ONLY 58p

Issue 73 • 31 March 1990

# NEW COMPUTER EXPRESS

BRITAIN'S BIGGEST SELLING COMPUTER WEEKLY

## AMIGA

- Virtual reality is here
- Genealogy software
- Player Manager

## ST

- Drive/games bundle
- 'ST Portfolio' coming
- New TTs are here

## PC

- Amstrad portables
- Voice WP unveiled
- Dope virus hits Oz

## CPC

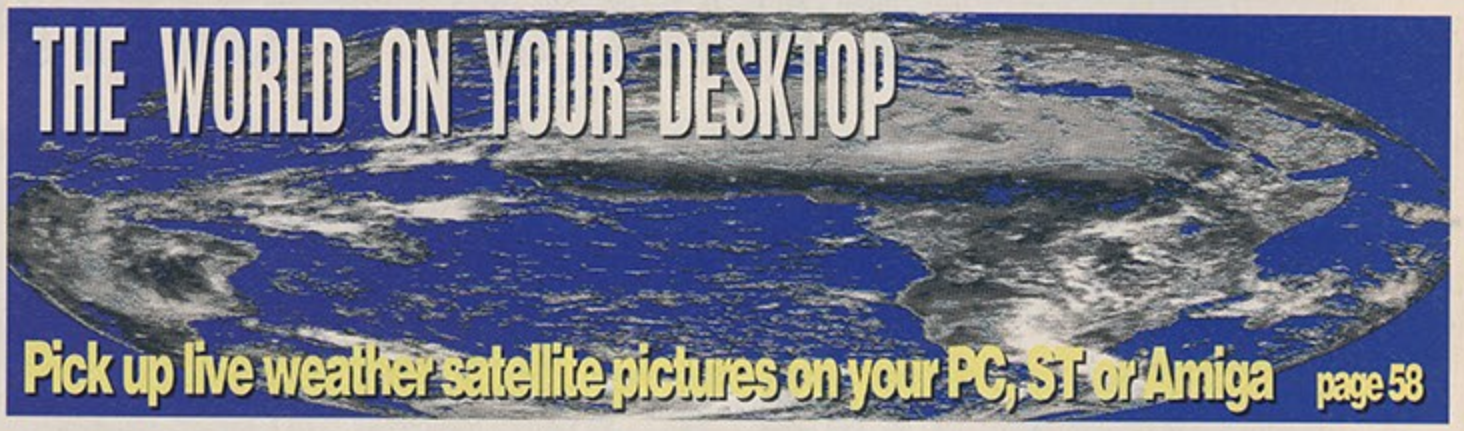
- Oriental Games
- French connections

## ARCHIMEDES

- Impression DTP

## C64•PCW•MSX SPECTRUM•QL ATARI XE•BBC

SPECIALIST COLUMNS




# BLAST OFF!

## Batman Pack eclipsed by stunning new Amiga bundle...

Find out what's inside the box on page 3

How to control the air lanes from your own PC page 53

Compu-tipsters' hot forecasts for the Grand National page 7

# TOP 50 PCs

Read Shopping Express for 28 pages of Britain's best computer bargains

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### 286 and 386sx machines launched at Hanover C-Bit

# AMSTRAD UNVEILS A PAIR OF PORTABLES

**Amstrad last week launched its long-awaited 'Super PPC' laptops. Both machines mark a stylistic departure from the ugly predecessors.**

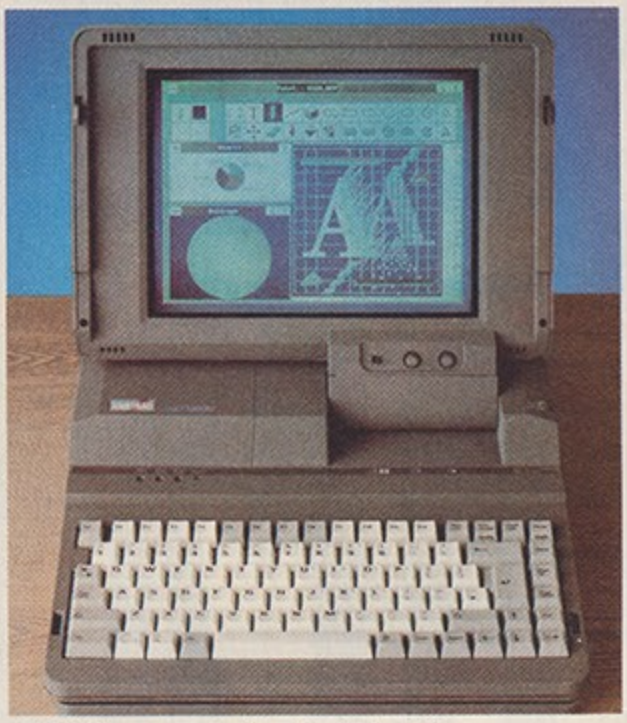
The ALT-286 and the ALT-386sx were finally unveiled at the C-bit Exhibition in Hanover. Both machines run at 16MHz and feature hard disks and back-lit LCD screens. They are offered at a cost of £1,599 and £1,999, respectively.

