. Mail order only. No callers please.

*ADD £7.00 INC VAT FOR NEXT WORKING DAY UK DELIVERY FOR ORDERS PLACED BEFORE 2 PM*

**BEST PRICES MAIL ORDER - OUR TELESALES LINES ARE OPEN FROM 10.00AM TILL 12 MIDNIGHT - MONDAY TO SATURDAY**

# AT LAST! AMIGA PACKS AT UNDER £300!!

## Choose from one of the 3 packs below, but hurry, stocks VERY limited.

**N.B. ALL PACKS COME WITH LATEST UK VERSION OF AMIGA 500, MODULATOR, PSU ETC**

### HEROES PACK

★ A500 Computer .....RRP £399.95
★ Robocop .....RRP £24.95
★ Batman The Movie .....RRP £24.95
★ Ghostbusters II .....RRP £19.95
★ Indiana Jones .....RRP £19.95

TOTAL RRP £489.75

**VALUE PACK PRICE £299.99**

### ARTISTS PACK

★ A500 Computer .....RRP £399.95
★ Spritz Paint .....RRP £49.95
Super Paint Package

TOTAL RRP £449.90

**VALUE PACK PRICE £299.99**

### BEGINNERS PACK

★ A500 Computer .....RRP £399.95
★ Wicked 9 Game Pack.....RRP £24.95
(9 basic games to get you going)
★ Megablaster Joystick .....RRP £6.95
★ Quality Mousepad .....RRP £6.95
★ Pack of ten disks.....RRP £9.95

TOTAL RRP £448.75

**VALUE PACK PRICE £299.99**

*Want a 1 Meg machine?*
*Order any of the packs above and we will install an extra 512K Ram board for only £24.95 (£29.95 for clock version)*

### AMIGA 1/2 MEG UPGRADE BOARD

★ Uses latest 4 chip design
★ Memory on/off switch
★ Option of battery backed clock
★ Full 12 month guarantee
★ New super low price

£27.95

Clock Version £32.95

### 3 1/2" HIGH QUALITY DISKS

Box of 50.....£19.95
Box of 100.....£37.95
Box of 250.....£79.95
Roll of 1000 labels.....£5.99

★ 100% certified ★ Individually wrapped
★ "Made in Japan" media
★ Fully guaranteed

### CUMANA CAX 354 DISK DRIVE "SCOOP"

★ Latest slimline design
★ High speed access
★ Acknowledged as "the best"

RRP £89.95 SCOOP PRICE **£59.95**

DOWLING

### ESSENTIAL ACCESSORIES

**Disks**
Pack of 10 high quality 3.5" DS/DD.....£4.99
Box of 10 branded TDK 3.5" DS/DD.....£7.99
Box of 50 3.5" DS/DD with labels.....£18.99
Box of 100 3.5" DS/DD with labels.....£35.99
Box of 250 3.5" DS/DD with labels.....£79.99
3.5" disk drive cleaning kit.....£3.99

**Disk Boxes**
3.5" 10 capacity Ryford box.....£1.49
3.5" 40 capacity lockable box.....£4.95
3.5" 80 capacity lockable box.....£6.95
3.5" 80 capacity Van 3 (slim design).....£7.95

**Mouse**
8mm high quality mousepad.....£3.99
Mouse/joystick extension leads.....£5.99
Naksha powermouse ST/Amiga.....£16.99

**Dustcovers**
PVC quality covers for computer/printer.....£6.99
High quality solid Perspex dustover.....£9.99

### DISK DRIVE STARTER KIT

★ PC880 3.5" High Quality Disk Drive .....£89.99
(Features anti-click, on/off, superslim design)
★ Ten 3.5" DS/DD disks with labels.....RRP £9.99
★ 40 Capacity lockable disk box.....RRP £9.99
★ 3.5" Disk drive cleaner kit .....RRP £9.99

**TOTAL RRP £119.96**

**Starter Kit Price £64.99**

### COMMODORE A501 SCOOP PURCHASE

★ Official 512K Ram upgrade for A500
★ Complete with battery backed clock
★ Enclosed in protective shielding
★ Only approved upgrade not invalidating warranty
★ Official Commodore 1 year guarantee

RRP £99.99
**SCOOP PRICE**

**ORDER NOW WHILST STOCKS LAST!**

**£44.99**

# COMPUTERS

UNIT 3, FORGE CLOSE, LITTLE END ROAD, EATON SOCON, CAMBS

# ATARI STE SUPER PACK - SCOOP PURCHASE

**Another fantastic value pack exclusive to Dowling Computers**

**Just look at what you get:-**

★ Latest STE featuring 1.62 TOS (easily upgradable to a massive 4Mb)
★ Super Pack software from Atari featuring the following games:-
Arkanoid - Revenge of Deh, Beyond the Ice Palace, Black Lamp, Buggy Boy, Chopper X, Eddie Edwards Super Ski, Ikari Warriors, Marble Madness, Quadralien, Return to Genesis, Roadwars, Seconds Out, Starquake, Summer Olympiad, Test Drive, Thrust, Thundercats, Wizball, Xenon, Zynaps.

**ALL THIS FOR JUST £269.95**

# NEW LOW PRICES

**STE 1Mb, 2Mb and 4Mb LANGUAGE LEARNING PACKS**

*Yet another Dowling exclusive.*

**Enhanced STE computer plus over £100 of software comprising**

| | |
|---|---|
| The French Mistress ..RRP £19.95 | 1Mb STE .....£299.99 |
| The German Master ..RRP £19.95 | |
| The Italian Tutor.....RRP £19.95 | 2Mb STE .....£349.99 |
| The Spanish Tutor .....RRP £19.95 | |
| Metacomco Basic.....RRP £24.95 | 4Mb STE .....£429.99 |
| Total RRP £104.75 | |

**SM124 Mono Monitor (when purchased with ST) only £99.95**

# THE NEW AMIGA 1500 ONLY £669.95 INC VAT

Not only does the Amiga 1500 accept all standard Amiga 2000 peripherals but can also be upgraded to full IBM compatibility. Just feast your eyes on what you get:-

☆ Latest Commodore Amiga 1500 computer complete with 1Mb of Ram (expandable to 9Mb) and 2 x 3.5" 880Kb disk drives.
☆ Platinum Works:- An integrated word processor, database and spreadsheet package.
☆ Deluxe Paint III :- Paint/Animation package.
☆ Populous & Sim City:- Two great strategy games.
☆ Battlechess:- The most exciting game of chess you'll ever play.
☆ Their finest hour:- Battle of Britain brought to life.
☆ A-Z of Computer jargon.
☆ "Get The Most Out Of Your Amiga":- Two introduction books.
☆ Optional 1084S Stereo colour monitor.

**This pack with 1084S colour monitor**
**£929.95**

# STAR PRINTERS

LC10 Mono
9 Pin Dot Matrix 144/34cps.....£149.95

LC200 Colour
9 Pin, 180/45 cps, 16K Buffer.....£199.95

LC24-200 Mono
24 Pin Dot Matrix, 200/67cps.....£239.95

LC24-200 Colour
24 Pin, 200/67 cps, 30K Buffer.....£289.95

# CITIZEN PRINTERS

120D+ Mono
9 Pin Dot Matrix 144/30 cps.....£139.95

Swift 9 Colour
9 Pin, 192/48cps, 8K Buffer.....£189.95

124D Mono
24 Pin Dot Matrix, 144/48cps.....£199.95

Swift 24 Colour
24 Pin, 192/64cps, 8K Buffer.....£289.95

Swift 24 x Colour
136 column version of above.....£389.95

## PRINTER ACCESSORY PACK

Only available when purchased with a printer.

★ Parallel printer cable - RRP £14.95
★ 200 sheets listing paper - RRP £6.95
★ Quality tailored dust cover - RRP £12.95

**TOTAL RRP £34.85**

**PACK PRICE £9.95**

**with printer stand**

**£14.95**

**TELESALES ORDER LINE (MON-FRI) 0480 403222/(SAT) 0480 403304**

# DOWLING

## HOW TO ORDER

Access VISA

### BY PHONE

Simply call our head office quoting your Access/Visa number on

**Mon-Fri 0480 403222**
**Sat 0480 403304**

### By personally calling at our St Neots Shop

**6 Priory Mall,**
**St Neots, Cambs**
**Tel: 0480 403304**

### BY POST

Make cheques, building society drafts or postal orders payable to:

**Dowling Computers**

### DELIVERY (UK Mainland, most areas)

Please add £6 courier delivery for orders over £100, add £2 p&p for orders under.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

## GOLD CLUB SERVICE

★ 7 day money back guarantee if not completely satisfied
★ 30 day exchange for new policy should a fault occur
★ 1 year guarantee giving FREE collection and delivery service should a fault occur
★ Exclusive gold card with personal membership number entitling you to special offers
★ All this for a nominal £10 per item over £100

## ★NEW★ PLATINUM CARD SERVICE ★NEW★

★ All the benefits of the succesful gold card service (above) plus the following

→ Extended 2 year guarantee from date of purchase. *(Peace of mind for 2 years)*
→ Free use of loan machine should yours need to be repaired. *(Now you never need be without your expensive purchase*
→ Free collection and delivery service for the full two years should a fault occur. *(Just make one simple phone call and leave the rest to us!)*
→ Exclusive platinum priviledged customer card entitling you to special offers.
→ All of these benefits for the incredible price of just £39.95 per item purchased.

*N.B. In the unlikely case of shortages of identical model loan machines a suitable alternative will be offered.*

## WHY CHOOSE DOWLING?

★ **ESTABLISHED OVER 5 YEARS**
With a growing reputation for "putting the customer first". We intend to satisfy many more customers for years to come

★ **TECHNICAL SUPPORT/ON-SITE ENGINEERS**
Employing over 20 specialist staff, we are equipped to deal with the majority of queries

★ **FULL TESTING PROCEDURE**
All computer hardware is tested prior to despatch, proving Dowlings commitment to customer care

***So choose Dowling and put our reputation to the test!***

33MHz and beyond. The board also has room for SIMM RAM boards and due to its unique design you can add up to 12Mb of memory to your ST.

Gadgets by Small Incorporated's board will be available in this country within a couple of months from Ladbrooke Computing.

☎ Telephone 0101 303 791 6098.

Fast Technology's 20MHz board makes your ST three times faster. However, you'll need to do a lot of soldering to fit it. Software compatibility is high and the price is a very reasonable at $329 (about £200). Available from Fast Technology, PO Box 578, Andover, Ma, 01810, USA.

☎ Telephone 0101 508 475 3810.

## MONEY MATTERS

It's always the same old story. Half way through the month you suddenly discover that the contents of your bank account won't even cover the cost of a packet of polos. The solution is to budget correctly, but that's easier said than done.

*Home Accounts 2*, from Digita International, is the answer. This nifty icon driven program lets you to enter all your incoming and out-going money. What's more it'll keep track of standing orders, interest and VAT.

Initially the program requires information on your wages, your savings and all the various outgoings you have each month. Once these are in place, you can compile a 'net worth' report which will explain in no uncertain terms exactly where you're going wrong dosh-wise.

Three different types of graphs can be generated to show visually what your money is up to. Then once you have a few months worth of data in memory, you can analyse just why it is you spend more money at the start of the month and on Fridays!

*Home Accounts 2* costs £54.95.

☎ Telephone Digita on 0395 270273.

## LETTER FROM AMERICA

Sam Tramiel, Atari's president, has posted his end of year report for stockholders. While most of it is boring stuff about liquidation and debentures, there are some nice nuggets of information in there. His sales pitch follows what we've been hearing from the profitable UK sales arm:

"The Company's balance sheet improved, resulting in net income of $14.9 million for the year. We are investing in new product research and development and this should help position the company in the years to come.

"We are also concentrating on reducing our operating costs by various means including the expansion of independent subcontractors for production purposes."

This means we'll start seeing a lot of new stuff appearing from the Atari stable. 1992 is going to be a very interesting year for Atari fans. What will the company do after Pad (just renamed STyle), Notebook, STT, Panther and the Mega STE? Find out first in this column.

**Andy Hutchinson**

# CPC

- **Do arcade conversions have to be pale imitations?**
- **Good and bad news for adventure game fans**
- **New Amstrad-dedicated BBS that runs on a CPC**

## ADVENTURER NEWS

Sad news for adventure fans everywhere is the official demise of Henry Mueller's Adventurers Club. Mueller also owns and edits the club's magazine. No news yet of his future plans, but he is promising all existing members will be reimbursed.

But on a lighter note, adventure specialist Topologika has announced that it will be releasing a new espionage thriller in the autumn!

Called *Spysnatcher*, it's by Jon Thackray and Jonathan Partington. I don't know any more than that yet, except that it will cost around £15. Topologika produces rather good text-only adventures, so it should be good.

## NEW BULLETIN BOARD

Comms fans will be interested to learn of a new bulletin board. It's called The Dock, and is run on a CPC6128. It has file areas for both the CPC and PCW.

## SCULL PUBLIC DOMAIN LIBRARY LATEST

**That lad Alan Scully will go far. I've just received a new copy of his PD library magazine *CPC Domain*, and it really is extremely good.**

**It's not free, costing £1.25 an issue. However, if you take out a year's subscription (£15) you get a free copy of *Pagemaker Deluxe*. This is an improved version of the public domain program *Pagemaker Plus*, but *Deluxe* is not public domain. Normally it costs £5 – but that does include disk, postage and packing!**

**Getting back to *CPC Domain*, the magazine is very well produced. It contains some 40 pages packed with news, reviews and articles designed to help you get the most from your CPC.**

**It also has a catalogue of all the software in Scull PD's library, which now contains over 120 disks.**

**If you want to get in touch, note that Scull PD has moved (again). The new address is: 119 Laurel Drive, East Kilbride, Glasgow G75 9JG.**


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# AMIGA, ATARI & PC SOFTWARE

## The Tipster

This **HORSE RACING** software was used to select the 100/1 NORTONS COIN outsider in last years GOLD CUP. Data for this program requires the **RACING POST.** An **INTERNATIONAL** version is available for **AMIGA & ATARI** computers using the **DAILY MIRROR** for data on UK races.

## The Punter

Let your computer **WIN THE POOLS** for you with our latest software. We have used the same sums that the **TIPSTER** proves can beat the odds to give you a better chance with on any pools coupon. The **AUSTRALIAN** version is included on the disk which also contains the **LATEST ENGLISH** leagues.

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For the technical, the board is being run with ROS software on a 6128 with a second drive using 800K disks. There's also a 256K silicon disk for messages. The modem used is an Amstrad SM2400 auto-answer running at V21,22,23,23bis.

The owner and sysop is Terry Youll, who has set aside areas for CP/M, AmsDOS, Z80, graphics and more. 'Opening times' are 10pm to 8am daily. ☎ Telephone 091 454 6978.

### MICROSTYLE FEARS

Several times I've run stories in this column about peripherals supplier Microstyle, but it seems some readers have been having trouble with the company lately.

Orders are not being filled, and buyers are unable to contact the company to find out why. I'm not sure what's happening right now with Microstyle, but as soon as I know more I'll let you know.

### UP WITH PROTYPE!

NM Harrison of Redcar, thinks that Arnor's new print enhancer *Protype* is excellent news:

"This will really make the *Protext* range, with its line graphics and boxing system, a perfectly acceptable DTP package. A high standard of output can be achieved, I am sure. All we need now is the capability to import screens. Well done, Arnor, we didn't think you had deserted the CPC for a minute."

I quite agree! Mr Harrison's not finished yet, though...

"I would like to draw your attention to Fritz Obermeier Computing, a German company which develops some great kit for the CPC.

"The company has on the market a memory expansion kit which allows you to add a little more than 256K to your CPC. Fritz's little add-on is able to bring the CPC memory all the way up to 512K! Not all that much by today's standards, but I feel it may be one of the best for an 8-bit computer.

"Also, do you remember about two years ago, a British company was developing a hard disk for the Amstrad? Well, Fritz has beaten them to it.

"I'm not sure of the prices of these pieces of kit – something around £150 for the memory, I think.

"You can find Fritz hanging around your dog and bone if you hit the following buttons: 01049 5732 3246 (or you could in January)."

**Rod Lawton**

## LASSIE TURNS HOMICIDAL IN KUNG FU CONVERSION

**I've had a few harsh words to say in the past about some of US Gold's arcade conversions. The trouble is, arcade games run on machines with zillion times more power than the CPC and arcade games themselves are usually distinctly short on gameplay, but boast incredible graphics and sound.**

**The (all too predictable) result when you convert an arcade game to 8-bit micro format is a game with no gameplay and disappointing graphics and sound.**

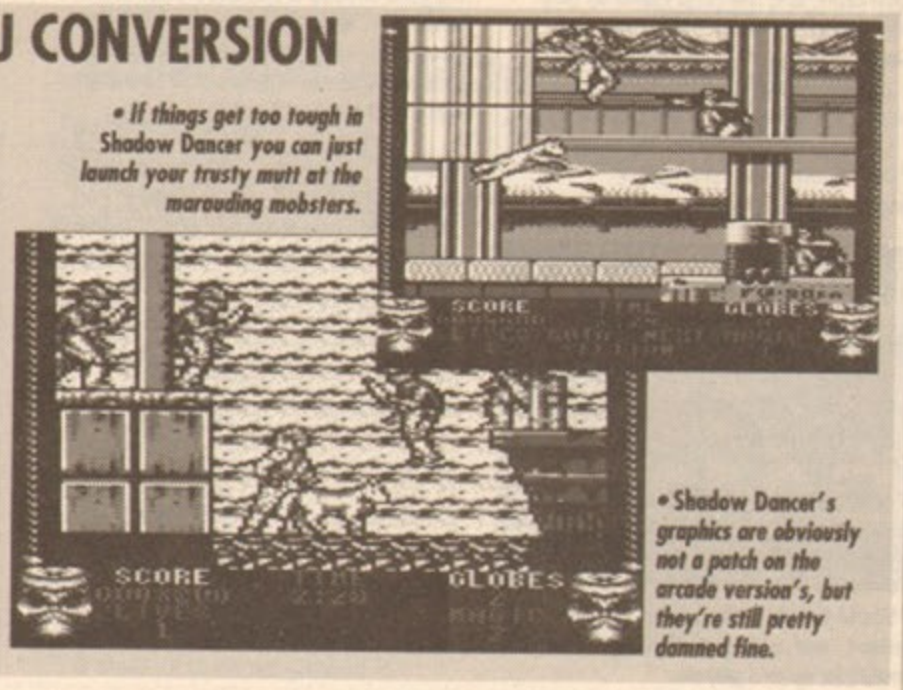
**However, *Shadow Dancer* is an exception. Admittedly, the graphics can't match those in the arcades, but the Amstrad version still looks great. And it's not a bad game in its own right.**

**The gameplay is nothing out of the ordinary; it's a pretty standard scrolling martial arts kick-'em-up. Your aim, ostensibly, is to prevent some nasty saboteurs from wrecking a space shuttle, but in practice you just have to concentrate on kicking hell out of whoever you meet on your way.**

**There is a difference, though, you have a dog. Your faithful mutt is not the kind that just fetches your slippers or curls up in front of the fire. Instead, with a word from you, it will leap ferociously at enemy attackers.**

**The graphics are all done in 16-colour mode, but they are very impressive, proving quite sharp and detailed. The animation's not great, but it's smooth enough.**

**Shadow Dancer isn't really my cup of tea, but as an example of the martial arts genre, and as an ambitious arcade conversion, it comes across very well.**




*• If things get too tough in Shadow Dancer you can just launch your trusty mutt at the marauding mobsters.*

*• Shadow Dancer's graphics are obviously not a patch on the arcade version's, but they're still pretty damned fine.*

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# C64

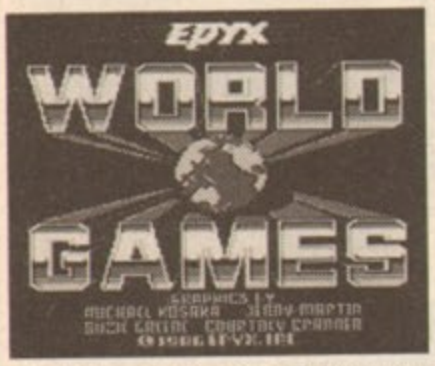
- **Re-release market flooded with classic software**
- **Batman returns to Gotham City (again)**
- **3-D Construction Kit set to make huge impact**

## GLOBAL GAMING

The first game under scrutiny is one of the best sports sims around.

*WorldGames* is the cream of the Epyx crop, and the best game to play with a load of mates. There are eight events in all, most being some country or other's national sport – hence you travel to a new country for each event.

The first is weight lifting in the USSR. There are two types of manoeuvre, the snatch and the clean and jerk, and players have to work their way up various weight combinations.




**• World Games *is the best of the Epyx simulations, and offers a stunning variety of events for up to 8 players.***

Next is barrel jumping in Germany, which is as entertaining as it is novel. Players choose a number of barrels to leap over, and following a co-ordinated skate the contestant leaps into the air. You never know if the leap is successful right until the last barrel!

Then it's off to Mexico to jump off a few cliffs. There are a number of ledges down the cliff face, and the player can choose to jump from any one of these. If the winds are particularly strong, the lower ledges are the safest bet. A number of tucks/moves can be performed on descent, and if you manage to dive successfully vast amounts of points are awarded.

Now it's time to put on your thermals for the ski-slalom in France. Probably the weakest event, as it is just a case of negotiating the slalom course in the shortest possible time. It takes fast reflexes to reach the finish in one piece, but it is quite entertaining to watch a friend career into the onlookers!

For budding lumberjacks there is the Canadian log rolling event. You can play against another player or the computer; the slightest fault can send you to a soggy end.

Next is my favourite – bull riding. The player has to observe the bull's movements very carefully, and in turn compensate for the jerks and twists. Steers range from docile to raving mad!

Then on to caber tossing in bonnie Scotland. This is very tricky, as you can easily drop the caber on the run-up – it gives me bunions just thinking about it! To make things worse, the caber must be thrown a specific distance which serves to increase the frustration.

The final event is sumo wrestling in Japan. Similar to the log rolling, your opponent can be either another player or the computer.

The game was released over four years ago, but it doesn't show its age. The usual Epyx presentation is evident; the graphics are superbly detailed and animated, with all manner of hilarious touches (witness the weight lifter falling through the floor, or the cliff diver peering over the cliff edge). The music too is superb, with the caber tossing's bagpipes being simply awesome.

It's been out on cassette at £2.99 for some time, so now's your chance to buy the disk version for a mere £4.99.

## DON'T BELIEVE THE HYPE

Unless you live in an air-tight box, the mention of the *Batman* film conjurs up images of massive merchandise/hype/licensing campaigns.

Surprisingly, the game-of-the-film (released in late 1989) turned out to be one of the best licences ever. The plot of the film was followed closely indeed, and is divided into five levels.

Level one takes place in the AXIS Chemical Plant. Our superbly detailed crusader explores a multi-directional landscape, killing adversaries as he

## HOW SOON SHOULD A GAME BE RERELEASED?

**Games, games, games. The budget market (at least, re-releases) is overflowing at the moment, but new full price releases are few and far between.**

**One of the main labels to look out for is KIXX, and if you keep your eyes open, it is possible to pick up some real gems. Similarly, the Hit Squad has many classics in its collection.**

**The only aspect I disagree with is when a game can be re-released. I'm sure everybody out there has experience what I term 'TPO Syndrome' – you splash out a small fortune on a game and as if by magic, it appears at a fraction of the price four weeks later...**

**Even worse than this are the compilations, where you could pick up an extra four or five games for the price of just one original title.**

**Perhaps software houses should consider employing a three or four month 'settling' period, in which time a game cannot be re-released.**

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794 Colossal Adventure - World Adv.
715 Pipeline
761 Battleforce
730 Frantic Freddie - Good game
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goes. The level is a cross between *Robocop* and *Bionic Commando*, as our hero can use a handy bat-rope to climb up to unaccessible platforms. At the climax of the level Jack Napier is encountered (cue dramatic music), and ultimately dropped into an acid vat.

Level two features the batmobile racing through Gotham City. When prompted, the car must be directed down side streets and the like, which can prove very difficult.

Level three is a *Mastermind*-esque puzzle section, where the chemical elements of 'Smilex' must be identified within a set period. The music here is eerie enough to give you a severe attack of the jitters!

Level four is similar to level two, except that Batman is now at the helm of the Batwing. Various carnival floats litter the streets, and the Batwing must be used to cut the tethered balloons free. Once a designated quota have been cut free, it's on to the final level.

This takes place in Gotham City Cathedral, in a similar style to level one (only with rats). There is a confrontation with the Joker at the end of the level.

*Batman* is a truly excellent film tie-in. The graphics have a very sombre and murky feel, much like the film itself, and Matthew Cannon's music is brilliant. However, it's the varied (and addictive) gameplay which wins through and will keep you occupied for weeks. *Batman* is from the Hit Squad, and costs £2.99.

**Andrew Roberts**

# SPECTRUM

- ***Power Up*** **your Speccy to avoid those summer blues**
- **How to make *Tasword 2* Plus 2 and Plus 3 friendly**
- **A plethora of pokes for all the hottest Spectrum games**

## COMPILATION TIME AGAIN

About this time of year software houses, in their infinite wisdom, don't release many new games for the Speccy and you generally have to make do with re-releases, cheapies and compilations. But don't get too depressed because there's plenty of stuff for you to play over the wet, cold summer.

Compilation-wise one of best things to hit the streets of late is *Power Up* from Ocean. Costing a hefty(ish) £16.35 (£19.99 on disk) it comprises some of the highlights from the last few years of Speccy arcade games.

First there's *Rainbow Islands*, a game so cute you can't help cuddling it from time to time. It follows on from similar fluffy success stories like *Bubble Bobble* and gained universal acclaim when first released.

As is often the case, the Speccy version actually plays the best of any format and you'll gasp at the amount of colour splashed over the game's deviously designed platform-filled screens.

Also colourful, but definitely not cuddly, is *Altered Beast*. In this Activision game you control a nicely drawn and decidedly beefy hero who can change into various animals as he makes his way through the usual treacherous landscape.

Visually exciting with bigger sprites than you'd think the Speccy could cope with, it unfortunately all goes a bit wrong in the gameplay department. Basically it's not much fun to play.

This is a criticism you could not level at the Speccy version of *Chase HQ*, an absolute corker by any standards and cleverly gives the weary old driving game a bit of much needed purpose.

Rather than a straightforward race along twisty, smooth scrolling roads you have to chase criminals and bump them off the road. The scenery moves past at a whizzing rate which fair restores your faith in the Speccy's abilities even after all these years.

The last two titles on *Power Up* are

**(Continued on next page)**

## GETTING DOWN TO SOME REALLY SERIOUS POKING

**I'm always printing pokes that give you infinite lives, energy or similarly impressive benefits in games, but here for a change are some tips of a more serious nature.**

**They were sent in by Michael Hodgkinson and do wondrous things to *Tasword 2* to make it Plus 3 friendly. Take it away, Michael...**

**"*Tasword 2* will not work properly on the Plus 3 or probably the Plus 2. The word change routine uses the printer buffer and so the program crashes if you try to use the function.**

**"To relocate the text into the help page do the following:**

**1) In line 3000 change 23296 to 23363**
**2) In line 4000 change 55296 to 55363**
**3) Poke the following locations with 216 (replacing 91):**

| | |
|---|---|
| EAAC = 60076 | EAE7 = 60135 |
| EB1E = 60190 | EB21 = 60193 |
| EB37 = 60215 | EB3D = 60221 |
| EB78 = 60280 | EBBB = 60347 |
| EBED = 60397 | EBF2 = 60402 |
| BC12 = 60434 | BC53 = 60499 |

**"Some might think that a bit untidy. Well it is but it's easy and I don't know about you but the help I need ain't on that page anyway. I like the old *Tasword* you can mess with it and write your own bits of BASIC. I poked these numbers from the BASIC and checked them against the program at the same time."**


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ACCESS

straightforward shoot-'em-up arcade extravaganzas. *X-Out* is a horizontally scrolling *R-Type*-esque game set under water. Graphics are predictably murky and it tends to look a bit dull next to the dazzling stuff it nestles amongst in the same pack but still has a fair amount to offer shoot-'em-up fans.

Lastly there's *Turrican*, a game that attracted gushing praise when unleashed a few months back. Graphically it's very impressive, again using the Speccy's spectrum to full effect. You get a lot of game for your money with loads of levels to shoot your way through.

All in all *Power Up*'s a very worthy compilation and if you missed out on this little lot the first time round, salvage your credibility and invest in it without delay.

## ERRATUM PLUS

The distinctive smell of cock-up was in the air a few weeks back (*Express* 133) when most of Mark Harris' hack for *Slightly Magic* disappeared into the mistake zone. It was probably down to a computer error but that's what happens when you use Macs. Anyway, here it is again in full (with any luck). Sorry!

```
10 REM SLIGHTLY MAGIC
55 FOR N=23434 TO 9E9: READ
   A: IF A<999 THEN POKE
   N,A: NEXT N
56 POKE 32018,91
80 DATA 33,147,91,34,145,97,
   195,138,97,175
90 DATA 50,246,159: REM MAGIC
100 DATA 50,15,160 : REM
   LIVES
110 DATA 195,158,102,999: REM
   END MARKER
120 MERGE "": RUN
```

## POKEMANIA

Now that's cleared up, here's some Mult-iface pokes for you courtesy of the very nice Alan Johns.

In return for the millions of pokes Alan provides us with he wants me to say hello to Jenni and his pals at school. I'm an a obliging sort so, erm, "hello". Oh and good luck with your exams Alan! And the same goes for anyone else similarly afflicted at the moment.

- *Midnight Resistance*
  - 40364,0 Invulnerable
  - 40126,244 Resets bullets
- *Toobin*
  - 61721,0 Lives
- *Cabal*
  - 39245,201 No baddies
  - 39202,201 Smart Bombs
- *Batman*
  - 24336,201 Invincible
  - 24881,201 Lives

## MAKE MY DAY

If you've got anything remotely Speccy related you want to share with your fellow Spec chums send it to me, Robin Alway, at the following address: Spectrum Column, *New Computer Express*, 30 Monmouth Street, Bath BA1 2BW.

**Robin Alway**

# MACINTOSH

- **Apple's marketing targets small businesses**
- **System 7: just how much memory do you need?**
- **DiskDoubler – an essential space-saving utility**

## RUMOURS...

Apple has launched a major campaign, "to encourage small businesses to look at their needs and consider Apple Macintosh as a key tool for success".

This takes the form of a direct marketing campaign, costing £150,000, in which 100,000 businesses will receive an invitation to send off for a booklet called *Apple Macintosh in Business*. It will tell them that they just can't consider themselves proper businesses unless they own the odd Mac or ten.

To accompany this, 60 Apple Authorised Dealers have each assigned a 'small business manager' to cope with the expected huge demand. Small business manager? You're better off banking with Apple...

Apparently Apple is sending out prototypes of its three new laptops to selected sites in the United States. Reports suggests that they are very similar to the predicted specifications, so with a bit of luck they should be on schedule for a September or October release date.

## SYSTEM 7 STUFF

A few bits this week:

- There is a debate on CIX at the moment about whether a 2Mb machine is useable under System 7.

The consensus seems to be that it isn't – with more than the basic set of fonts installed, it's almost impossible to find any applications which will run in the remaining memory.

Apple seems to be in the process of upgrading all the machines it sells so that the minimum models come with 3Mb (all except the Classic, anyway), so it looks like the company is finally coming to the same conclusion.

One contributor to the debate pointed out that it is, in fact, possible to run System 7 on a 1Mb machine – as long as all you want to do is select 'Restart' from the Special menu...

- Here's a neat use for Aliases if you have a number of Macs on a network:

Make an Alias of your entire hard disk (select the hard disk icon and Make Alias... from the File menu) and put it on a floppy disk.

Then, if someone else is using your


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machine, you can still access all your files by putting the floppy into another machine on the network: double-clicking the alias is effectively the same as double-clicking on your hard disk icon – the Mac transfers the relevant details over the network.

OK, it's not as fast as actually using your Mac, but it could save you considerable hassle.

The longer System 7 is around, the more neat little tricks people will come up with (that one, incidentally, was courtesy of an Apple employee). If you've come up with any 'different' uses for System 7 features, drop me a line and let me know.

● There's still no sign of a System 7-compatible version of *Norton Utilities* for the Macintosh. Since this is a virtually indispensable package, it would be rather nice if the company could get a move on...

● Rumours that *Disinfectant 2.5* would soon be appearing, as an upgrade so that it would work properly with System 7, seem to be ill-founded.

The word from the program's author is that there will be a short delay, and that the next release of the program will be version 3.0, which will contain things like balloon help.

Actually, the current version of *Disinfectant* works perfectly well with System 7, although you are advised to take the *Disinfectant* INIT out of your System folder before you upgrade and then replace it afterwards.

● Adobe has sent out a press release detailing which of its applications are System 7-ready. The most annoying incompatibility is *ATM*:: although it works to a certain extent, it's not 32-clean until the next upgrade. And even then it won't be able to find printer fonts unless they're loose in the System folder, so you can't just stuff them all into a folder and forget about them.

This is yet another argument for converting all your fonts to TrueType with *Metamorphosis Professional* (see last week's column): that way, they'll display fine on-screen without the need for *ATM*.

## DISKDOUBLER

*DiskDoubler* is a fabulous INIT which performs, 'on the fly file compression'. In other words, it compresses your files so that they take up less room on the disk than would otherwise be the case (often saving as much as 50 per cent of the disk space) and decompresses them when they're needed.

It really is worth having, especially if you're short of hard disk space. The current version, however, has one problem; it doesn't work with System 7.

However, a new version should be available 'Real Soon Now' which does – and which should also provide improved data compression working at even faster rates.

Indeed, a press release we received last week from the American manufacturers claimed that the new version will be shipping on June 1, although it will probably be a few weeks before it's available over here.

☎ You can obtain further details by contacting the distributor, Amtech International, on 0202 476977.

**Ian Wrigley**

# POSTCARD FROM AMERICA

**How can I describe the incredible joy I experienced at the System 7 rollout in San Jose?**

**Did this rapture stem from the groovy technology displayed? No, although it was impressive.**

**Perhaps from the spelling lesson the crowd received, learning that new Macintosh system software is System 7, not Seven Point Oh, or 7.0?**

**Nope! It was getting to play the naughty boy, asking all the horrible questions the marketroids didn't want floated.**

**System 7's incompatibility with Apple's own hardware and software caused some obvious squirms. The top of the line, 8•24 Display Card, is a RISC-based 24-bit colour display card for the Macintosh II family. It has a special optimised version of *QuickDraw* that cooks complex graphic images and applications. The card will display under System 7, but will not accelerate. Apple says that a fix is in the works, sometime this summer.**

**Apple probably would have preferred to have delayed shipping another couple of months to take care of the seemingly endless supply of bugs, and incompatibilities. But intense internal and external pressures pushed them to finally get it out the door.**

**Investors needed a bit of good news after the beating the stock has been taking this spring. A couple of programmers claimed that there would have been a developers revolt if the software had not shipped before the May World Developer's Conference. System 7 hit the shelves on the WDC's opening day—what a surprise!**

**Users with internal and external hard disk drives have a lot of choices. I have System 7 running on my internal drive, and the latest flavour of 6.0x on the other. When I need to use programs that hate new systemware, I hold down Command, Option, Shift and Delete when booting. This prevents the internal drive from mounting.**

**If you can't find some of your files, look for the Desktop Folder. This is invisible under System 7, but is revealed with older versions. There's also a folder called Trash, which may hold files that you thought you'd thrown away. They now stay in the can until you purposefully empty it. Progress.**

**David Morgenstern**


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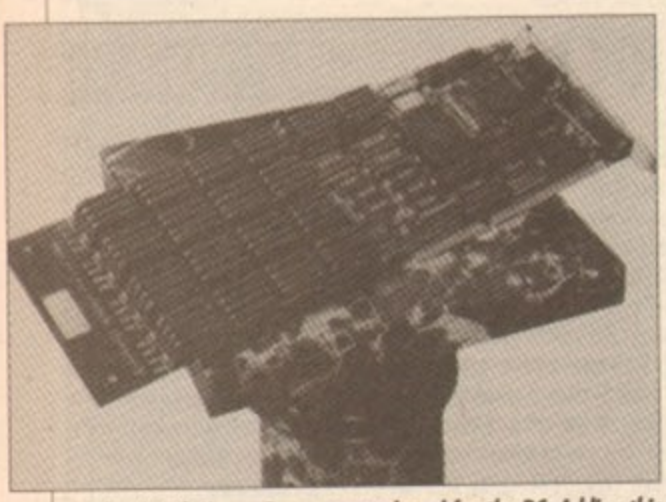
# CIRCUIT CITY

**Programs get bigger and faster by the day,and the spacious 32K of 10 years ago wouldn't even run the title screen today. Keith Pomfret looks how to add memory to Amigas and PCs**



*• The 32 Mb Hyper-Ram memory board for the PC. Adding this monster to your 286, 386 or 486 gives you memory as large as most hard disk drives!*

The standard 512K of the Amiga A500 and PC seemed like a bottomless pit a couple of years ago. Programmers used to compressing code into 32K and 64K 8-bit machines were quick to take advantage of this huge half-megabyte memory – it seemed like an answer to their prayers.