Amstrad hopes to move quickly in order to get the attractive machines, which were developed and are being manufactured in Japan, into the UK. The firm aims to have ALT machines in the shops by the beginning of May.

"Amstrad's first portable computer, the 8086-based PPC range, took 25 per cent of the UK portable market and established Amstrad as a brand leader in that sector," said group sales and marketing director Malcolm Miller. "The new ALT machines are firmly directed towards the professional computer user." Miller wants to see prospective buyers of popular Toshiba portables turning to Amstrad not only for a good price but also for reliable kit.

Both the 286 and 386sx come with 1Mb of RAM on-board, upgradable to either 2Mb or 4Mb. There is a 20Mb hard disk with the cheaper model and 40Mb for buyers of the top-end machine.

Screen display measures 223 mm x 169mm in black and white with a maximum resolution of 640 x 480 dots. Up to 256 colour codes can be mapped out on screen using 32 shades of grey. Furthermore, the machines come with a special battery which is recharged every time the machine is connected to the mains.



• *ALT-386sx: new generation of Amstrad portables*

There's also an external VGA monitor socket, two serial ports, one parallel port, a 16-bit expansion slot, an on-board co-processor socket and an external floppy disk drive connector.

The launch marks a new campaign by Amstrad to return to its former position as unassailable market leader in home and small business computing. Boss Alan Sugar has already said that there will be a new launch every month until the end of this year.

New products include the CPC console, new CPC machines and the PC3000 range. "The year from July 1 will be a year of making money," he said.

A special bundle for the ALT machines is widely expected with well-placed sources suggesting a deal with NextBase – publisher of the widely acclaimed computer map program *Autoroute*.

## IBM portable too

**Amstrad isn't the only firm launching portables. IBM is soon to ship a cheaper version of the PS/2 portable with 16MHz 386, 2Mb of on-board memory and a VGA gas plasma screen.**

**The new machine – tagged at $5,995 – has a full-sized keyboard, serial and parallel ports and a new external storage device port. This feature eliminates the need for adapters to add external drives.**

## Global role for green gamers

A 'green' game based around the salvation of a polluted planet is to be launched by Pandora.

*Debut* is a 'planet simulation' which throws up the challenges of pulling off a precarious global balancing act. Players must take care not to overpollute or kill off important (but seemingly trivial) life-forms, while sustaining civilisation.

The planet in *Debut* bears no visual resemblance to Earth but, in the current political climate, comparisons are simple to make. The game's authors have been working on *Debut* for two years; they are now planning a new 'socially aware' title.

*Debut* will be available for the ST and Amiga in mid-April. For any preliminary enquiries, call 0734 817421.

## Pilot lifts off

• *Pilot: new start.*

**Leading mouse manufacturer Logitech has come up with yet another new design in computer input devices.**

**The two-button LogiMouse Pilot costs £49 and is being aimed at "first-time mouse buyers" and those who are looking for an alternative to the device which comes supplied with their PC.**

**It comes with 9-pin plug, 25-pin adapter, user manual, driver software and a drawing package – *PaintShow Plus*.**

**"More and more packages which require a mouse interface are being launched." said Logi UK's Simon Barnard. "Mice are becoming more popular and we believe every PC owner will be using one. The Pilot is the perfect start."**

**Telephone 0925 413501 for more details.**

• Test Drive II: *Predecessor now in compila-*

# Accolade all-together

Software publisher Accolade has dusted off a few of its more popular titles and bundled them together in a mid-price compilation called *All-Time Favourites.*

Available in two different bundles the titles are as follows: PC and C64: *Test Drive, Hardball, Mini-Putt, Apollo 18.* ST and Amiga: *Test Drive, Mean 18 Famous Courses Volumes 1 and 2* and *Hardball.*

Both compilations should be out by April with prices set at £29.99 for the ST, Amiga and PC and £19.99 for the C64. Further information from Accolade on 01-738 1376.

# Pope warns against technological idolatory

**Pope John Paul II has warned against making technology and computers a new idol.**

**In a visit to Olivetti's head office in Ivera, Italy, he said the wonder of technology and its rapid advances should not lead people away from more fundamental priorities. He said the dignity of humans "sacrificed to the machine" is at stake.**

**"It is necessary to resist the temptation to make technology the new idol. Technology and its products are not everything ... How can we forget the polluting effects linked to technological developments?" He added: "Man's pre-eminence over technology must be remembered. Automatons and sophisticated equipment are causing more than a few problems for workers, their families and society".**

**He also warned decision makers not to opt for technology for the sake of profits, especially if it leads to an unacceptable level of unemployment.**

# Atari job-cuts

Following bullish predictions for the company's next financial year, Atari's first move has been to lay off 15 per cent of its US staff.