With the better machines came higher demands in sound, graphics and processing power and all of these overheads greedily gobbled free memory until the ballroom like 512K became extremely constricting. Programmers were able to write programs to take advantage of more memory and upgrades became available. At first the upgrades were rare, expensive and unreliable and in the PC they needed software to take advantage of them.

## AMIGA – AN EASY UPGRADE

The Amiga A500 is the easier of the two to upgrade. The specification allowed for a trapdoor underneath it that houses a slot for the addition of a board with 512K of memory on it. Commodore makes a memory expansion board that also contains a battery backed real time clock. This is the only 'official' upgrade for the trapdoor and although it is of high quality, it isn't generally the cheapest. Upgrades for the trapdoor fall into three categories. Firstly there are those which are simply a board with 512K on board. Secondly there are those like the Commodore offering 512K plus a real time clock and thirdly there are those which offer more than 512K and up to about 4Mb in the trapdoor.

## SIMPLY FITTED

Fitting the first types is simplicity itself. Unplug the Amiga, remove all of the peripherals, drives, printers etc from the rear panel and turn the Amiga upside down. Remove the trapdoor, slide the memory expansion in and reverse the process. It takes a couple of minutes and when you fire up the Amiga again, there's more memory showing on the Workbench screen. To make life awkward, there are a few games that won't run with a memory upgrade fitted. For that reason, it's best to get a switchable upgrade that can be switched off rather than having to be removed each time. Constant removal and replacement will soon wear out the connectors.

Finally, there's the kind of memory that goes beyond 512K in the trapdoor. Fitting these boards that can have up to 4Mb on board is as simple as the 512k counterpart. However, because the Amiga wasn't designed to take more than 512K in the trapdoor, more drastic measures are called for. These memory expansions also need to be attached to the Gate Array chip (GARY ) on the main board. In order to do this, it's necessary to open up the Amiga and risk your warranty.

This is more of an awkward than a technically difficult one. It involves removing the nine screws that hold the A500 together, unfastening and taking off the metal shield and removing the GARY chip. The patchlead from the memory expansion board goes into the socket vacated by the GARY chip and the GARY chip plugs into the patchlead.

Finally, there are memory expansions that plug directly on to the expansion port. These can be up to 8Mb and fitting them is simple. The plastic blanking cover is removed from the expansion port and the expansion is slid into the socket.

**With the better machines came higher demands in sound, graphics and processing power, gobbling up free memory**

## UNDERSTANDING A PC's MEMORY

Before you upgrade your PCs memory, it's important to understand how a standard PC uses its memory. The 8086 chip that the PC was originally based on is capable of addressing one megabyte of, but the quirky PC operating system reserves the 384K between 640K and one megabyte for itself.

The most common PC memory upgrade is the 128k upgrade between the former standard 512K and the now standard 640k. Many PCs were shipped with 512K on board but with sockets or board space for the extra 128K.

Almost every application ever designed for a PC will run within 640K, so if you've 640K on board you should be OK. If you only have 512K and want the extra 128K, first of all unplug and open your machine. (There are many different kinds of PC and you are advised to follow the instructions for your particular model.) If upgrading is intended as an option, this should be mentioned in the manual. If you're lucky, the spaces for the upgrade chips will be socketed. If this is the case it is a simple matter of sliding the RAM chips into their sockets. You should check to make sure that they are aligned in the same way as the other memory chips and that they are of the type specified by the manufacturer. If they're not socketed then it's a soldering job for you. You can either solder the RAM chips directly to the board or, much safer, solder sockets to the board and then insert the chips. This has the advantage that the RAM chips aren't introduced to the high temperature of the soldering iron.

Similar kits of chips and sockets exist for 640K PCs to take them up to the magic megabyte.

## THROUGH THE MEMORY BARRIER

Beyond the 640k/1Mb barrier there are 286/386 and 486 PCs that can take a variety of memory upgrades. These can be configured in many ways but basically fall into two categories. There are those which fit directly on to the PCs motherboard and those which fit on to an expansion card.

Once you get into the realms of memory expansion beyond 1Mb you should contact your dealer to check what the best upgrade path is for your needs. If you only do an occasional batch of word processing, you won't need megabytes of memory but if you intend to multi-task CAD and CAM packages, a 640K PC will soon curl up its toes.

Another thing to be aware of with PC memory upgrades is that they're only as strong as the software driving them. In order to persuade a PC to use any extra RAM (and it could be as much as 64Mb on board), you'll need the right software and you'll need to have the memory set up correctly. This could involve setting switches or links and running an installation program.

If you're buying software that can utilise extra memory, make sure that it is compatible with the memory in your machine and that it contains the right drivers to take advantage of the extra memory. ■

## WHERE TO FIND THOSE CHIP SHOPS

Amiga memory boards and chips are available from:

| | |
|---|---|
| Silica Shop | 081-309 1111 |
| Ladbroke Computing | 0772 203166 |
| Evesham Micros | 0386 765500 |

For PC memory upgrades talk to

| | |
|---|---|
| The Chip Shop | 061 476 3070 |
| Watford electronics | 0923 33383 |
| Diamond | 0272 693545 |

Alternatively you could try for a bargain at a computer auction. Ring 0254 813316 for catalogues.

## QUICK, QUICKER, QUICKEST

Commodore has been upgrading A500s by adding an extra 512K on the main motherboard instead of using the trapdoor. It then seals the trapdoor. If you've an A500 upgraded in this way, you'll not be able to follow the trapdoor upgrade route.

This isn't as bad as it sounds. The Amiga has three distinct kinds of memory. Chip RAM which is on the main board and is the fastest, Fast RAM which connects to the expansion port and Slow RAM which is anything in the trapdoor. If you upgrade the memory via the trapdoor, you're picking the slowest place to put memory and could be effectively putting the brakes on your Amiga.

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| VIDI-Chrome-Amiga colour splitter s/ware £16.95 | A590 512K RAM Upgrade £ 31.95 | Stereo Sound Sampler inc. software £ 29.95 |
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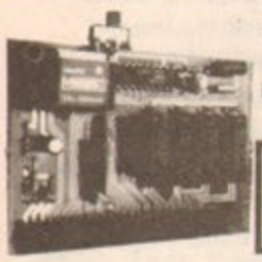

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# TECH TIPS

**Need some techie advice to get your printer working? Bought a second-hand machine without a manual? Is your monitor giving you a headache? Fret no more. Write to Keith Pomfret, Tech Tips, New Computer Express, 30 Monmouth Street, Bath BA1 2BW.**

## Synthesis son

**I have a son who is musically keen, and is interested in obtaining a synthesiser. Since we have little knowledge in choosing one, could you list a few that would satisfy the following requirements?**

**a) MIDI - compatible (Atari ST)**
**b) Multi-timbral**
**c) Varying range of sounds/voices**
**d) £100 - £200 second-hand**

**I have seen the Yamaha PSS range, Roland MT-32 and CASIO CZ-101, but I have no idea whether they are multi-timbrel. Any ideas?**

*Patrick McDonald, Fife*

**FIRST THINGS FIRST.** Before you can use any MIDI instrument with the Atari ST you'll need some MIDI software. Whether this is one of the cheaper packages like *Quartet*, a full blown sequencer/editor like *Steinberg* or some PD program is up to you. Before you even consider the synthesiser, your son will have to decide what he wants from MIDI. If he wants to use the ST as a complex electronic recording studio then the first thing he'll need will be a sequencer. Other MIDI uses could be sample and patch editing.

If you want a true multi-timbrel synthesiser, The Casio CZ 101 and CZ 1000 won't be much use to you. They have some polyphonic and polytimbrel abilities, but are very limited. The MT-32 is a fully multi-timbrel synth module, but if you want to play it, you need a MIDI keyboard too as the MT-32 is purely a sound generation module.

The Yamaha range of home MIDI keyboards is multi-timbrel and has built in amplification and speakers. However, the sound quality of these keyboards is fine for home use, but wouldn't pass muster in any commercial environment.

Each of the solutions you suggest has pros and cons. If I were attempting to set up a MIDI studio on a budget, I would either go for an MT-32 and a cheap MIDI keyboard to drive it or pass on the multi-timbrel requirement and buy a second-hand pro-quality keyboard.

Remember that with either of these solutions, you'll need amplification to hear the sounds, but it will be worth it.

## Revolver

**I was hoping you could give me some technical assistance. I have recently seen an article in *Express* which gives some info on connecting a ST computer through an Amstrad colour monitor. Since I was an ex CPC user I decided that I would try it out. I soldered all the bits together as described in the article (NCE 130) and I did get a wonderful clear image - far better than a wobbly telly picture.**

**Anyway, I do have one small problem – I have got a permanent vertical roll, slow, but there all the same. I don't seem to have a break in the adjustment on the vertical hold knob. It just goes from revolving in one direction to revolving in the other with no stop position. I have to keep fiddling with it every other second to get the picture to stay in one place. Do you have any theories?**

**If it's any consolation, I connected up my Amstrad to the monitor and it worked away fine. Could you please help me, as it is annoying trying to watch a slowly revolving screen.**

*Ross Douglas, Aberdeen*

**YOU SEEM TO** have a faulty adjuster. If no amount of adjustment alters the picture, you should contact Combined Precision Components in Preston for a replacement part on 0772 555034.

## Sound to light

**In the PD section of *Express* issue 126, Frank O'Connor asked if there was a sound/light convertor for the ST/Amiga. "What has this got to do with Circuit City?" I hear you ask. Well, I subscribe to the Maplins bi-monthly magazine, and recently there was a sound-to-light converter. Regrettably, this does not use a computer in its set-up, but it is not too hard to build and the end results are very impressive. Almost any external sound source can be used and the Amiga is no exception.**

**Perhaps you would consider featuring the project in the future. The stock number from Maplin is LM66P, item description TVFX kit.**

*Craig Thornton, Lincoln*

**AND I DON'T** think I'd be breaking any confidences if I confirmed that Maplin is a source of inspiration for Tech Tips and Circuit City. It's quite possible to adapt a kit like that to do the job directly from the analogue sound output of a computer and if you've already made and understand the Maplin sound/light box, perhaps you could work out the modification and send it in to Circuit City to be included as a project.

## STE studies

**I will soon be doing my GCSEs and I am considering getting a 1040 STE for my computer studies. I already have an Amstrad CPC 464 and was wondering if my colour monitor would attach to the STE. It's a CTM 664. Great magazine.**

*Alec Marshall, Sale, Cheshire*

**YES, IT'S PERFECTLY POSSIBLE** to attach a CTM 664 to an Atari STE to get a medium resolution colour display. You will need a special lead to connect to the video out of the STE and into the Amstrad monitor. This particular monitor was designed for use with the Amstrad CPC and people who have used conversion leads to attach the CTM 644 to Amigas, STs and Archimedes have reported different degrees of quality. This seems to be due to the monitors varying from their original specification, but can generally be cured by getting a competent TV engineer to open it up and tweak the adjustments.

The right lead can be bought from RSD connections on 0992 584205 or Simpson Electronics on 0332 760353.

## True colours

**Do you know of a colour printer driver for the Amstrad CPC, as I have purchased a Citizen Swift 9 colour printer, and would like to be able to print in colour. Details of a supplies and approximate cost would be most appreciated.**

*Terence R. Ball, Accrington*

**I DON'T KNOW** of the printer driver that you require, but as the advert says: "I know a man who does ..."

If such a driver exists, then the Amstrad CPC group WACCI will either have it or know where to get it from. Give them a ring on 081-898 1090.

*• Talk to WACCI to get the best from Swift on a CPC.*

## Arc drives

**I own a BBC A3000, and I am in need of a second, external 3.5-inch disk drive. By looking through *Express*, I can see that a second drive for the Amiga or ST would cost between £60-70. Similar adverts in the Micro User show that an external drive for the A3000 costs more than £100. Considering that Amiga drives have a greater formatted capacity than A3000**

drives (880K against 800K), isn't this a bit of a hefty price?

I am therefore writing to ask whether it is possible to use an Amiga drive on an Archimedes. I know that it is frequently easier to buy the proper item than to do a conversion, but is it viable to obtain a lead to connect the Amiga drive to the A3000?

I would appreciate any help in this matter. I would like to take the opportunity to recommend the Arch PD Public Domain. It is the cheapest (50p a disk) library around for the Arc, and the service is excellent. It is based at 109 Ferry Road, Hullbridge, Essex, and this is not a free plug!

*Kenneth MacLeod, Clackmannanshire*

**I'LL HOLD MY HAND UP** and admit that your letter had me beat. The lovely chaps down at Atari and Acorn seemed reluctant to admit whether their respective machines are compatible, but the day was saved by Archimedes expert Michael Stirling who said: "Forget the Amiga drives as the interface isn't standard, but if you can get an ST with a standard Shuggart drive, this should match the Archimedes specification which is also Shuggart. All that you'll need is the leads to connect the computer and drive".

## HELP Chocs away

I have a tip for the impoverished 5.25-inch disk user - do not cut holes in the disk – use a Ferrero Roché (choc) box to store your disks in it will hold about 35+ disks in each box, very useful if your short on readies.

*Ian Hurst, Wigan, Lancs*

**AND WHILE YOU'RE** about it, half a squeezy bottle makes a great pencil holder and sticky back plastic makes shaving a totally new experience ...

## TIP! Tip terror

I read with horror the suggestion in your Tech Tips section, issue 130 (TIP! Don't do this).

As a technical team leader in photocopiers, I have seen the results of similar activity on copiers, with which laser printers share some processes, and believe me, at the least they are expensive, at the worst they are positively dangerous.

Inside a laser printer there are high voltages, high static charges, and pressure (and/or heat) fixing processes. Toner can vary in size of particles, temperature setting and polarity of charges.

As for "throwing more money out of the window", does Mr Morley realise that the toner he is stealing costs his firm on average about £30 or more a bottle?

Besides the fact that the letter advocated pilfering, the repair bill for the laser printer is likely to be around £200, plus actual danger to life and limb from electric shock.

As people grow more accustomed to technology, they seem to be more careless with it. We must remember that the boxes which do all these wonderful things for us all have the potential to bite the hand of the unwary.

*L J Maxwell, Birmingham*

**NOW THAT** you've added your 'expert evidence' to the debate maybe the prat element will stop stealing from their employers in a bid to damage their expensive laser printers ...

## HELP Cubs honour

I have recently bought (through *Shopping Express*) a second-hand colour monitor for my Atari STFM. The monitor came minus plug, leads or manual. It has a Microvitec 452 cub badge on the front and the Model No is 1431AP/MS4.

The connections on the back are a 5-pin Din socket marked Audio, alongside a 6-pin DIN socket with no markings. Beneath these two sockets is a switch for either TTl or Pal Video 1V 75R and below the switch is what I take to be a PAL Video socket. By trial and error I managed to get a picture by connecting ST pins to the PAL Video socket and sound by connecting ST pin 1 to the Audio socket.

My problem is when I run games everything is OK, but when I run GFA Basic or STOs or ST Writer Elite, in fact anything that uses an all white screen, I get dab distortions at the top and bottom of the screen. If I invert the screen this usually cures the problem, however this remedy is not possible when I want to view a full box on the Desktop.

Can you please tell me if there is any other way of connecting my monitor and ST that will stop me from physically abusing my mouse in frustration.

*Chris Agnew Walthamstow*

*• The Microvitec Cub will work with most computers, but check with the manufacturer about compatibility.*

**THE PROBLEM** sounds like one of levels. To check on the compatibility of the monitor and computer combination you should talk to Microvitec who make the Cub. If you're pouring too much signal in, you could be doing damage to both the ST and the monitor. Microvitec is on 0274 390011.

## HELP Amiga advice

I have recently bought an Amiga 500 and would like you to answer some questions. First of all could you give me some ideas of what I could use my Amiga for besides games? Second, I would like to know if there is a reasonably priced, but efficient PC emulator for the Amiga.

*N Broghan, Co. Dublin*

**BESIDES GAMES** you could use it for art and design, desktop publishing, MIDI music, word processing, video and sound digitising, video titling, and much more. The strong areas of the Amiga are its sound and display abilities although it is capable of most things.

The two emulators that spring to mind are the KCS Power PC board and the Vortex AToncе. The Power PC board is easier to fit, but the AToncе can emulate VGA display resolution (mono).

The KCS Power PC board is from Bitcon (081-490 1919) and the AToncе comes from Silica Shop (081-309 1111).