Two weeks ago Atari had been making optimistic noises concerning its world-wide performance. But it says a squeeze in the US consumer market has forced the job-cuts.

Atari in the UK has been keen to distance itself from the redundancies saying that it is a "US situation". It is claimed that Atari's UK sales force will triple over the next few months.

# InterNet threatened by mysterious intruder

Security chiefs in the US are showing concern following the emergence of a mysterious hacker into the sensitive InterNet system.

The network links academia to military and governmental computers. In the past it has been infiltrated by hackers who have usually been caught.

This time though the 'on-line police' have discovered traces of a hacker who has been breaking into the system,collecting passwords and then leaving again.

It would appear that this hacker is extremely professional. The authorities belive he has made a large number of break-ins but has usually succeeded in covering his tracks.

The hacker uses a special program, called an intruder worm, to find its way into the network. It then picks up a number of passwords, passes them out and erases itself thus concealing its previous route. The hacker is presumably then using the passwords to move about the network unhindered.

Controllers are refusing to comment on the intrusion but it is understood that the worm had entered computers at the Los Alamos Research Centre – famous for its work on nuclear weapons.

The Internet system was hit by a virus two years ago which affected 6,000 computers and sent shock waves through the computer security community.

## Top software in new pack, but Batman Pack survives

# AMIGA TAKES OFF ON FLIGHT OF FANTASY

• *Flight of fantasy: classy for 1990*

• *Bundled: Domark's* Escape From the Planet of the Robot Monsters

Buyers of Commodore's Amiga are to be offered a new configuration incorporating some of the best software packages available.

The new bundle, called Flight of Fantasy, will not replace the current Batman Pack but will join it on the shelves. Commodore will also continue to offer the Class of the '90s pack launched last September.

Flight of Fantasy comes with Ocean's high profile flight simulation *F29 Retaliator* which will be launched as a standalone product simultaneously. The F29 is a forward-wing US Air Force fighter which, unlike the simulation, has yet to complete its development. The game features four battle scenarios and is said to feature real-time cockpit displays including 'true radar images'.

Also included in the package are the smash hit *Rainbow Islands* – currently at number one in Gallup's All Formats Full Price games chart – and Domark's *Escape from the Planet of the Robot Monsters.* This is another game which has yet to be launched independently, and has a 1950s sci-fi film/comic feel.

And last, but not least, there is the highly acclaimed paint package *Deluxe Paint II* from Electronic Arts – widely regarded as a must for Amiga owners.

The bundle costs £399, which is exactly the same price as The Batman Pack. The educational option Class of the '90s costs £499. All three bundles will be running until next autumn.

The Batman Pack will be re-promoted through an advertisement which runs in the 'trailer' slot on the forthcoming *Batman* video.

In keeping with the bat theme, viewers will also be invited to solve a series of riddles (one of the Caped Crusader's arch-rivals is The Riddler) in order to win one of ten Batman Packs.

## COMMENT

**Traditionally, new bundles are brought in to sweep away outdated options, but interestingly Commodore's latest option will run alongside the existing Batman Pack.**

**Commodore is well aware that the video to the movie *Batman* is to be launched in the near future sparking off a new wave of interest in all things bat-ish.**

**Like Flight of Fantasy, the Batman pack comes with a flight simulation (*F16 interceptor*), a top Ocean game (*New Zealand Story*), an arcade licence (*Batman*) and *Deluxe Paint II.***

**In this sense, the new bundle represents no radical change. What it does offer is brand new games and gives buyers a choice of software in packages at a single price-point. Arguably, Flight of Fantasy presents a more sophisticated market image of the machine than the Batman Pack and may attract, on average, a slightly older buyer.**

**Informed opinion sees little possibility of Commodore offering a lower priced option, as Atari has done with its £299 STFM Discovery Pack. It is expected that both the present £399 bundles will be superseded in the autumn by another similarly priced pack featuring further new games, almost certainly including a top Ocean Christmas title.**

**It seems likely that Commodore will consider a further upmarket package in the Class of the '90s price bracket – possibly bundling a MIDI interface and music software, although the company is not yet prepared to comment on the possibility.**

## Now computer games that can interact with your physical movements

# 'VIRTUAL REALITY' SYSTEM WILL WOW AMIGA GAMERS

**A Canadian company, Vivid Effects, is set to transform gaming with an Amiga-based video system enabling a user to fully interact with computer generated and live video images.**

**by ANDY STORER**

The base-level Mandala system features a heavily customised 68000, souped-up maths co-processor and Amiga graphics chips which process incoming video signals from a camera mounted above a monitor.