## HELP 128 software

Just recently I acquired a Commodore 1288. I have bought several games for the 64 mode on this computer, but have drawn a blank at getting software for the 128. I would be grateful for any information you can give me on where to buy software for the 128.

*Paul Hennen, Northolt, Middx*

**I'M AFRAID** that the simple answer is that Commodore 128 software is extremely rare. Not many people bought the Commodore 128 (we may have the Amiga to thank for that) and there was never much demand for it. Your best bet is to visit as many computer shops as you pass in the hope that they may be as grateful to get rid of the C128 software as you are to receive it. Then join ICPUG, the Independent Commodore Users brigade and I'm sure that if anything's available, they'll have it. ICPUG has an entry in the *Express* user groups list elsewhere in the magazine.

## HELP Green envy

My son and I have recently bought an Amiga computer with a 1Mb upgrade plus 1084s monitor and a panasonic KX-1124 printer, we have also been given a green mono monitor which I hope to use with a word processing package.

Here is the first problem – the composite phono socket is incompatible with the 9-pin plug on the monitor, I note there are only six pins in use.

Problem number two is that we do not know what type of monitor it is as there is no technical data on the back, any help or information would be greatly appreciated.

*I R Drinkwater, Anerly, London*

**TAKE THE MONITOR** to a competent TV engineer and ask him to check which pins are ground and signal/luminance. The mono composite output on the Amiga should be connected so that the core of the Amiga phono connector goes to signal and the shield goes to ground on the monitor.

## TIP! Big Mac

I have a colour Mac LC 2-40 and being a mere mortal I cannot yet afford a Stylewriter printer, excellent value though they are.

In order to facilitate printing I decided to investigate the possibility of using my trusty Epson LX-80 as a Mac output device. Being pretty clued up on the Mac, I realised I would have to overcome a couple of problems; namely: there is no Epson driver as standard with the system and my Epson has a parallel interface to which, unfortunately, the Mac does not subscribe.

Enter the Witch. More precisely enter Point Technologies Witch printer driver. This wonderful piece of software provides support for Epson 9 and 24-pin printers and in addition HP Laserjets on any Mac including those running on System 7.

*Q J and L North, Newhaven*

**AND THAT'S A TIP** worthy of passing on to the rest of our Mac using readers although there's already a solution of sorts available from Mac Solutions which sells a dot matrix printer that will run on either a PC or a Mac. Mac Solutions is on 0535 690001. ■

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**ST SOFTWARE** for sale. No brand new titles, but some are oldies, but goodies, and all are originals. For a list send a SAE:- 30 Clifford Street, Birkenhead, Wirral, Merseyside.

**4 MEG STE**, CM8833, colour JET 132, EXT 1 meg Triangle, clock, Naksha , 350 + disks, serius + menus, 6 boxes, 150 magazines, leads, nearest offer of £950 takes away. Phone 0202 420682. Move forces sale.

**ATARI** 1040 STE 4 meg £399, 48 magazines (ST World, ST Format and ST User), £10, Pace Linnet Modem, £90. Phone Andy (0435) 882121.

**ATARI** 1040STFM 40Mb hard drive, clock, momo monitor, 1Mb external drive, Hi-Soft Basic saved! Neo Desk 3, Timeworks DTP, FirstwordX, k-Data, Cadaverh, boxed as new with documentation £700 o.n.o. Watford 268873.

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**BOOKS** £5 each, Atari ST For Beginners, Introduction To Midi Programming, Basic Training Guide, all by Abacus. Also Starting Forth, Master Sound and music on the Atari ST. For details, please send an SAE to:- Mike Norton, Colingdale Nurses Home, Colingdale Hospital, Colingdale, London, NW9.

**STE MEMORY** upgrade to 1Mb. Solderless Simms Chips, Just plug in. New from Evesham Micros at christmas cost £40. Sell for £20. Also first word plus, original. Bargain at £30. Phone Rob, 078139 3971.

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STOS programmer seeks similar for projects, utilites, games etc. Write to: Mr S. Hill, 4 Martlet Avenue, Disley, Stockport, Cheshire, SK12 2JH.

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ATARI C2101 Pro Sound disk 100's sounds half price, genuine £15. 16 256K RAM Chips upgraded again, orignal recipt £15. Post 50p. 081 692 8129.

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**ATARI** 529STFM, 1 meg Discovery pack, also £300 + games + word processor, Epson Daisy Wheel Printer + sheet feeder, 3 stick + mouse, + 12M/B utilities. Price: £300 the lot o.n.o. Split £250-£50. Ring 0323 22012 (weekends/afternoons).

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**SUPER CHARGER,** PC Emulator for Atari ST with 1 meg internal RAM and TC Power enables super charger to use ST's memory. All for £200 worth over £300. Call Hakan, after 6pm on 081 533 2188.

**ATARI 520 STFM,** mono monitor, printer and joystick, plus 20.-30 softwares. (Built in 1 meg disk drive). All for £350. (All in very good condition). Tel: 081 441 3273 (evenings).

**WANTED** ST Format issues, one to seven, must be in mint condition and with disks. Will pay £5 per issue. Garry Carter, 108 Nobes Avenue, Gosport, Hants, PO13 OHX.

**ATARI** 520STFM internal 1 meg disk drive, disks, manual, mouse, etc, £175. Excellent condition. Tel Woking (0483) 764857.

**JENNIX PD.** Atari PDL run by private individual, over 400 disks from 90p each. Send 50p + SAE (for disk catalogue and free PD). Address: N. Klee, Jennix PD, 66 Abbey Road, Strood, Kent, ME2 3QB.

**ST PUBLIC DOMAIN** from 30p a disk. Send SAE + disk to. Prophecy PD, 390 Coulsdon Road, Old Coulsdon, Surrey, CR5 IEF. Send your list of PD if possible.

**ATARI** 520 STFM one meg internal drive, one meg external drive, loads of magazines with cover disks, £700 + software, mouse, joystick, plus extras. 14 months old, mint condition. £320. Tel 051 327 2616.

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**STE SIMMS** for sale. Two 256K Simms to upgrade your 520 STE to 1 meg, only £25 the pair. Also Olympus OM40 kit for sale. £175 o.n.o. Phone 0275 375496 evenings only. May swap camera for hardware.

**MEGA** ST (I meg), colour stereo monitor, cost over £1300, including Protext w.p., games - Rick Dangereous 2, P.D., Space Ace + more, magazines, all leads, ready to run, very good condition, only £470. Tel 081 391 2190.

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**PC DITO** for Atari ST as new, cost £79, but accept £60 o.n.o. Phone Paul on 0843 220396 for details.

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**COCK-UP:** Darling wife bought a hard drive for my ST. Me too. Both retail at £430. You can have one, with my PD collection, for £350. Quantum 52Mb or Power Computing Slimline 45Mb. Answer phone Brighton 679318.

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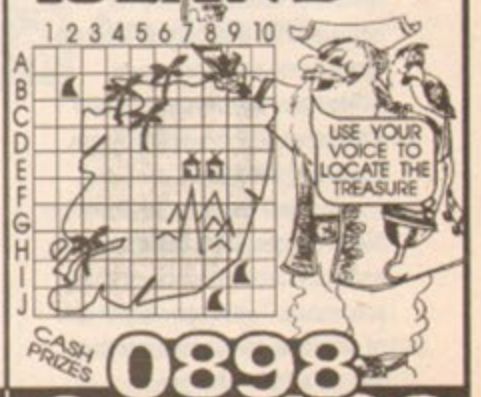


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**HELP,** I need a manual for an epson FX-800 printer or some info on how to configure it to my Amiga. Also looking for a sheet feeder for above, call Mark on 0703 701943, after 6pm.

**PSION** organiser XP and mamual with (part used, needs reformatting) 32K datapack fitted £85. Book' Using And Programming The Psion. £5. Tel: 021 351 5556.

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# FURTHER FASTER BETTER

**Writing a program? Don't write one more line until you've read how to make efficient programs that will run faster and use less memory. Mary Branscombe shows you how to optimise codes. . .**

There aren't many programmers who don't succumb to the temptation to spend time on a working program, getting it to run that little bit faster or to take up just a little less room on disk. It's not so much that we can't leave well alone, but that programmers do take pride in their code and always think it can be improved.

The law of diminishing returns applies to programming as much as to anything else you do and it is certainly possible to over-optimise a program.

- Never rewrite a program for speed to the point where it becomes unintelligible.
- Don't spend too long on shaving your code down.

Think about how many people would have to use your program for how long to make up for the time that you've spent fiddling with it.

Unless your program is too large to fit on a disk, then there's probably no need to make it shorter. The comments that you'll need to explain terse code will more than make up for the lines of code that you've cut! Well written programs should run efficiently and be easy to understand. You don't have to sacrifice either clarity or efficiency.

## FACING THE FACTS

You can't change the data that your program has to deal with, so make sure you deal with it in the best way you can. If you need to store and access a lot of information, use data structures that you can search efficiently.

Test the data that your code will work on for errors before a routine uses 25 iterations of a loop to process it, not after. Some simple error checking can save a lot of time here. Think about the range of data that a routine can work with and reject values that can't be correct as soon as possible.

Often, there will be one way of processing most of the possible values and another way for some special cases. If there are a lot of exceptions and and the tests take up time, test for the general case first. If you have to test each value for five exceptions and only one case in 100 is an exception, then your program is doing a lot of unnecessary work.

## WRITING THE PERFECT PROGRAM

- If a program is running rather slowly and you don't know which part of the program is causing the problem, step through it with a debugger. Executing a program in short steps should be very fast so if you have to wait for a particular section of code to return a value, you've probably found the culprit
- If you are searching or sorting, make sure you use the most suitable algorithm – we'll be looking at these techniques soon.
- Compiled languages are faster than interpreted ones and compilers are available for most interpreted languages from Lisp and Prolog to BASIC.
- In some languages, for example Lisp, you don't have to declare the type of objects. If you don't tell the compiler what type of data it is looking at, it will spend time trying to find out.
- If you have declared the type of a value, then the program can refuse values of the wrong type rather than wasting time tying to process them.
- Don't declare more variables than you need. If you only use a variable in one section of the program, declare it as a local variable, if the language you are using can do that. Then the program doesn't have to keep track of the variables you aren't using any more.
- Some languages can clear up after themselves with local variables and some will clear all unneeded objects out of memory. This is called garbage collection. In GW-Basic, for example, there are several ways to regain memory.
  - `Z = FRE(0)` triggers garbage collection.
  - `I ERASE X,Y` recovers the memory allocated to the arrays `X` and `Y`
  - `CLEAR` recovers all the memory that has been allocated to storing data but does not affect the program code.
  - `NEW` clears all the memory used for program data or code.

**Programs organised into smaller modules will usually be more efficient.**

- Library routines are useful, convenient and often well written, but some routines are more efficient than others. In the ANSI C library, there are two routines for printing to the screen, `putf` and `printf`. Because `printf` refers to floating point code, it will make your code larger than if you use `putf` – although this only matters if space is very tight.
- The operating system normally controls things like the screen and the printer, accepting instructions from your program. If you know what you are doing then you can speed things up by bypassing the operating system - but be careful.
- Many games programmers rewrite the routines that drive the keyboard on the Amiga or PC. Increasing the size of the keyboard buffer lets users type ahead of the program, so that the next command can be entered before the first command has finished - very useful for blasting alien hordes.
- Some language implementations have routines in their libraries that may improve on those defined in the language standard. Zortech C has a library of functions called disp that handle screen display much faster than the functions in the ANSI library - but this makes your code less portable.

**Speaking a different language.**

- You can write a program in one language to get it working and then rewrite it in another for speed and efficiency, or simply because checking and debugging is more difficult in machine code than in BASIC.
- If you switch to a different language to finish a program, whatever the reason, treat any completed program as a prototype. Don't try to simply convert from one language to another – you will have to rewrite things so that they work properly. Otherwise, you lose all the advantages of the new language. It's like using German words in an English sentence – anyone listening will have to work very hard to understand and that isn't efficient. ■

## START AS YOU MEAN TO GO ON

**If the algorithm that your program is based on is not really suited to the job your program is intended to perform, then even the best written code won't be efficient. As one reader pointed out, recursion is not a very efficient technique for calculating factorials.**

**Equally, the best algorithm won't be efficient if you don't implement it properly. Ten minutes with a pen and some paper before you start can save you ten hours debugging the program.**

## TAKE A CLOSE LOOK AT LOOPING THE LOOPS

**Look carefully at any section of code that is called more than once. Any code inside a loop or in a frequently-used procedure will run again and again, so if it is inefficient the program will be slowed down again and again.**

- **Don't put any calculations inside a loop if you can call the result up from somewhere else.**
- **Don't create more variables than you actually need. If you need a temporary variable to enable you to store part of one calculation, you may be able to reuse it for another calculation.**
- **Create any temporary variables once, outside the loop and reuse them.**

# The EVENT HORIZON

**Who's doing what, with what, with whom, how, why and where...**

## THE PLACES TO BE . . .

**Virtual Reality '91** **5-6 June**
At the Conference Forum, London. Info: 071-931 9985.

**EEMA** **11-12 June**
The European Electronic Messaging Forum at the Sheraton Copenhagen Hotel, Denmark. Info: 0386 793 028.

**Portable Computing '91** **18-19 June**
At Kensington Town Hall Exhibition Centre, London. Info: 0256 83583.

**MANIFEST** **20 June**
MANIFEST, or MANufacturing Initiative For Expert System Technology, is a newly formed club which aims to encourage the cost effective application of expert systems in the manufacturing industry. Membership will cost approximately £500. For this, members can keep up to date through lectures, demonstrations and site visits. They will also have access to a database of UK expert systems applications. Meetings will take place every quarter, with the first at SD-Scicon, Milton Keynes. Info: 0276 686200.

**Multimedia '91** **25-27 June**
At the Olympia, London. Info: 081-868 4466.

**OIS IMC '91** **2-4 July**
The document image processing conference at the Wembley Conference and Exhibition Centre, London. Info: 071-931 9985.

**PC World Forum** **9-14 July**
In Moscow. Info from Terence Coe on 010 1 508 820 8122.

**International Music Show** **10-14 July**
Featuring all manner of musical equipment, from traditional to the latest high-tech instruments, the show is a perfect opportunity for musos to keep up with what's going down, man.

There will be a serious profusion of software, MIDI gear and recording equipment.

The first two days are trade only. From the 10th onwards the public will be admitted. The show will be held at Olympia, London. The entry fee is £6, or £3.50 for under 14s. Info: 071-7307852.

**The International 16-Bit Computer Show** **12 July**
At the Novotel Hotel, Hammersmith, London. Info on: 0726 68020.

**Computer Animation Competition and Exhibition** **21-28 August**
At the Amiga Centre Scotland. Info: 031-557 4242.

**Leeds Computer Extravaganza** **13-15 Sept**
At the New Exhibition Centre at Leeds University. Info: 0532 677 657.

**Business Communications Awards** **10 October**
At the Savoy Hotel, London. Info: 0800 800 847.

**Image Processing '91** **29-31 Oct**
At the Birmingham NEC. Info: 081-868 9933.

**Computer Graphics '91** **5-7 Nov**
At the Alexandra Place in London. Info: 081-868 9933.

**Desktop Cad '91** **5-7 Nov**
As above. ■

# The Insider ...

**A brief but regular look at the news and views of an industry which is desperate to be loved and then respected in the morning**

The Insider has had a hell of week. The computer world is a-buzz with rumours of who will and who will not be attending the European Computer Entertainments Show at Earl's Court or Kensington Olympia or wherever the hell it is. Sackings have been taking place, software houses have been trying not to declare product launches, life goes on as usual in an industry which makes the Ballet Rambert look calm, collected and not at all precious at all.

If you have any tid-bits which you feel should be aired in the public domain, don't write to Frank O'Connor on pages 46 and 47, write to The Insider at 30 Monmouth Street, Bath, Avon BA1 2BW.

### SUB-STANDARD

Newsagents trade rag (*surely that should be mag? –Sub*) *CTN* seems to think that following a court case which centred on the word 'Shopper', Dennis Publishing and Future Publishing are now firm friends.CTN reported a 'new Future monthly for computer buyers'. The only problem with the story is that Future isn't publishing the mag - Dennis is. The story went on: 'Future Publishing is launching a monthly computer magazine ... ' and continued '... on-going advertisments (will be run) in all Dennis publications'. Whoopses all around.

### COMDEX TOO FAST TOO FAST!

Tenners will be given for firm information on the name of the hardware manufactuer's PR man who got so drunk at Comdex that he not only attempted to interface with a hotel concierge but polished the whole thing off by re-evaluating his supper all over the unfortunate staff member.

### SHADES OF WATERGATE

The front runner as the next head of the CIA - a seat vacated by such dignitaries as William - Ollie North Who? -Casey, and George - Dan Ahhhhhgh - Bush is called William Webster Gates. Any relation to a certain Bill Gates of Microsoft????????

### AMSTAR-MIGA SHOCK

It appears from sauces (???) close to Amstrad Towers in glorious downtown Brentwood, that all the 'Straddies use Amigas because CBM's machine is thought to be better than anything .... er else ????

### A NEW TWIST ON AN OLD JOKE

Overheard at a recent Virtual Reality Seminar:
Q: How many VR programmers does it take to change a lightbulb?
A: Into what exactly?

# Golden Moments

**A look back into the history of computing with *Express*. If it happened we reported it first.**

### ONE YEAR AGO

● Commodore's CDTV was launched at the Consumer Electronics Show in Chicago. CDTV, standing for Commodore Dynamic Total Vision, looks like a video cassette recorder and is operated by a hand held infra-red remote control unit. It enables users to access textual, graphical and musical information with a minimum of fuss, and allows a degree of interaction users can focus on particular areas of a subject that they are interested in and determine the order in which information is presented to them.

When launched, the system promised games significantly more sophisticated in depth of play, sound and graphics than on any currently available video game or personal computer format'. Since CDTV is based around an Amiga 500, this was a bold claim - dedicated arcade machines already surpass the Amiga in graphics and sound. As far as depth of gameplay is concerned, we have yet to see anything written specifically for CDTV.