Utilising 9Mb of RAM, Mandala calculates the position of the user fast enough to be able to re-position graphics code in accordance with human movement.

In addition, the system is MIDI compatible allowing users to play musical instruments without actually touching them by integrating sound modules, sequencers and synthesisers. One Vivid Effects demo allows you to play drums just by making drumming motions.

Already the system is being used in museums, science centres and theme parks for more interactive information requirements, but Vivid Effects is beginning to introduce more sophisticated variants into Canadian shopping malls and arcades.

They have constructed ten foot by eight foot walk-in environments which contain large screen projections of graphics and moving video, running off laser disks and linked by Amiga genlocks. Video cameras then follow the movements of anyone entering the space so that people can 'wander' for up to an hour through 3D virtual environments, seeing their position on the screens depicted by a white silhouette.

This forefront technology doesn't come cheap though – a basic installation starts at around £10,000 and can cost ten times that depending on a clients needs.

Some nine years in the planning, Mandala has finally come together with the advent of the Amiga's new graphics handling and multimedia capabilities. Vivid Effects is currently negotiating with top US games houses to produce home versions of interactive sports and action simulations. It seems the video adventure game is just around the corner.

## Floppy Zoo drives games

*• Zoo drive: previous bestsellers bundled as a games incentive for Amiga and ST owners*

**A 3.5-inch external drive with bundled games software was released by European Electronic Zoo this week.**

**Two versions are available, Amiga and ST. The Amiga version is compatible with the Commodore A1010 drive and formats to the Amiga 880K standard.**

**The ST version has a built-in power supply and formats to 720K.The games pack is the same for both drives with five games: *Impact, Exolon, Super Huey, Goldrunner* and *Leatherneck*. None of these games is new but all are previous bestsellers and make an otherwise expensive drive bearable. Price £99 for Amiga and ST versions. For further information contact Electronic Zoo on 0453 887008.**

# Stone me! New virus attacks Aussie magazine subscribers

**In the last couple of weeks, the Marijuana Virus has appeared on the cover discs of two totally different Australian magazines.**

The virus which displays the message: "Your computer is now stoned – Legalise Marijuana," was on the cover disc of specialist publication *PC Support Advisor*. And new magazine, *Your Computer* gave 300 of its new subscribers a surprise when the bonus disc had a bonus that they didn't expect on it.

Although only dangerous if a machine is booted from it, it nonetheless caused concern at the publishing and distribution houses.

ITP which produces *PC Support Advisor* said that on becoming aware of the problem, it promptly despatched a bulletin, virus killer and replacement disc. Many subscribers had already tracked it down by using one of their previously distributed virus detectors.

Ian MacKay of Manaccom, the PD Shareware firm responsible for the *Your Computer* infection, said: "It was one of those freak occurences and we've learned our lesson. On that day someone must have rebooted the PC with an infected floppy."

ITP and Manaccom are both deeply embarrassed by the incidents and have put into place additional security to avoid its reoccurence. British magazine *MacPublishing* was recently struck by a similar problem when the WDEF virus was sent out on its cover-disks. However, the virus is relatively harmless and simple to erase.

Meanwhile, PC users can look forward to strains of other highly destructive viruses. One to watch out for is the 'Twelve Tricks' virus. This picks one of its tricks at random on boot-up and executes a destructive task such as changing reads to writes. [Newsbytes]

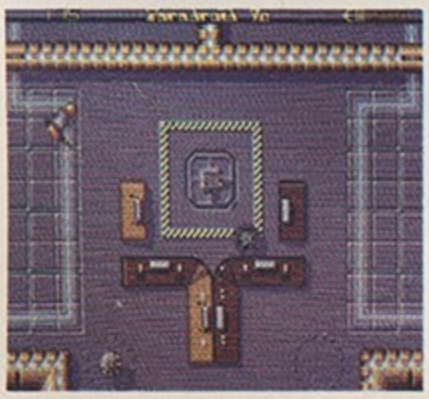
# The Return of the Paradroid

**It's here at last. That amphetamine shoot-'em-up *Paradroid* has finally been converted to the 16-bit machines.**

*Paradroid '90* boasts all the features which propelled the C64 version to cult status. It's a classic of the best kind with ranks of nasty monsters, horrid robots and unsavoury pirates to dispose of as you hurtle around at a ridiculous speed.

But gamers will have to wait just a few more months for programmer Andrew Braybrook to add the last touches.

Publisher Hewson can be reached on 0235 832939.



*• Paradroid '90: making a speedy return*

## Top games are brought to book

Computer game buyers are to be offered a volume of reviews on top games to help them make buying decisions.

*The Unofficial Guide to the Best Games* carries 35 game reviews for the ST, Amiga and PC. Publisher Grove Press commissioned a number of well-known reviewers to choose their favourite games.

Buyers of the book will also receive a £5 voucher towards any game from MicroProse. It costs £2.95 from leading newsagents. For more details call 01 485 6010.

# More Doom in the gloom

Adventurers will be ordering the midnight oil by the gallon as Topologika releases the final episode of the Doom trilogy, *Last Days of Doom*.

Owners of the Beeb, Archie and Electron will be pleased to see that their machines are being supported as well as the PC, PCW, CPC and Spectrum.

*Last Days of Doom* follows the scenario of the previous Doom games where you the hero (or heroine) bravely go where no hand has set foot in a ruined city ( Comeagain? - Ed).

Your mission, to explore and quash aided by a robot dog who is about as helpful as a BR Travel Centre.

There is a lot to do in over 200 locations and an on-line help facility included in the parser. For further details and orders call 0733 244682. ■

*• Jim Loftus (reclining) and Martin O'Donnell of Impressions getting the feel of the game.*

# Zulu Warriors

Faithful to the battle, not the film, *Rorke's Drift* is a war simulation from Impressions which recreates the battle when 137 British soldiers took on 4,000 Zulus at Rorke's Drift in 1879. They showed such skill and courage that a total of 11 VCs were awarded during the one battle.

You control each of the 137 Brits and each has his own skill level for the different aspects of soldiering. Advance, retreat, rest, aim, fight and fire are all individually set and an order for every individual pose is available.

To give the game a 3D feel, the objects are stored as sprites. This allows the men to pass behind them. Currently being developed on the ST, the game is fully mouse-driven to make it simple to learn and use. ■

# From little Acorns ...

**A capital injection of £1.2m from Olivetti helped Acorn's profits for the second half of 1989. The net figure after taxation was a healthy £2.52m, with Olivetti's money effectively doubling Acorn's fiscal performance when compared with the same period for the previous year.**

**Turnover for the period was increased by 22 per cent and up 15 per cent on the whole year which, coupled to an annual turnover figure of £44.9m, left Acorn lookin healthy.**

## EXCLUSIVE: Miniaturised hand-held for ST owners

# POCKET ST PLANNED

**Atari is considering launching an ST version of its Portfolio hand-held machine.**

**At a press conference in Germany last week, Atari's Sam Tramiel said that, as well as a fully PC-compatible Portfolio, there would also be compatible with the ST version.**

Clearly, developments are at an early stage. An Atari spokesman told *Express* that the firm has long been looking at ways to "miniaturise the ST".

It is known that Atari is planning A4 versions of the Portfolio which incorporate 286 technology. However, more versions of the machine are not expected until sometime next year.

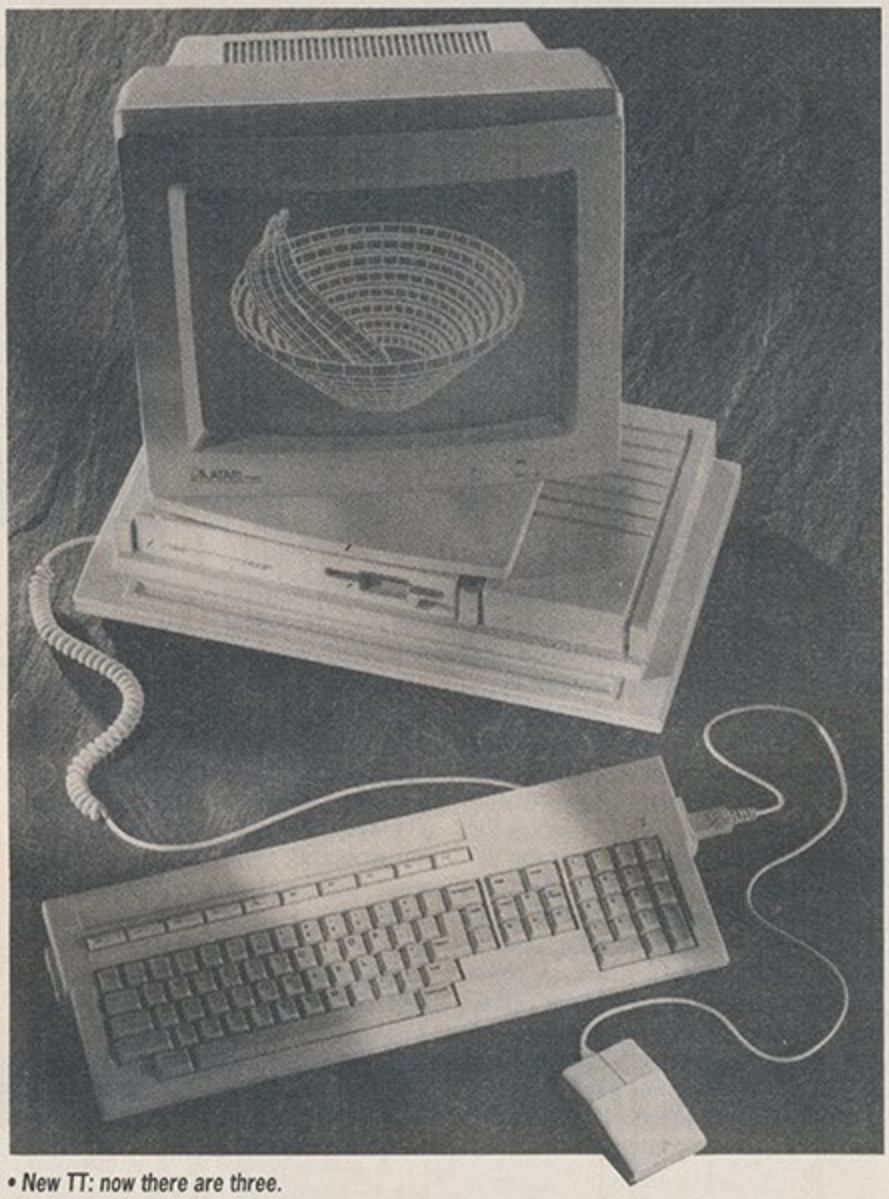
Certainly, within two years, there will be enough professional and serious users of the ST to warrant a small machine.