At the launch, Commodore talked of 20,000 units being on sale in this country before Christmas, with 200 titles available. In fact, CDTV's launch was only a month ago, and the software catalogue seems somewhat thinner than anticipated.

### TWO YEARS AGO

● Network naughtiness by Robert Morris, a student at Cornell University, resulted in his suspension. Morris, 23, wrote a program which clogged up 6000 computers in universities, corporations and military installations.

● Atari's handheld games machine was launched at the Consumer Electronics Show. Originally called the Portable Colour Entertainment System, it has more recently been renamed the Lynx. Developed by the Commodore Amiga people, it was the first handheld gaming system to give a colour display and four channel stereo sound.

# EXPRESS ON-LINE

**The *Express* guide to computing at the grass roots level this week featuring User Groups from P to Z.**

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## NEW ARRIVALS ON-LINE

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**FOLKESTONE BBS** – is an Atari ST based board that needs more callers. Call 0303 45203 between 10pm and 6.30am. V21/V23/V22/bis. Other users welcome.

**RANDOM ACCESS BBS** – 24 hours, V21/V22/V22bis/9600, HST, V32 PC, Amiga, ST, file areas, game solutions etc. Fidonet, echomail areas. Updated daily. Everyone welcome. 0282 817379.

**QUANTUM** – Supports Amiga and Atari ST. V21/V22V22bis. MNP2-5. 24 hours. Call 021 707 0681.

**SUPERBASE USER GROUP BBS** – Supporting Superbase 2&4, Windows and Superbase Professional. On-line 24 hours. 300-14.4K. HST & V32. 081 339 0096.

**SPUD'S XANADU** – Free access to usenet news and UUCP network. Many megs of free ST downloads. On-line multiuser games, all controlled by Spuddy. Call 0203 686819.

**GOSH BBS** – 0257 267186 10pm to 8am V21/V22/V23. Fidonet mode 2:250/126. Caters for all Sinclair computers and also some support for Amiga. The Northwest's only QL run Fido BBS. Z88 support coming soon.

**MY LITTLE PHONEY** – New number 0793 849044. Dedicated to Atari ST and Amiga. UK host for International Atari Distribution File Network (ADN). All Fidonet and NeST message echoes of interest to ST and Amiga users are on-line. Direct international links. Free Net Mail. Speeds V21/V22/V22bis/V32 /HST. 24 hours, seven days a week.

### PD LIBRARIES

**MG SOFTWARE** – Atari ST public domain, only 65p and £1. Send SAE for free catalogue to: MG Software, Cornerways, Beckingham Street, Tolleshunt Major, Essex CM9 8LL.

**IBM SHAREWARE CLUB** – Send blank disk for full list and details to 23 Houldsworth Rise, Arnold, Nottingham, NG5 8HZ.

**JENNIX PD** – Forget the rest, we are the best. Over 400 ST/E titles (and growing every day). Send 50p (Cheques payable to NS KLee) to: Jennix PD, 66 Abbey Road, Strood, Kent ME2 3QB.

**PC SHAREWARE** – At sensible prices. 50p to £1.50 per disk. Send disk with SAE to Rosie, 63 Springboig Road, Glasgow G32 0DB

**BROADSWORD SOFTWARE** – Atari ST PD. Send Blank disk or £1 for catalogue with SAE to Broadsword Software, Flat 4, Moreton Court, 212 Dover Road, Walmer, Deal, Kent CT14 7NB.

**SWPD** – PD software from 70p. Send SAE for free catalogue. Atari ST only. SWPD, 50 Coombe Lane, Torquay, Devon TQ2 8EA.

**THE SURREY PD CLUB** – Atari ST PD for only £1 per disk. Send an SAE to the Surrey PD Club, 25 Windmill Way, Reigate, Surrey RH2 0JB.

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**ANGLO AMERICAN SHAREWARE** – PC shareware/PD £1 per disk. Over 2000Mb of top anglo-american titles. Send two first class stamps for menu driven catalogue disk to 37 Devon Place, Newport, Gwent.

**FUTURE SOFT PD** – For the Amiga. Send disk or 99p for catalogue with a few utilities included. 122 Fairmont Road, Grimsby, ON32 8DX. Tel 0472 250524.

**PROPHECY PDL** – Atari ST Public Domain. Send SAE and disk or a cheque for £4.50 to Prophecy PD, 390 Coulsdon Road, Old Coulsdon, Surrey, CRS 1EF. We have very competitive prices.

**8-BIT PUBLIC DOMAIN** – Spectrum, BBC, Amstrad CPC and ZX81 public domain software. Send stamp and 10p for list. Public Domain, 1 Northolme Close, Grays, Essex, RM16 2NX.

**BALLY PD SERVICES** – Amstrad CPC PD software bought and sold. Colour printing and blank disks available. 5 Howarth Avenue, Church Accrington, Lancs, BB5 4AF.

**PERSPECTIVE PD** – Free Amiga PD! Don't believe us? Try! Send 25p for a printed catalogue or 60p for disk catalogue. 6 Clover Close, Cumnor Hill, Oxford OX2 9JH.

**SHAREWARE KING** – 3,000 items of Shareware for PC, plus support, membership, plus discounts. SAE and blank disk for details to C Smith, 10 Penwood Close, Westbury, Wilts, BA13 3LW. Tel 0373 865263.

**SHIELDSOFT PD** – For the Amiga. Only 75p per disk. SAE for details to 13 Churton Road, Rhyl, Clwyd LL18 3NB. Three month update. Personal service. Helpline for BASIC programmers.

### FANZINES

**THE DISK** – Issue three for Amiga users. Including Rattlecopy, PPanim, Noclicks3.6, Ski game and lots more, Free draw – win 400 utilities. Send £1 to Steven Lord, 6Stubbing Brink, Hebden Bridge, W Yorks.

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## USER GROUPS P TO W

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**PSION ORGANISER** - Mike O'Regan, IPSO, 130 Stapleford Ln, Beeston, Nottingham NG9 6GB. Tel 0602 735482

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**QUANTA, QL AND THOR USER GROUP** – The Corner House, Loxley, Warwick, CV35 9JT. Tel: 0789 842543

**RESEARCH MACHINES** - Steve Rochford RM National User Group, George Stephenson High School, Southgate, Killingworth, Newcastle NE12 0SA. Tel 091-268 2002

**REVELATION** (PICK) — write to Malcolm Frame, UK Revelation User Group, 136 Saint Albans Road, Watford WD2 4AE or Telephone 0923 35515

**R:BASE** – write to Mrs Tansy Beal, R:Base User Group c/o Room A2044 BBC Woodlands, 80 Woods Lane, London W12 0TT. Telephone 081-576 7187

**SA40** User group – write to Roy Williams, 17 Grove Road, Acton, London W5 6AW.

**SANYO MBC-550** - M H Syed, Wistaria, 53 Acacia Grove, New Malden, Surrey KT3 3BP. Tel 081-942 9009

**SCHNEIDER EURO PC** - Alex Kefford, SEPUG, 11 Crabbet Road, Three Bridges, Crawley, West Susex RH10 1NF

**SCIENTIFIC PC USERS** – write to Tim Bunning, SPCUG PO BOX 17, Retford, Notts DN22 6BQ Tel 0777 709009

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**SMART SYSTEMS USERS** – Francis Barton, Basement Holy Rosary church, Louis Street, Chapeltown, Leeds LS7 4BP. Tel 0532 629202

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**SOUTH 16 AMIGA USER GROUP** – the UK's number one Amiga user group. For more information send SAE to South 16, PO box 16, Southampton, S09 7AU. Now!

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**SPANDEFANG SOFTWARE** – 68000 AC Coders magazine. Send £2 for sample to 4 Cambridge Terrace, Harrogate, North Yorshire, MG1 1PN. Atari, ST, IBM PC. 3.5 inch disk included in price.

**SPECTRUM PLUS 3 USER GROUP** – monthly magazine. 57 Lovers Walk, Dunstable, Bedfordshire, LU5 4BG

**SPECTRUM DISCOVERY CLUB** – magazine on disk for the Opus Discovery Disk Drive and the Sam Coupé. BD Mumford, 57 St Saviours Road, West Croydon, Surrey, CRO 2XE

**ST USER GROUP** – Send an SAE for a news letter to ST User Group, Ben Dobson, 1 Ryedale Way, Selby, North Yorkshire YUO8 9PB.

**STEN** – the ST enthusiasts newsletter issue three now ready. Send a disk and SAE for your copy now. Postal Trivia League starting. Interested? Write to 14 School Road, Morningside, Newmains.

**STOS** magazine, out every month. Send an SAE for full details to 11 Shore Crescent, Bishops, Waltham, Hants SO3 1DZ

**STOURBRIDGE ATARI USERS' GROUP** – for 8-bit Atari computers.Send SAE to LK Taylor, 99 Bredon Road, Stourbridge, West Midlands, DY8 4LA. Telephone 0384 379575

**STUPID FLOWER PD** – new library for ST users. Send an SAE for a free catalogue to SFPD, 3 Read Mead, Glastonbury, Somerset Ba6 8ON or call 0458 35027 and ask for Matt.

**SUPERPROJECT** - Geoff Groom, 3 Sunnymeade Ave, Carshalton Beeches, Surrey, SM5 4JA.. Tel 081-643 3336

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**TELECOMMS USERS GROUP** – Interested in forming a Business Users Telecomms Club? If so then contact John Lever, Systems Services, Little Thatches, Rushden, Nr Buntingford, Herts, SG9 0SH. Tel 076 388393

**TEXAS** T199/4a - Peter Brooks, International TI User Group 96 Banbury road, Oxford OX2 6JT. Telephone 0865 510822.

**THUNDERNEWS** – CBM 64 user magazine on disk/tape. Send sae for details and competition to 159 Hough Road, Wallsall, West Midlands WS2 9BG

**TIUGUK** – TI99/4A user group UK for S/W on disk, tape and module. Offers magazine and help. Write with SAE for more details to Peter Walker, 24 Bacons Drive, Cuffley, Potters Bar, Herts EN6

**TRANSPUTER** - Howard Oakley, Transputer User Group, Brooklands Lodge, Park View Close, Wroxall, Ventnor, Isle of Wight

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**TYPECAST PDL** – Atari ST/STE PD. Solely for DTP, WP, Art, clip art, no games. Send disk and SAE for disk catalogue to 31 Hartfield Crescent, West Wickham, Kent.

**UNIX USERS** – UKUUG Secretariat Owles Hall, Buntingford, Herts, SG9 9PL. Tel 0763 73039 /73255 (fax)

**VENTURA PUBLISHING** - VPU (Ventura Publisher User group) Linda Liddell VPU c/o LLA Lound House, Forncett St Mary, Norfolk, NR16 1JP. Tel 0508 41580

**WAKEFILED AND DISTRICT AMIGA USERS** – interested in forming a local Amiga users' group? Contact Eddy on 0924 361101.

**WHITE HEAD PDL** – Atari ST PD from £1.40 per disk. Send two second class stamps for latest list to Hakan Akbas, White Head PDL, 15 Cavendish Mansions, Clapton Square, London

**WORDPERFECT** – Michael Norman, Wordperfect User Group (UK) Dove Barn, Manor Farm, Wootton Woodstock, Oxon, OX7 1DX. Tel 0993 812 670

**WORDPERFECT** – Dr Ian Barton, A Perfect World, High Rigg, Alma Rd, Tideswell, Derbys SK17 8LS. Tel 0298 871 925

**NEXT WEEK BULLETIN BOARDS**

## SPOTLIGHT ON ASPECTS BBS

*Express On-line* moves into Dave Gorski's Aspects Bulletin Board this week to give on-line readers a place to leave messages where they do not have to pay a subscription or horrendous on-line charges.

We picked Aspects, which is based in Salford, because it is a well established bulletin board, is run efficiently and has access to a network of other boards with which it exchanges messages on a daily basis.

Aspects runs on a pair of PCs and the sysop, Dave, is prepared to chat to any user about setting up areas of special interest.

If you already have a modem and want to join the new *Express* conference, dial into Aspects on 061-792 0260 (V21,22,23,22bls 8N1).

## DAFTEST AD OF THE WEEK

We receive some pretty weird ads from time to time here at *Shopping Express*. So here is the first in a series of genuine cookie classifieds:

COMPUTER literate daughter of six. Swap for 40Mb hard disk. (She hogs my ST). Good condition, very lively, good talker. Self starter. Write to (Name and address witheld in the name of decency and legality etc ...)

## SHOPPING EXPRESS BUYERS' GUIDE

While *Shopping Express* is undoubtedly the perfect way to track down the best bargains in the computer world, many people are still wary of buying products via mail order or through personal ads. This is probably because usually you are not able to have a look at what you are purchasing before you hand over your money.

We do everything in our power at this end to make sure that all the advertisements we run are above board. But here are a few tips designed to help take the risk out of buying via mail order or over the telephone.

- Be precise in describing what you want to buy. Leave no room for error. Feel free to go overboard in double checking details – make, model, specifications, colour, size, the page number and name of the magazine in which you saw the advertisement etc.
- Confirm the exact price of the article you are buying. If you are phoning a company check if there are any hidden extras, such as postage and packaging.
- Check how the item will be delivered to you and how long it should take. This is especially important with reader ads where delivery details are rarely mentioned.
- If you are writing off for the product keep copies of all letters. If you are phoning, note down details of when you phoned and who you spoke to.
- If possible enquire about guarantees and servicing. Check the supplier's policy on returns and refunds. With reader ads, it is best to make the effort to see the item personally before you hand over money.
- When possible pay by credit card for items over £100, as this provides extra cover under the credit card companies' own insurance schemes. Otherwise use a crossed cheque or postal order. Avoid sending cash at all costs.

# WHOLE WIRED WORLD

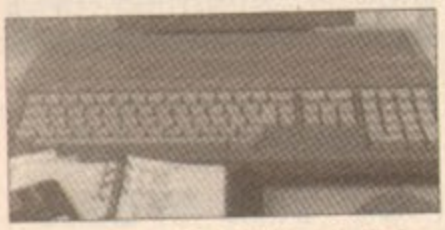
**Globe trotting computer hack Steve Gold has been sniffing out more of the weird and wonderful from the world of computing. This week Sony gets into CD-ROM, Hayes has called its lawyers, and one of America's, top ST mags takes a dive...**

## ST MAG DIPS OUT

After several days of conflicting claims, *Start* magazine, the United States based bi-monthly publication for Atari computer users, has called it a day and announced it will not publish another issue until further notice.

"*Start* has suspended publication pending a sale of the magazine," said editor-in-chief Tom Byron. A sale is said to be in the works with unidentified parties interested, but no timetable is being discussed publicly.

Byron added that the next issue, the June/July edition, is complete. He was waiting to print the mag when news came through that the unfortunate suspension was in effect.



*• Atari ST loses a friend with Start's demise.*

The resolution of the fates of subscribers and the many writers to whom *Start* has owed monies dating back to mid-1990 is not known or predictable at this point.

If the magazine is sold it may be that those owed money will be paid from the resultant income, or the new owner may assume the responsibilities of the company. A third possibility is that there could be a liquidation and sale of assets held by *Start* itself, although cash raised would be negligable.

*Start* has long been a favourite read for serious users of Atari kit in the US, especially the ST. But over there, Atari's machine is of minority interest.

## SONY GRABS CD-ROM WITH HOME LASER LIBRARY

While CD-ROM drives cover the face of the earth, actual software is something of a rarity. Now Sony America has announced a "laser library", a series of CD-ROM disks aimed squarely at the home computer user.

Sony plans that the six initial disks in the range will be bundled with its own CD-ROM drives, at least in the US. With software, hardware and mounting blocks for almost any PC, the system costs a reasonable $699.

Included on the disks are a family encyclopaedia, a reference library, information on mammals, a world atlas, nursery rhymes and information on numerous foreign languages.

Sony reckons CD-ROM has great potential in the home, and is planning a big push with its laser library. Essentially, the firm believes that while hundreds of thousands of American families own a PC, very few use their hardware and software as information databases.

*• CD-ROM: Could be a family affair.*

## INFRA-RED PRINTER LINK

Infralink Datatechnik of Neuss in western Germany has announced Infralink, an infra-red system for linking computers to printers. Each receiver is about the size of a trackerball and attaches to PC style parallel ports.

Unlike competing systems, Infralink is transparent as far as computer software is concerned. That means it's as easy to use as a parallel printer cable.

Each $495 unit features eight channels, meaning that up to eight computers can 'drive' a single printer on an Infralink network. Alternatively, a single computer could drive up to eight printers or similar parallel port driven peripheral.

Despite the system's German origins Infralink was actually unveiled at the Comdex show in Atlanta a few weeks ago. It uses a new propriety infra-red LED technology that casts a diffuse signal, so eliminating the need for receivers to be aimed at one another.

The range of the signals is about 21 feet if the units aren't pointed at one another, or up to 210 feet if they are. The signals can be bounced off any type of ceiling. You can contact Infralink Datatechnik on 010 49 2101 35053.

## IT'S LANTASTIC

Local area networks are all very well, but linking disparate devices, modems, printers and portable PCs can work out to be quite expensive. That's where Artisoft's Lantastic system comes into the picture.

Lantastic links up almost any device into a Novell compatible network, and all for $595.

The heart of the network is a shoebox sized unit that has Ethernet, twin serial and single parallel ports fitted as standard. The PC plugs in via a PC card connector as with any other external peripheral. Contact Artisoft on 0101 602 293 6363.

## CD SAMPLES

Mediavision, a small Reemont, Calfornia based company has unveiled its Pro Audiospectrum card system.

The card takes sound samples from a variety of source and plays them back to digital standards.

Unlike competing digital sound systems, Mediavision's system can adjust the sampling rate from 8KHz right through to 44KHz, which reaches CD quality levels. Despite the technological performance, the system prices in at a very reasonable $389. Hidden inside the box is a two voice FM synthesiser, SCSI access port and a one watt per channel amplifier. Contact Mediavision on 0101 415 770 8600.