Atari also unveiled a fully fledged 386SX – a UK launch is expected at the *Which Computer?* Show in a few weeks time. A price has yet to be fixed although Atari says bargain hunters shouldn't hope for too much. "There won't be any rock bottom prices – this isn't a rock bottom product."

The same could be said for Atari's line up of TT machines. As well as the basic machine, which was first shown in public this time last year, there are also two extra models – the TT 030/2 and the TT 030/X

The former, like the original TT, is being pitched as a top-end graphics power workstation, with the 030/X being marketed as a multi-user fileserver. The launch was for the benefit of German journalists and UK prices are yet to be fixed.

The TT machines can run TOS, MS-DOS and Unix and come with a basic 2Mb of RAM and VME bus. ■



*• New TT: now there are three.*

# Branch out on the Amiga

**Amiga owners can chase their ancestors back into the past with a new genealogical database from MGA SoftCat. *Norgen* is a specialist database which can deal with the branching and relationship files peculiar to the research into family trees.**

**The program costs £99.95 and can be obtained from MGA SoftCat on 0797 226601 or write to them at 41 Cinque Port Street, Rye, East Sussex for further details. You never know, you might find out that you're related to Crippen.** ■

# Hanover shows off

Hanover CeBit, Europe's largest computer fair, ran through much of last week and attracted more than 500,000 visitors.

Exhibitors were spread out across 23 buildings – most attendees reckoned it would take the eight days of the show to get around the lot.

They came from 42 nations – the bulk from Western Europe, North America and the Far East but there were also exhibitors from India, North Africa, Israel, Mexico and, for the first time, Eastern Europe.

The number of stands at CeBit rose from 3,214 in 1989 to 4,012. The British presence increased from 129 to 158. ■

*• CeBit: bloody huge!*

# PM calls for a Green computer

Mrs Thatcher has called for a computerised European wildlife database to study the effects of global warming.

In a speech at the Royal Society in London she said: "We do not have a comprehensive picture of the position now. This means that in 10 years time, we shall not know how species have reacted to changes in their environment."

While pledging Britain's investment to protect the environment, she echoed the need for scientists to have easy access to data about the changing face of the Earth. She called for a concerted European technological drive in order to build the database. ■

# Commodore means business at Hanover CeBit

**Commodore was looking to get down to business at last week's Hanover CeBit. In a shift toward the professional market, the firm spread itself out over three stands. The largest, three times as big as the others, was the PC stand, underpinning CBMs committment to the business user.**

The two smaller stands at the show were the Amiga Professional stand and the Commodore Home Computer stand.

On display for the business user were an Amiga 2500/30 and a PC 60/III which sported a 386 chip.

Following in the footsteps of desktop video, last year's main attraction, was this year's buzzword, multimedia, with a plethora of multimedia applications on the Amiga.

A central attraction was Videocomp, a 30 by 50 foot wall of solid video with VCRs, TVs, monitors, transputers and a video editing suite.

Several transputer-reinforced Amigas drove video gadgets and on the software front there were *MiraShading* and *Miranim*, a 3D graphic development and 3D graphic animation system. Virtual Motion from Parasensors was a hard/software solution for professional moviemakers. The system is composed of nine motors controlling a camera, and software to drive it all. A studio using the system is currently working on a German sci-fi movie called *Astra Saga*.