## CAD GOES AMIGA

Ditek International has announced versions of its *Dynacadd* Cad/Cam software for the Amiga and PC. The package was previously only available on the Atari ST.

Since 1988, when the ST version was released, there has been almost no competition for the program. The company developed a version for the PC to allow ST and Amiga users to import files onto the PC environment.

*Dynacadd* is billed as a general purpose CAD (Computer Aided Design) package and is highly thought of in the ST community. It handles 2D and 3D drawings, yet retails for just $995 - small beer compared to the competition. Call Ditek on 0101 416 479 1990

## TAKE A VANTAGE

ATI Technologies of Ontario has released the Vantage card. Unlike the plastic card of the same name from the Trustee Savings Bank (TSB), this Vantage card boosts Windows performance by up to ten times that of other VGA cards.

According to the Canadian company, a 286 based PC equipped with the $495 card can outperform a 386 based system on its own. In Super VGA mode the card will support images of 1,026 x 728 pixels in 16 colours, and 800 x 600 pixels in 256 colours. Screen updates are fast, thanks to 72Hz screen refreshes. Contact: ATI Technologies on 0101 416 756 0718. If launched here it would probably cost £299, although, at present, no distribution deals have been finalised.Watch this space. ■

## HAYES CHASES MODEM 'CHEATS'

Fresh from its legal victory last January, Hayes has filed a similar set of lawsuits against several more modem manufacturers - Zoom Electronics, Zenith, Cardinal, Ventel and Packard Bell.

As with the infamous lawsuits against a trio of modem manufacturers in January, this latest round of legal actions alleges infringement of the company's US Patent number 4,549, 302. Hayes' original actions against Everex, Omnitel and Ventel alleged that the companies concerned had used the +++ escape sequence without licensing the concept. Hayes left the courtrooms with a resounding victory.

So called 'Hayes compatibility' is a strong selling point for any modem manufacturer, and the eponymous firm takes its patents very seriously indeed. Any rivals attempting to use Hayes' patented technology without paying for a licence can expect to hear from the company's lawyers. Such licence deals are not all that expensive.

*• Hayes modem: Strict on patents.*

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(And get to play a lot of games....)

# THE PD COLUMN

**Frank O'Connor, our man with nothing to his name but a fist full of five pence pieces, goes in search again for the best in lovely cheap Public Domain software...**

Mac owners are probably already aware of *SoundMaster*. This is a small piece of software which you install on your desktop allowing you to play digital samples while you perform various actions on the Mac.

For example, you could have a dawn chorus play on your Mac whenever you switch on. Or you could have our old friend Arnold Schwarzenegger's unmistakeable tones blaring out "I'll be back" when you shut down. The range of samples available is huge, including snippets from popular movies and TV series. *Star Trek* seems to be the most popular source of digitised material, with "He's dead Jim" and "Captain to the bridge" being heartwarming quotes.

**The program can be fun giving your Mac the human touch**

The program isn't particularly useful, but it can be tremendous fun giving your Mac a bit of a human touch. It's very easy to install, you just put it in your System Folder and the option can be chosen from the control panel.

The office fave is the burp as you eject your disk taken from an American bulletin board with Mac samples from the film *Bill and Ted's Excellent Adventure*.

The program and the accompanying sound files are brought to us by Fantasia Shareware.

## IBM SWAGORAMA

IBM PC and compatible owners will no doubt be rather amused to hear that Fantasia also supplies a great deal of software for the PC. This includes lots of worthy educational, business and entertainment titles.

*The Wizard* games disk contains some neat puzzle games with enough variety for all but the most demanding customer. The most financially astute among you will probably appreciate the pools predictor. This program is one of those dubious get rich quick jobs. All it does is reduce the random element when choosing league teams.

It is by no means a foolproof way of winning the pools but it does give you something to think about when you are waiting for the results on a Saturday afternoon. The boys at Ladbrokes don't seem to be all that concerned anyway.

Fantasia's range of shareware is quite astounding. Look out for some excellent disk utilities and a variety of business software.

## AMIGA ARTY PRANKS

Amiga art is looming large on the PD horizon this month. Amiganuts United sent in a disk containing a competition of sorts. The disk contains several pieces of artwork, your job I suppose is to view them and decide which is best.

*• Groo: PD is big on Amiga fantasy arts.*

The disk called the Imp 666 disk, contains some mediocre as well as gloriously attractive artwork and is certainly worth a look. Some of the pictures are *DeluxePaint* files, while others are beautifully rendered HAM images.

One of the nicest pics is a *Lord of the Rings* style elf. Very cute and full of character. The image seems to have been rendered in freehand, but the range of colours and detail makes it look quite spectacular. Nice to look at, shame there's no music there, though...

Also available on the Amiga from Amiganuts is a rather spiffy *Thrust* type game. Featuring lush graphics and sound, it borrows ideas from lots of other games and combines them to produce a rather impressive shoot-'em-up. Called for no apparent reason *Blue House*, the game has you flying a pointy little spacecraft around a futuristic maze of freakish starship components.

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and ask for Phil or Shaun

Like *Thrust*, your craft is affected by gravity, rotation and, needless to say, thrust. You spend most of the initial stages of the game getting to grips with the tricky control method.

Compensating for harsh gravitational effects is a lot more difficult than it sounds (actually, it sounds very difficult).

Well presented and beautifully programmed, this addictive little title should keep you frantically banging away well into the wee small hours.

## AMIGA MAG BLAG

Without a shadow of a niggling itsy bitsy teeny weeny bit of a doubt, the best Amiga disk magazine you will ever see is *Newsflash* from Newsflash UK. The disk contains some really up–to–date news on a wide range of topics, including Amiga hardware, games and PD.

Also included are some corking

• *Always lots to see and do with Newsflash.*

music and graphics demos. Some of the demos are from the most famous demo houses and the quality shines through. Fair enough, news and demos. You've seen it all before, but in this "magazine" you get the added advantage of free PD software. Well, PD software is free anyway, so I suppose you could say it's a PD disc with a free magazine.

The software includes disk utilities, music handling software and every now and then the odd game. Some of the stuff on the disk is very impressive, but the magazine itself is well written and highly informative. The presentation is excellent and the icon driven desktop environment is simplicity itself to operate, even by the Amiga's standards.

The magazine comes on two very packed disks which gives you some idea of the size of the thing. All the way through, you have the option of background music.

This music is a very nice rendition of an old Genesis track that'll have hippies going all nostalgic. If however, you have a standard A500, the music means that you won't have enough memory for some of the applications on the disk. You can turn it off and everything will run quite happily.

The magazine is already on its 12th issue and has garnered quite a following. You'd be a mug to miss it, unless of course you don't actually have an Amiga, in which case you're onto a definite loser.

Last on this disk is a fun program called *Mugshot*. It runs only on mono machines and is basically an identikit program featuring a series of digitised photo sections. It doesn't have much practical use, and I don't see Scotland Yard subscribing, but it is a laugh. ■

## WHERE TO GO FOR PD

**Amiganuts United can be found loitering with intent to release spiffy Amiga PD at:**
**Amiganuts United, 169 Dale Valley Road, Hollybrook, Southampton SO1 6QX or Tel. 0703 785680.**

**If you want to get hold of the Newsflash disk mag, then contact:**
**Newsflash UK, 25 Fairfield Mt, Ossett, West Yorkshire or Tel. 0924 265593.**

**The chaps at Fantasia Shareware are very helpful and can be contacted at:**
**Fantasia Sharware, PO Box 1254, Compton Martin, Bristol or Tel. 0761 221585.**

**Caledonia PDL supply high quality ST PD and should be contacted at:**
**250 Oldtown Road, Hiltern, Inverness IV2 4PT or Tel. 0463 225736.**

## SOME ATARI ST ANIMATIONS FOR BUDDING WALT DISNEYS

**If ST art is the thing that gets your pulse racing, then maybe you should check out Disk AG 0036 from Caledonia PDL. This baby contains two really rather special ST packages, both for budding Picassos and Pollacks.**

**The first, *Jet Paint*, is a standard paint package in the mould of *Degas Elite* or *Neochrome*. It features the usual features like fill and airbrush, but can take advantage of the STE's enhanced colour handling features. It really is very slick and extremely polished and runs rings around *Neochrome* (cue tons of letters from outraged and loyal *Neochrome* owners).**

**Even better however, is a package called *Sprite Studio*. This is a fairly basic art utility with the added advantage of a really good sprite animation facility. This makes small detailed animations an absolute dream to create. It is very simple to use and even beginners will be churning out animations in no time.**

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# FACE THE FAX

• Quefax is a little too expensive to simply be the ultimate convenience product for people too lazy to walk from their desk to the fax machine. So what else can it do?

**As companies increasingly rely on fax machines for their paper-based communications, bottlenecks around the office fax are a common problem. Dave Golder looks at a system which could provide a solution.**

As you stand in line for the fax and the bloke three people in front of you tries for the umpteenth time to get the machine to connect with an uncommunicative counterpart somewhere out there, you might begin to fantasise about being able to send a fax without ever leaving the comfort of your office chair.

With the advent of electronic mailing systems this fantasy has become a reality. Systems which make use of computer communications networks allowing faxes to be controlled from your keyboard have been developed. One such system available for the Macintosh is Quefax.

## CUT OUT THE MIDDLE MAN

Basically, Quefax cuts out the middle man by sending a fax directly from a user Mac, so there is no messing about obtaining hard copies from the laser printer. However, it can do a lot more besides and really takes the frustration out of faxing, but at a price.

The major advantage of Quefax is that a number of users can all be connected up to the system via an electronic mail network. This allows for faxes to be queued up in a similar way to documents waiting to be printed on a laser printer. If you send a fax from your Mac and the fax machine is already in use, then the information you want to send will be stored in the fax-server (see box below) until the fax is free.

You are notified that your fax has been sent successfully by a message sent back to your Mac from the fax-server via the mail network. Similarly you are told if there have been any problems – such as the fax machine was not able to connect with the receiving machine – so that you can attempt to send it again later.

However, you can also set up Quefax so that it will automatically try to send the fax again if the first attempt has been unsuccessful. This can be immediately after the first attempt or following a predetermined delay time. You can also program Quefax to give up attempting to connect after so many unanswered rings from the destination fax.

Faxes need not be sent immediately either. You can set up a delay so that Quefax will send the information at any time you choose. So, for example, you could set it up to send a document on 3 December 2050 if you really wanted to. A more practical use of the delay function is to send faxes at night, thus taking advantage of cheap rate phone charges.

**You can set up a delay so faxes can be sent at night, taking advantage of cheap rate phone charges**

Other useful functions are the ability to send out the same fax to a number of addresses at the same time, automatic hard copy printing of outgoing faxes and a comprehensive logging system detailing the time a fax was sent, its length and destination. It is also very easy to set up impressive, professional-looking header pages The output quality is very impressive because the faxes are imaged electronically rather than optically, so the definition of the received fax is greatly increased.

While the system is very complicated to install – though thankfully 4-Sight will do this for you – it's actually very simple to use. You access the 'Send Fax' option you simply press SHIFT, OPTION and 6 and a window appears similar to a print window. From there on the instructions are intuitive and easy to follow and a document will be ready to be sent in less than a minute.

## COSTLY CONVENIENCE

The only real drawback with the software is that it has problems with characters which have been rotated; the definition of these characters on the received fax is not very good. However, the company is working to rectify this. Also, if you want to send a fax quickly, the queuing system can be annoying, and even if there is no queue, it can take minutes for the document to make its way around the network system to the fax machine.

The major drawback is the cost – Quefax is a lot more expensive than a normal fax machine. To make it worthwhile you will need to have at least 10 people needing to use the fax constantly, otherwise it would be cheaper to buy them individual faxes. Plus, you will probably find that you have to find an extra Mac to function as the fax server (see below) thus adding to the cost. Also, Quefax will only work with the certain line of fax machines (STT faxes from Sweden) so if you want to upgrade from the rather basic machine supplied with the software you are very limited in your choice.

Impressive, but strictly for companies with serious faxing problems. ■

*All Quefax bundles are supplied with an STT 530Q Fax Machine. Prices range from £2,359 for a 10 user licence to £6,679 for a 100 user licence.*

*For Quefax with Quickmail included prices range from £2,760 to £10,277. Quefax is available from 4-Sight. For further information call 0202 764401.*

## WHAT YOU'LL NEED TO SET UP YOUR FAX NETWORK

Quefax is an electronic mail-based system which works alongside either Quickmail or Microsoft Mail E-Mail systems. For businesses that do not already have an electronic mail system Quefax can be supplied bundled with Quickmail.

On a multi-user Quefax network one Mac will be the mail server – as with any electronic mail system – while another will run fax-server software; this will be the one that manages the fax machines and stores up the pending outgoing faxes in a queue.

While a Classic, Plus or SE can perform the mail server function, for the volume of faxes which would be necessary to make a Quefax financially viable you will really need a II series machine or an SE/30.

Similarly, the fax-server software – which has to be running constantly – will run in the background under multi-finder, but you will require an SE/30 or a series II Mac to be able to run other applications in the foreground. Even then what you can do on the fax-server machine in terms of other applications is limited by the amount of memory you have.

We ran the software on a IICX with 8Mb with only three or four people using it to send faxes, and the machine was constantly running out of memory. This would seem to suggest that a dedicated machine is preferable.

## WORTH QUEUING UP FOR?

FOR

- ▲ Cuts down on wasted time.
- ▲ Very easy to use.
- ▲ Can cut costs by sending faxes at cheap rate times.
- ▲ Extremely high quality output.

AGAINST

- ▼ Very expensive – about 20 times more than an average fax machine.
- ▼ You need one Mac as a dedicated comms server.
- ▼ It will only work with certain few fax machines.
- ▼ The output quality of rotated text is poor.

# BUBBLING UNDER

● OUCH! Prepare to experience *Agony*, a horizontally scrolling blaster from Franck Sauer, Yves Gorlet and Marc Albinet (perhaps better known as the team behind UbiSoft's *Unreal*) with six levels including marshes, forest, sea and highland, in search of cosmic energy. aliens, end of level guardians. Four-layer parallax scroll. flying geezer or change into an owl or become a ghost, each with its own thing, end of this year, price £25.99 on Amiga only.

● OOH! The release of Psygnosis' *Lemmings Data Disk* has been put off until September, at a price still to be confirmed. A series of such disks was planned, but this will actually be the first and last, the reason being author DMA Design is currently putting together a complete *Lemmings Construction Kit* for release this Christmas. *Lemmings II* will now appear early next year.

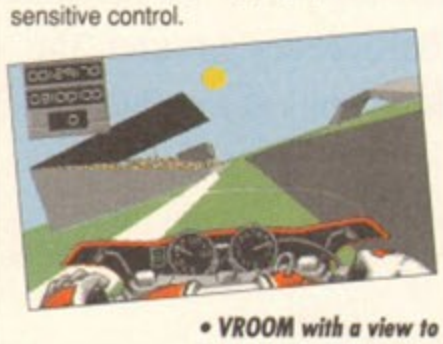
● OOYAH! At last, Psygnosis' sequel to its arcade adventure *Barbarian* (which is not to be confused with Palace's beat 'em up of the same name) is due for release this autumn, five years after the appearance of the original. The blend of arcade adventure and fighting action has been retained in this sequel but enhanced by replacing the over-complicated mouse-based interface with complete joystick control. Designed by its artist, Garvan Corbett, and programmed by Mike Chilton (who has *Stryx* to his credit), *Barbarian II* boasts over 2,000 frames of sprite animation, most of which is concentrated on relating the different moves for the available weapons such as swords, bows (and arrows) and spears. You can do battle through villages,dungeons and castles on the Amiga and Atari ST for the sum of £25.99 each.

● OOH-EEH! Still with Psygnosis, the Liver bird has launched its own budget label, *Sizzlers*. From July the company's back catalogue will slowly but surely appear priced at £9.99 on Amiga and Atari ST. The first batch comprises the arcade adventure cum shoot-'em-up *Stryx*, the Crossfire-inspired *Ballistix*, and DMA's critically acclaimed blaster *Blood Money*.

# Games Week

**Hubble, bubble, toil and trouble ... that's Gary Penn, with another cute collection of hot news, rave reviews and terrific tips.**

Neil Jackson called it "an all-action game, which definitely gets the blood pumping nicely," in Games Week, Express 117. He was, of course, referring to Gremlin Graphics' motorcycle simulation ***Team Suzuki***, which only ever managed to make my blood boil when it came to getting to grips with the sensitive control.



*• VROOM with a view to easier riding in the Team Suzuki Trainer Disk.*

I wasn't alone it seems, for Gremlin has seen fit to lend a hand with the ***Team Suzuki Trainer Disk***.This new cut-down version is slower than the original - at least it is until the benchmark lap time is beaten. The time decreases and the overall speed increases, up to the point where the rider is considered competent enough to move on to the real thing. Does it work? I'm afraid I'm still in training ... The ***Team Suzuki Trainer Disk*** comes free in all recently packaged Amiga and Atari ST ***Team Suzukis***, or are available (free again) direct from Gremlin at Carver House, 2-4 Carver Street, Sheffield S1 4FS.

● ● ● ● ● ● ● ● ● ● ● ●

One of Psygnosis' imminent releases is a shoot-'em-up entitled ***Amnios***. It's a fight through 10 planets, with humanoids to be rescued, which is nothing new in itself, except these are living planets, each with a brain and a heart and other vital organs. This throws up another interesting innovation ... The aliens created by a planet are affected by the type of organ destroyed. Take out a planet's brain forexample, and the aliens produced won't be so intelligent. ***Amnios*** is released at the end of July on the Amiga only for £25.99.