*Fun Lab* is a joint venture MIDI studio from Commodore/Kawai/Steinberg comprising a synthesiser/MIDI interface and software package to run on an Amiga for 1000DM (about £350).

Under the microscope goes *Image Master*, a program that takes video input from a microscope and analyses it. It can perform labour intensive counting tasks such as sorting out viruses or counting asbestos fibres and is distributed by Peter Reuchling Marketing Service.

Meanwhile, Commodore's world-wide chief promised "many new and exciting products" over the next few months. But there is still no sign of the Amiga 3000... ■

• *Top-end: Apple's IIfx.*

# Fastest Mac launched

**A top-of-the-range Apple Mac has been launched which runs at twice the speed of any of its Macintosh stable mates.**

The IIfx zips along at 40MHz and incorporates a 68030 processor. It boasts six slots and is being pitched as an alternative to high-end workstations from the likes of DEC and Sun.

As a personal computer the machine is dear – but as a workstation beater it's something of a low-cost option. An entry level machine with 4Mb of RAM will cost £5,610. With an 80Mb hard disk the price rises to £6,290. ■

## Amazing US system years ahead of its time

# VOICE OPERATED WP: NOW IT'S A REALITY

**The first commercially available voice operated word processor has been launched in the US. It has taken the scientific world unaware.**

Only three weeks ago journalists around the world were talking about the possibility of a PC-compatible voice operated machine following a demonstration by the Edinburgh University (*Express* 71).

The reality comes from Dragon Systems in Massachusetts. It has devised a voice-driven typewriter which can run on a 386 PC. Called DragonDictate, the whole system is made up of an add-on card, software and microphone. Users simply talk into the microphone at a reasonably slow speed.

The program can understand and reproduce 30,000 words of spoken English – just under the capabilities of England's greatest wordsmith William Shakespeare.

The manufacturer recognises that the system is slower than normal typing but points out that it will have many practical uses – especially in industry and among the disabled.

The program can even 'get used' to someone's accent. The introduction of a new accent will cause a loss of vocabulary power but the machine will gradually rebuild that database.

Dragon has also solved the problems of ambiguous spelling in the English language. If an ambiguous word comes up then a drop down menu appears giving the user a number of options. If it's the second word that you want you just say 'get second'. Any mistakes can be rectified by saying 'oops'. The whole thing costs a reasonable $9,000.

Dragon has now signed an agreement with a Belgian company which will help develop European language versions of the system. ■

# Chernobyl all over again

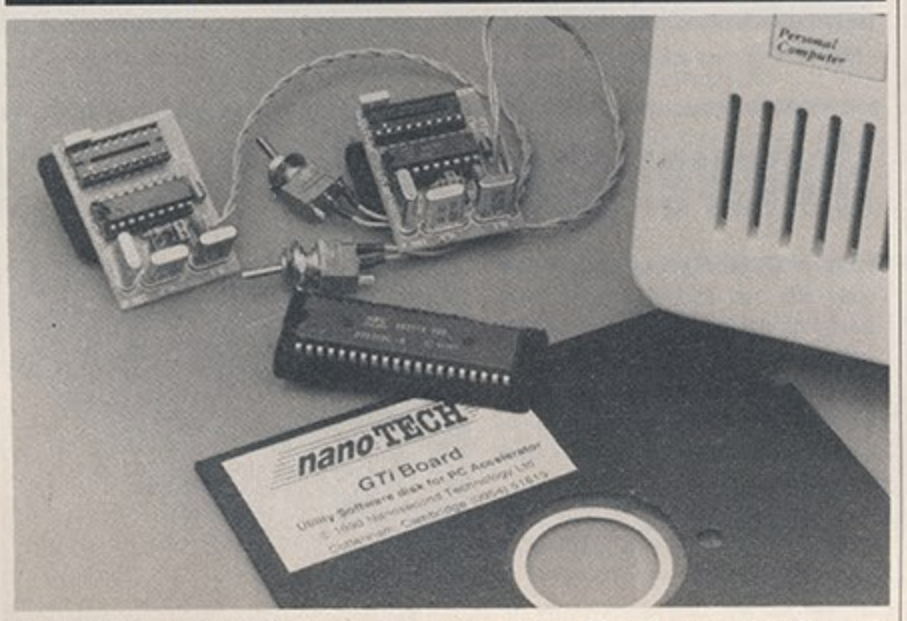
Games publisher European Electronic Zoo could court controversy with its new games compilation.

The pack, called Top 20 Solid Gold, has 20 games for 15 quid and contains *Chernobyl*, the game which had W H Smith climbing on to its good-taste soapbox and banning it on its release three years ago.

In a licencing deal with US software house Cosmi, the games pack will be released on the C64 and cost £14.99.