● ● ● ● ● ● ● ● ● ● ● ●

*• Skate, prattle 'n' roll with Rolling Ronnie.*

Rolling Ronnie is an errand boy. But he's not your run-of-the-mill gopher, oh no. He's a cool roller-skating cat who knows where he's at, be it the park, the city streets, an office complex or even a sewer. For these are four of the nine scenes found in StarByte's ***Rolling Ronnie***, to be released this September through Virgin Games Software. It's a variation on the run 'n' jump theme, only here there's cash to be earned by running errands for the odd-ball locals. Rolling Ronnie's coming on the Amiga, Atari ST, IBM PC and compatibles, and the Commodore 64. Prices have yet to be confirmed. ■

## TOP 10 SIXTEEN-BIT GAMES

| THIS WEEK | LAST WEEK | TITLE | PUBLISHER | MACHINE |
|---|---|---|---|---|
| 1 | 1 | *Eye of the Beholder* | US Gold | AG |
| 2 | 3 | *Monkey Island* | US Gold | ST AG PC |
| 3 | 7 | *Fantasy World Dizzy* | Code Masters | ST AG |
| 4 | 4 | *Lemmings* | Psygnosis | ST AG PC |
| 5 | NE | *TOKI* | Ocean | ST AG |
| 6 | NE | *Kick Off - Winning Tactics* | Anco | AG |
| 7 | 5 | *Defender of the Crown* | Mirror Image | ST AG PC |
| 8 | 8 | *North and South* | Digital Integration | ST AG |
| 9 | 6 | *Gods* | Renegade/Mindscape | ST AG |
| 10 | 9 | *Steve Davis World Snooker* | CDS | ST AG |

ST = Atari ST AG = Commodore Amiga PC = IBM PC or compatible OT = Other
Chart compiled by Gallup. © European Leisure Software Publishers Assoc.

GAMES REVIEW

# EXILE

**Audiogenic • Amiga £25.99, Atari ST £25.99, Commodore 64 Cassette £11.99,Diskette £15.99**

Lately the old music biz is going through one of those re-release and remix phases, so now our beloved software side is doing the same. *Exile* however is neither a re-release nor a remix. It is an extension of an old concept though, namely any of those coin-operated style of intertial thrusting and shooting thangs such as *Asteroids or Gravitar* (remember *Firebird's Thrust*?). And speaking of *Thrust*, it's no coincidence that one of the two guys behind *Exile* - namely Jeremy Smith - wrote it. Mr Smith's partner in code is Peter Irvin, the chap behind that classic BBC blaster *Starship Command*. It just so happens that the only thing either of them has written since then has been *Exile*.

But wait. ... wasn't *Exile* available some three years ago on the BBC via a different publisher? Indeed it was. Now it's on three new formats, with a possible Sega MegaDrive console version to come. *Exile* is arguably (but don't bother) the first true arcade adventure. It successfully marries two seemingly widely contrasting themes, those of arcade action and text adventure-style puzzle solving, but in a far less linear way. And right smashing it is too. It's got thrusting. It's got shooting. It's got a huge every-way scrolling planet to explore. It's got objects to collect and use. Hell, it's got more than the lot. What makes *Exile* so smart is the fact that its environment feels so ... well, real.

Apparently the reason for this is the fact that the authors chose to create a model of sorts which incorporates fundamental laws of physics. Objects have individual masses, which means they are affected by gravity in different ways. Most of the puzzles make use of the related effects and the unique level of interaction between objects. Whatever the reason though, it feels divine, especially when you experience some of the interesting inertial effects. But that's not all. The planet's inhabitants have distinct characteristics and seem to have individual levels of intelligence which make them behave

*• Most of the planet's living inhabitants are scared of you and so often attack. Vicious birds try to claw your eyes out (but they don't like naked flame), and swarms of killer bees don't take too kindly to being shot at.*

## PLAYING TIPS

### INTERNATIONAL KARATE +
**System 3 • Amiga, Atari ST**

It's crazy but true... during play, get knocked down then press the SPACE BAR followed by the joystick firebutton. You should now find that for the rest of the round in question you are invulnerable. Repeat whenever necessary. Tap out any of the following codes during play to activate the desired effect... FREZ PAC FISH BIRD PERI Try typing any of these three 'norty' codes for 'amusing' responses ... F*CK C*NT W*NK. Finally, type any of the following to read messages from the author to his chums ANBK ANGL EDHK FOOK GLZP GPZP SHAH SIMR STEW SUNL TOTO

### RICK DANGEROUS
**MicroStyle • Amiga, Atari ST**

Enter POOKY instead of your name in the high score table. You can now start playing from any level you have previously completed.

### SWITCHBLADE
**Gremlin • Amiga, Atari ST**

Enter POOKY instead of your name in the high scoretable. Now when the word SWITCHBLADE assembles press a number key from'1' to '5' and press the joystick firebutton to begin play from thebeginning of the relevant area on the map.

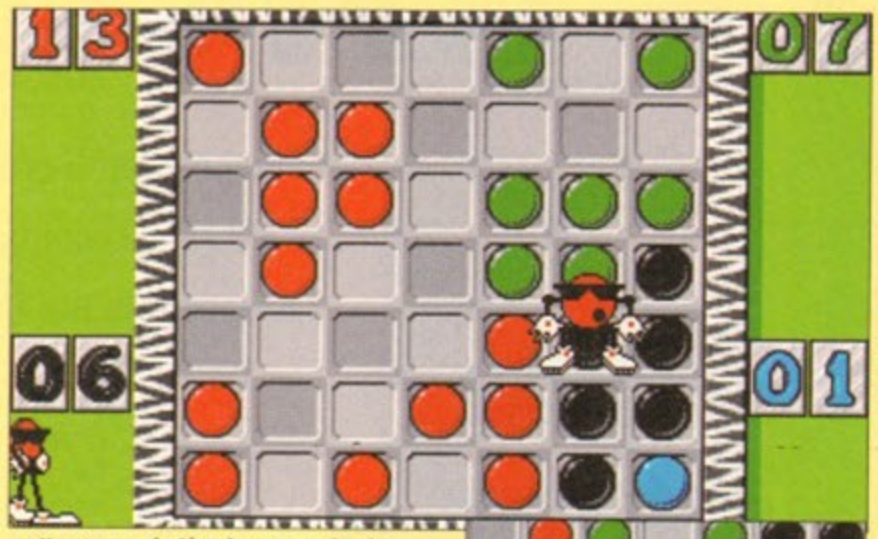
PLAYING TIPS

## SPOT Leisure Genius • Amiga, Atari ST, IBM PC & Compatibles • £25.99

Well well well, here it is at last - the computerised board game which was almost released as *Infection* on the 16-Blitz label at a budget price of £4.99 but ended up on the NES and 16-bit home computer formats as Spot and in the arcades via Leland Trade West as *Attax*.

*Spot* is the character used to sell the 'un-cola' 7-Up in the States. His appearance here serves no purpose other than as a sales device for Virgin Mastertronic Inc, the American arm of Virgin Games Software which in turn owns Leisure Genius. In fact, the character's irritating antics (he performs time-consuming animations for each move) interrupt the flow of play to the extent that you could be put off playing *Spot* for good. Thank heavens then that someone's had the sense to include an option to remove the little bleeder from the board, for *Spot* turns out to be a highly entertaining computerised board game which couldn't be reproduced any other way without great difficulty.

The rules are simple, as they usually are in the best board games. Between two and four players (any or all of which may be human- or computer-controlled) aim to fill the board with as many of their pieces as possible. Each player begins with a single piece in each corner. A piece can be duplicated on an adjacent square or physically moved with a jump over an adjacent square. Any opposing pieces adjacent to the landing site of the piece in play are changed to its colour. And so it goes on until the board is full. Strategic possibilities are in abundance and vary depending on the number of players. For example, two human-controlled players can gang up on another in an attempt to remove them from the board. Computer-controlled players are a little more objective in their approach, though they do represent a tough challenge.

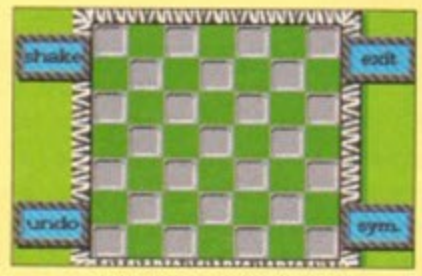



▲ *Here we see the Blue player trapped in the corner. He won't be able to move unless a hole is created by his opponents.*

▲ *At last, Blue is free to play. In fact, he's in a position to creates even new Blue pieces at the expense of the other three players. A single jump to the square diagonally opposite does the trick.*

*Spot* has many small presentation flaws (such as no form of congratulatory sequence for the winner - a terribly disheartening 'GAME OVER' message is displayed and you have to look at the scores to see who won), but it's original and playable enough to last a lifetime.

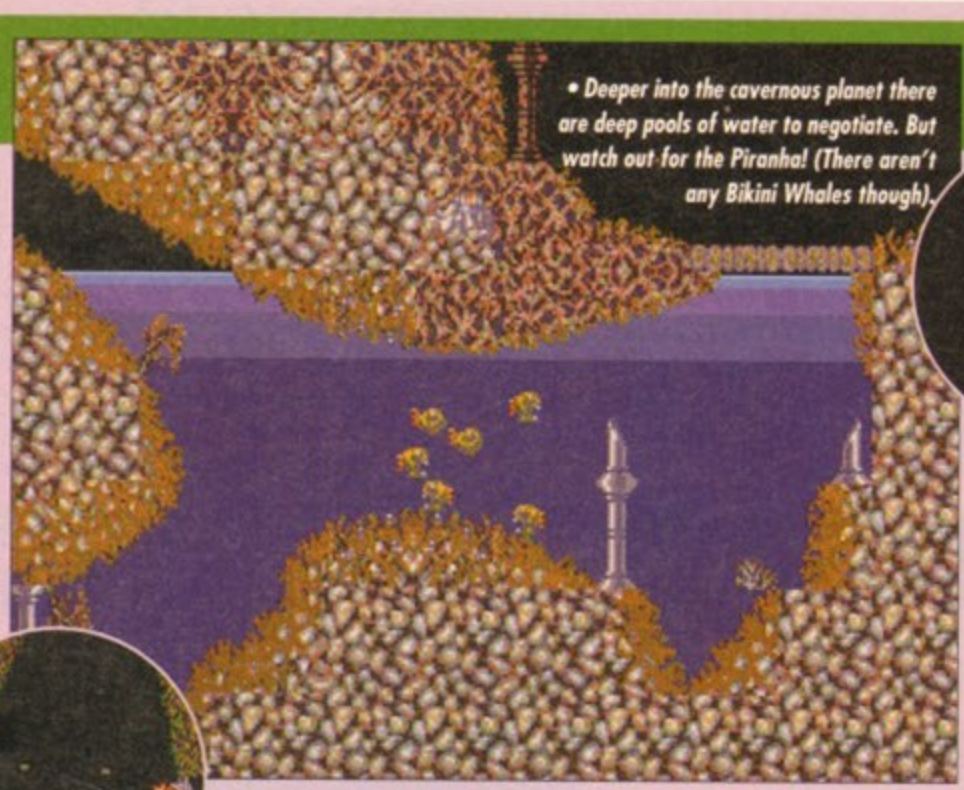
Don't miss it.




▲ *The interesting variations on the theme are created by placing holes in the board. The SHAKE option does the job for you, randomly positioning the holes.*

• *What possible use could these frogs have? Burning them is non-productive. Giving them to the monkey-like imps on the other hand is a shrewd move. They carry useful objects (such as peculiar mushrooms which can be burned to produce crystals) which they are happy to exchange for frogs.*

In a believable manner. They even make their own sounds. Heavens, it's a jungle in there. Or a computerised menagerie perhaps. In fact, practically every event has an associated noise too. This level of attention to detail is prevalent to the end. Water splashes when objects hit it, and little wisps of flame appear. All this adds up to a Real Good Time - all round, all told, for not one of the versions smells. They all play as well as each other, even i they do look a little ropey in places. *Exile* represents the future of arcade adventures. In fact, given its unique physics-related properties, with a little imagination it could even revolutionise educational software. Now there's a thought.



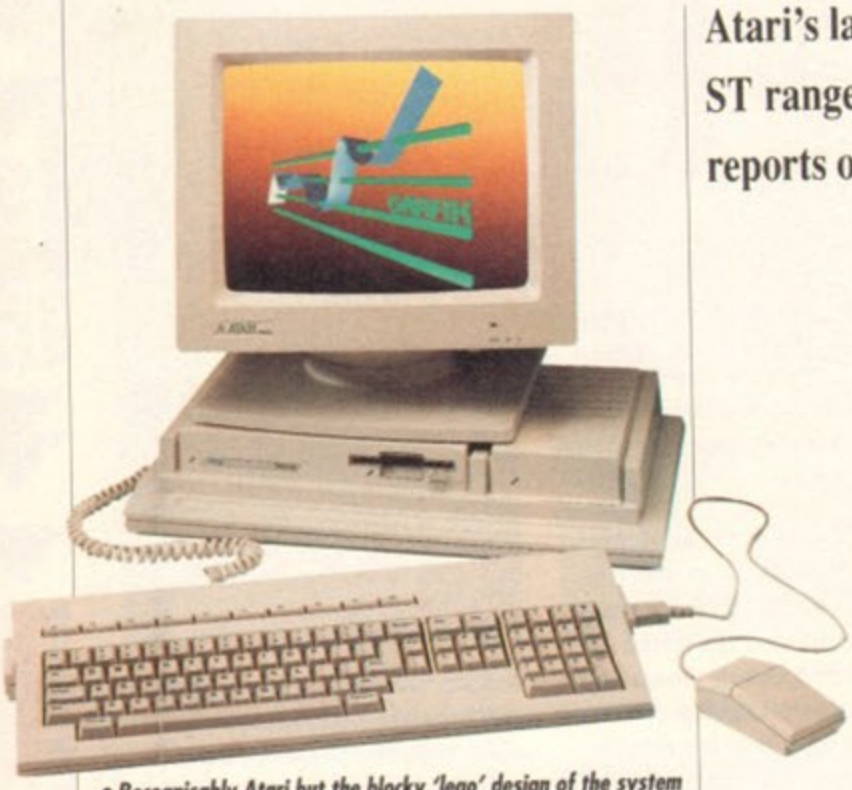
• *Deeper into the cavernous planet there are deep pools of water to negotiate. But watch out for the Piranha! (There aren't any Bikini Whales though).*

• *Robotic creations abound in Exile, most of them shooting absolutely anything that moves - including other aggressors. It's not wise to get caught in shoot-outs unless your aim is true. You can always change your firing and throwing trajectory. Alternatively, you could use a grenade to blow the robot away.*

▲ *This here's Fluffy, a small, fluffy (what else?) creature which always wants your attention. The little pest does have its uses though, and is in fact essential for solving some of the later puzzles.*

# TT RACES AHEAD

**Atari's latest creation may not be beautiful, but its processing power and ST range compatibility make it an attractive proposition. Keith Pomfret reports on the TT's beguiling attributes.**



*• Recognisably Atari but the blocky 'lego' design of the system unit is a thousand miles away from its older cousin the ST.*

The TT is Atari's high specification workstation. Its rather terse name refers to the main processor chip which is a 32-bit processor with a 32-bit data bus hence TT. When Atari decided to pitch at the power computing, workstation and graphics area, it had two logical choices - the PC range or the ST range. While some manufacturers chose the precautionary route of remaining with the industry standard PC/MS-DOS architecture, Atari decided to develop its workstation using a faster, better specified processor and retaining downward compatibility with the already popular ST range. This means that, while developers are working on software that specifically takes advantage of the TT's workstation capabilities, there's a vast pool of existing software to dip into that includes everything from games to DTP and other productivity applications.

## PROCESSING ON THE DOUBLE

The two features that make the TT a special machine are its processing power and display capabilities. In theory it would be possible to build a computer with a high resolution graphics mode that was useless because of the processing power needed to drive it. This is where the TT comes into its own. The 32-bit wide data bus of the 32MHz 68030 processor effectively doubles the amount of data that the TT can process in a given time compared with, say, a 32MHz 16-bit processor.

## SO HOW DOES IT RATE?

FOR
- ▲ A workstation at a PC price
- ▲ ST compatibility
- ▲ High specification

AGAINST
- ▼ Lego-style design
- ▼ Not much dedicated software yet
- ▼ Nasty Atari mouse

Number crunching and programs using graphic manipulation are quick on the TT and the architecture of the machine allows it to run multi-tasking operating systems such as UNIX.

## LESSONS IN DESIGN

The design of the TT is striking to say the least. A separate keyboard, system unit and monitor conform to the normal PC/workstation configuration, but that's where the similarity ends. No-one could possibly call the TT pretty. The lego/breeze-block styling of the system unit looks like something rejected from a building site.

The base is wider and deeper than the main 'box' which gives the impression of a plastic mantlepiece around its edge. The 720K floppy drive sits in the centre of the box above what looks like a narrow trench designed to keep stray pencils in!

A straight and curly cable connects the keyboard to the system unit and for once, the cable seems to be the right length!

## ERGONOMICALLY SOUND

The keyboard conforms to the fairly standard almost PC specification and has two adjustable feet at the rear to alter the working angle. The 10 function keys run along the top of the keyboard and are oblong shaped. At last Atari has got away from the nasty, slanty difficult-to-use function keys of the ST.

**A machine that looked to be a hybrid turned out to be strong in several areas.**

At each end of the keyboard is a nine pin port, the right taking the mouse and the left the joystick. This is a nice touch as it means that the position of the mouse or joystick is directly dependant on the keyboard rather than the system unit or monitor. Grouping all the input devices together like this can only benefit the ergonomics of the package.

The keyboard is comfortable to use with a good tactile response but a minus point is the bleep that the machine yelps out every time a key is pressed (thankfully it can be disabled).

The keys feel of good quality and are a pleasant rounded shape. The cursor cluster felt a bit close together but this wasn't a severe problem. The mouse is a fairly standard Atari two button squeaker and after ten minutes use it was consigned to the drawer to be replaced on the mouse mat by a Naksha mouse.

The supplied monitor is of multisync VGA colour standard and is able to support all of the ST modes and all but the highest resolution of the TT modes.

The display is flicker free and ST and TT demo programs give a good indication of the machine's graphic capabilities. The smoothly scrolling multi-colour screens suggest the TT is a useful graphics station.

## WHO GIVES A TOS?

The operating system supplied with the TT is TOS 030 which is downwardly compatible with the earlier versions of TOS found in the ST, STe and Mega ST machines.

## SPECIAL DTP FEATURES

The TT Desktop screen looks familiar to ST and GEM users but comes with the following features not found on the ST:

- Keyboard shortcuts to menus
- Files and folders lie on the desktop
- Keyboard shortcuts for window operations
- File masks to select files shown
- Multiple icon types
- File view options enhanced
- File search
- Direct on-line help

## A CHIP OFF THE OLD BLOCK?

If you want a powerful workstation that is able to run the multi tasking UNIX environment, capable of running military favourite OS/9 while still retaining a downward compatibility that will let you run existing ST software, the TT is the machine for you. A machine that looked to be a hybrid turned out to be strong in several areas. It has a good display, strong processing power, tons of existing software and it straddles the gulf between conventional home computers and workstations.

Apart from the design flaws, the TT is an impressive machine. As more software becomes available that can utilise the power of the 68030 chip, it will come into its own. In the meantime, there won't be a shortage of programs to run on it. ■

## TT TECHNICAL SPECIFICATIONS

- 32MHz 68030 processor
- Six video modes
- 4096 colour palatte (256 on screen)
- 80 column text display
- 2Mb of RAM expandable to 26Mb
- Math Co-processor
- Single 720K floppy
- 40Mb in hard drive
- Ports: SCSI, DMA, parallel, serial, MIDI, stereo audio, ST compatible cartridge port.Network port

Analogue video port (VGA monitor compatible)

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# IT'S AN OUTRAGE

**We asked about your outrageous machines. You produced Atom powered racing cars, stage lighting courtesy of a QL, an Atari oilfield production monitor and a Spectrum with a grown up keyboard and sound to match.**

When we suggested that you might like to tell us about your weird and wonderful machines, we hadn't accounted for the ingenuity that could convert the most mundane micro into a dynamic and exciting production. The letters we received ranged from the old and the unusual, to the strange and the plain crazy. An old Commodore Vic 20 was providing hot water and heating for one family, while another machine was vying for the oldest console in living memory. These two megaliths will have to wait for now, though, as we're kicking off with four machines which are stranger than fiction.

## ACORN ATOM GETS RACING

First into the arena is John Goldsmith's Acorn Atom. While most Atoms are gathering dust in the cupboard, John's is looking after the tyre squealing excitement at his local slot car racing club. John takes up the story:

The Acorn Atom based race-control system is used by Heron Model Car Racing Club in Bury St Edmunds. The Acorn Atom is truly a classic computer and despite dating from the ZX80 era it is still faster than a Spectrum. It offers pixel addressable graphics, audible sound, standard printer and monitor outputs, and a real keyboard. The Basic is fast for its time and there is a built-in assembler like a Beeb. ROM sockets allow for built-in programs.

The other great advantage of the Atom is the simplicity of its circuitry. A fairly elementary knowledge of electronics is sufficient to understand most of its workings and to construct add-ons.

Heron Model Car Racing Club, which competes in 'serious' slot car racing under British Slot Car Racing Association rules, took advantage of most of these facilities in the Atom to interface its track to the computer. The Atom turns the track power on for the selected race length, and counts the laps. The screen display shows digital and bar-graph lap counts, the selected race length, elapsed time, current leader, laps frozen at 30 second intervals, and incoming count pulses. Alternative programs allow for timing qualifying laps, and for running long team races with lane changes.

The programs are mainly in BASIC, with a little assembler for the timing clock. Initially the programs were loaded from tape, but later we found a way of storing them in ROM for instant access. We believe the Atom is the only computer which will run BASIC programs from ROM. The later additional programs meant we had to do some modifications to the Atom's hardware to accept extra ROM's.

**The Atom's great advantage is its simple circuitry . . . an elementary knowledge of electronics is sufficient to understand its workings and construct**

In any project like this it is essential to keep the computer and the controlled circuits well isolated, as something like a slot-car track is full of voltage spikes and large currents which can blow up a computer. We use opto-couplers and relays, plus a bit of circuitry to stretch the pulses received from the lap counters to make sure the computer reads them.

This computer system is in weekly use, plus special events, and is now mounted on its own desk with 20-inch monitor. The programs and interface were developed by Richard Hawes and John Goldsmith, of Heron Computing Club.

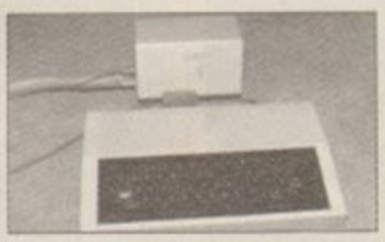
We also have a program that runs on a BBC B and does the race control administration work logging the results in different driver grades and car classes and continuously displays the top qualifiers for the finals – a system which competitors find very useful as they can check their current position from the public monitor.

This system is used at our own special events, such as the East Anglian Championship rounds, and has also been used at the National Finals. This program is available to anyone who sends me a disk and an SAE – it could be used for any competition which requires entrants to be sorted according to their best score from three, best two of three, or best total of three. Write to John Goldsmith, 20 Trinity Mews, Bury St Edmunds, Suffolk IP33 3AT.

## ACORN ATOM INTERFACES WITH MODEL RACING TRACK . . .

*• Heron Model Car Racing Club. Full track with control computer. Not quite Silverstone but enough to get the office boy racers reaching for their car keys.*

*• Close up of ROM PCB. The software is run from on-board EPROMS*



*• The Acorn Atom computerand its interface box.*

*• Inside the Acorn Atom race control computer showing ROM interface.*

## LIGHTS, CAMERA, ACTION

Entering from stage right is a stage control and lighting system running on a Sinclair QL from Andrew Barnes in Preston who says:

I have found a rather unusual use for my Sinclair QL computer. It is not running a power station, but was recently controlling over 15 Kilowatts of stage lighting.

The project came about from my involvement as lighting man for a Parish drama group. We had a manual 12 channel lighting desk which drove dimmers on the stage via a low voltage control cable. While this was adequate, it was felt that it would be useful to be able to store away lighting cues and generate chase effects for dances, lightning and so on. It would also allow the desk to be used by less experienced people. Having a QL at home gathering dust I decided to design an interface to do the job.

The QL interface was to fit in-line between the control desk and the dimmers. I decided it should have:

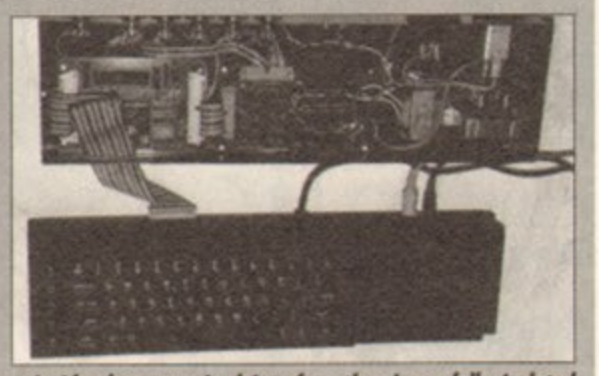
- Ease of use based around Menus.
- A real-time graphical display of lamp intensity values.
- Chase effects of any length.
- Timed and manual fades.
- Minimum boot up time.
- The system should be expandable to at least 18 channels.
- Easy editing of stored cues.
- Cues should be able to be stored for future use.
- Text description stored with cue.

The software was written in 68000 assembly language with some BASIC frontend software. The bar graph display and scaling routines had to by-pass the QDOS operating system to achieve the required update rate.

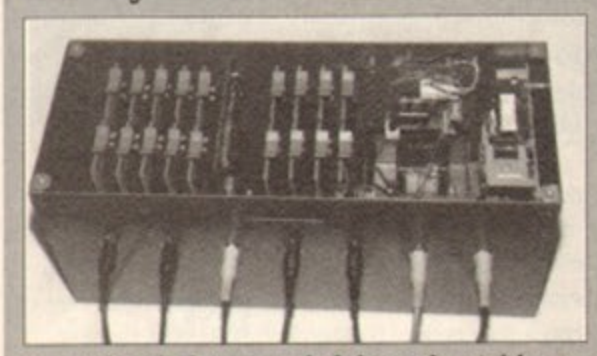
The program loads in modules at boot time so that it is usable in pass through mode after just a few seconds while the rest of the software and lighting cues are loaded. With just the standard 128K of memory on the QL I was able to store 300 cues, each with a time value and text description.

## PUMP POWER AT THE PUSH OF A JOYSTICK

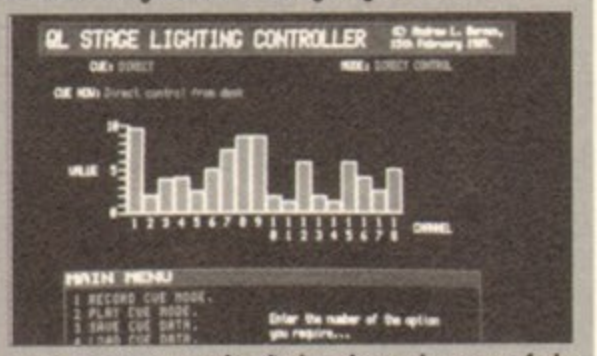
• *The QL light controller in operation bringing light to the theatre stages of Lancashire.*



• *Inside the customised interface there' are fully isolated channels taking the cues to the light rig ...*



• *... And at the business end of things, the miodular construction means that upgrade and repair are simple*




• *On-screen, a graphic display shows the state of the dimmers on stage.*

The block diagram of the stage control and lighting system is:

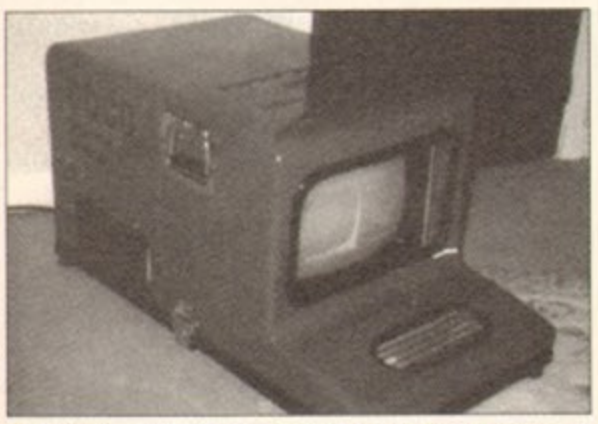
| | | | |
|---|---|---|---|
| Existing Control Desk | Analogue Ql to Digital Converter | Digital to Analogue Converter | Existing Dimmer Packs |

I have included a few pictures of the system and screen shots showing the menus and bar graph display. The system is now two years old and has performed well with no problems. I can recommend the QL to anyone interested in hardware interfacing.

I have now started work converting the software and hardware for my recently acquired Amiga computer. This will allow for more channels, MIDI input, sound to light chase effects and a better user interface. The extra memory will allow for more cue storage.

## PUMPING ACTION FROM ATARI

Kenneth Spence from Aberdeenshire reckons that we can thank his hybrid Atari 400/800 XE every time we visit the petrol pumps. Sounds ridiculous? Read on ...



• *Oilfield production control thanks to an Atari 400/800 so well designed that not even its mum would recognise it.*

The Atari 800XE computer is interfaced to a machine called a power tong which screws together oilfield production tubing. The 'Atari' monitors the torque and the turns and presents them graphically as the tubing is screwed together. When the correct torque and turns are reached, the computer stops the hydraulic power tong by means of a solenoid.

In addition to torque-turn monitoring, it also monitors pressure against time. It's pressure testing ability is used to test such things as the operation of safety valves used in North Sea oilwells.

The casing of the computer was constructed by my grandfather from glass fibre in order to make the computer weatherproof. An Atari 400 membrane keyboard was used as this was more practical for industrial use rather than the existing 800XL keyboard. Graphs are stored using a standard 'Atari 1050 drive' and can also be output to the 'Star LC10'. Torque and pressure are measured by a 0 - 15,000 PSI pressure transducer. The signal is fed through an amplifier then an AD convertor into the cartridge port. Turns are read from a Ferranti Optical Shaft Encoder and are fed into the Joystick Port. The signal for the solenoid comes from the Joystick Port then triggers a power transistor to drive the 3A 12V solenoid.

The program was written in compiled Turbo basic and machine code and the computer has been operating at Petroleum Engineering Services, Aberdeen for one year now with no problems.

I would like to build a new computer using an ST, but I am having difficulty obtaining an AD converter for one. So if anyone can help it would be appreciated – call 0467 32962.

And that's just the beginning. The four machines in this feature are just a dip into the pot pourri of amazing computers that you've told us about. We've had so many that we're saving some of the Circuit City pages to feature more of them over the next few weeks.. ■

## IT'S NOT TOO LATE

You too can try for our £50 outrageous machine prize. If you've not already sent us the details, get scribbling and clicking and send us words and pictures of your amazing micros.

The only rule is that there aren't any rules and who cares anyway because rules were made to be bent, broken and circumvented ...

## THE ALL-SINGING SPECTRUM

Finally, and to bring us all back to earth with a bang, is Ian Heath's spanking Spectrum. This is without a doubt the best specified Spectrum that we've seen since our sortie to the Soviet Union.

Ian told us about his scintillating Spekkie... Here it is, the 1987 all-singing, all-dancing Sinclair Spectrum Custom 48K with LOUD sound!!

Having spent all my hard-earned dosh on the Sinclair Inedible Wafer I couldn't afford to buy a "real" keyboard to make it look a bit more respectable, so I struggled along with its little multi-function rubber buttons until one day I had a visit from the Good Fairie who seemed like a nice boy.

It appeared that a certain local office was revamping its whole computer system - Main Frame, terminals, the lot - and said Fairie could get hold of "one of them computer-things" for me ... for nowt!

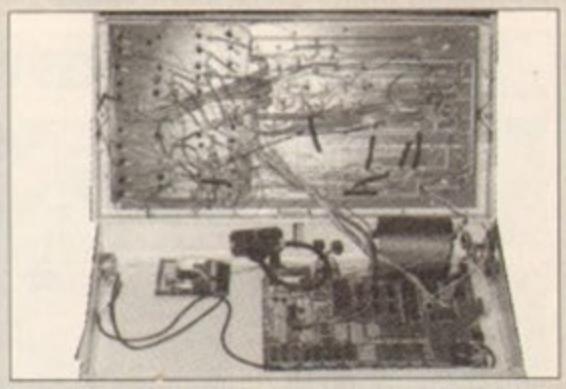
It turned out to be a Bunker Ramo DCS-90 Admin Keyboard. Although this was not a computer in its own right I was excited at the prospect of owning a "full-size" keyboard and set about discovering how to make use of it with my Speccy.

As you can see (I think) from the photographs, I built a discrete-component interface using 40 BC182L transistors and dozens of resistors and diodes, totally eliminating the need for manual gymnastics.

I ended up with 91 operational keys including THE BIG RED labelled "TR"(Total Reset). This key actually took pin 28 of the Z80 to Earth, causing the micro to reset. The Spectrum circuit board was removed from its dimpled rubber overcoat and bolted into the Bunker Ramo. All of the inputs and outputs were brought out through the terminal casing using phono and TV aerial sockets. The expansion bus was extended using a shop-bought 28-way ribbon-cable.

The *Piece de resistance* came in the form of a genuine Sound Output Stage, with a real loudspeaker and volume control, giving no less than 2.5 Watts (RMS) of Spectrum BEEP - Hot Stuff!

I now own an Amiga 500 with extra half Meg, external floppy, and Star LC200 printer, but I still have a soft spot for my old Speccy, and dust it off and plug it in every now and then just for Auld Lang's Syne.



• *Inside the home brewed Spectrum the bespoke keyboard interface takes up more room than the main board.*

• *A 91 key Spectrum bearing more than a passing resemblance to the Soviet Hobbit Spectrum clone.*

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**1) What does DPI in the resolution of a scanner stand for?**
a) Do partners irritate?
b) Dongles parallel intercept
c) Dots per inch
d) Diminished picture interfaces

**2) Which rather splendid scanner manufacturer has the telephone number 081-864 4422?**
a) Jodrell Bank
b) Pentax
c) Nat West Bank
d) Ocean Software

**3) What can't you do with a flat bed scanner?**
a) Digitise photographs
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c) Prepare artwork for DTP
d) Change the mattress

**4) What does DTP stand for?**
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b) Divisible Typing Processor
c) Deflatable Tyre Pump
d) Don't Talk Pap

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d) Quark *Express*

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CONTRIBUTORS:
• Steve Gold • Jason Holborn
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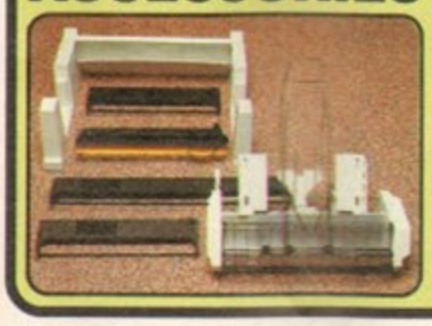

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**PLEASE SEND CITIZEN PRINTER INFORMATION**

Mr/Mrs/Ms: ..... Initials: ..... Surname: .....

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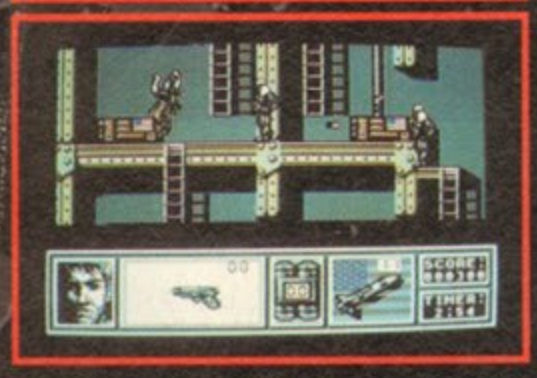

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