Old favourites such as *Forbidden Forest* and *Aztec Challenge* lead a comprehensive cast of original uncut games. It will be out early next week. ■

## FAST, FASTER, FASTEST...




*If you thought that three speed went out with Sturmey Archer, PC hardware specialist Nanotech has a surprise for you in the shape of a £40 add-on to wring the last drop of speed from your ailing PC. The Nanotech GTI board combines an NEC V20 to replace the existing 4.77MHz chip, some software to help it along and a couple of switches and ICs to do the logical bit.*

*While most systems will run at a full 8MHz, some hardware configurations may go a little creaky and for that reason, Nanotech has made it switchable in three increments between 6.144 and 8MHz. The price is £45.94 plus postage. Further information on 0763 242938.* ■

# An Wang dies aged 70

**An Wang, the man who created one of the most influential computer manufacturing companies, has died in Boston aged 70.**

He had been suffering from cancer for some years, and despite an operation last summer, was re-admitted into hospital earlier this month.

Born in Shanghai in 1920, Wang began his career in electronics making radios for the Chinese Army in the early 1940s. After the Second World War he joined a party of electonics engineers on a trip to the United States. There he helped produce America's first binary computer before setting up his own business.

Wang Laboratories produced standard business computers a desktop calculator and a revolutionary 'thinking typewriter' – a word processor. Wang the company continued at the forefront of American computing until the 1980s, when it fell behind its rivals. ■

## Computer racing programs agree on Grand National favourite

# CALL COLLECT IS THE PC'S NATIONAL BET

**By half past three on Saturday, the bookies will be rubbing their hands with glee and another tropical rain forest will have bitten the dust as the unlucky betting slips from the Grand National are spread to the winds.**

After the success of racing program *Tipster* in picking the 100-1 winner of the Cheltenham Gold Cup, we lined up five of the most popular racing programs to try and scoop the National. Here's what they said:

- Three out of five gave Call Collect the winning place.
- Another gave Call Collect a place
- Three gave West Tip a place but none placed it first
- Brown Windsor was placed by two
- Bonanza Boy was placed by two

All race and forecast programs need up-to-date information to be accurate. As these tips were compiled over a week before the race they are just for fun and not a true reflection of their abilities. In short, if you lose your shirt, don't come crying to us. ■

*• Horsing around: but are the computers correct?*

### The Form in Detail

*Coursemaster* from Intraset:

| | |
|---|---|
| 1 | Call Collect |
| 2 | West Tip |
| 3 | Brown Windsor |
| 4 | Durham Edition |
| Res. | Rinus and Torside |

*National Hunt Formula* from Bri-Mardon

| | |
|---|---|
| 1 | Big Sun |
| 2 | Bonanza Boy |
| 3 | Call Collect |
| 4 = | Rinus |
| | Polyfemus |

*Form Master* from Artronic

| | |
|---|---|
| 1 | Call Collect |
| 2 | West Tip |
| 3 | The Thinker |
| 4 | Big Sun |

*Racing Box Form* from Boxoft

| | |
|---|---|
| 1 | Call Collect |
| 2 | Brown Windsor |
| 3 | Bonanza Boy |
| 4 | West Tip |

*Tipster* from TAM (100-1 winner of the Gold Cup)
An each-way bet on Bishops Yarn and Nick The Brief

# Amiga 3000 misses CeBit, but Which? debut a cert

Despite a no-show on the A3000 at last week's CeBit '90 in Hanover, the machine's software is now ready, *writes Steve Gold.*

Instead of a media blitz at CeBit, Commodore is planning a softly-softly launch at the *Which Computer?* Show next month.

But why a *Which?* launch and not Comdex Spring in June? According to one Commodore representative I spoke to at Cebit '90, the A3000 is pitched at the thoughtful user who will think about the applications the machine can be used with. This sounds a bit airy-fairy to me, but Commodore's senior executives don't seem to think so. They're planning a big splash for the *Which Computer?* Show.

Wise money is being put on there being two versions of the machine – one which runs at 25MHz and one which zips along at 33MHz. It won't run on the 68040 chip, but upgraders can look forward to add-on boards from third party suppliers.

One of the most intriguing games the industry gossip mongers are indulging in is 'guess the blasted thing's name'. One suggestion is the 'Multimedia Amiga' although, knowing Commodore, it'll probably simply be the A3000. ■

# Pheonix upgrade for A3000

**While the industry is talking about what Commodore's next Amiga, the A3000, will look like, there are still a number of A1000 users out there who don't want to go to the expense of upgrading their machines.**

While there are a number of upgrade cards around for the A1000 (e.g. DVS Wonder and Rejuvenator), they only tend to offer limited facilities such as RAM extensions and the like. Now from Australia comes news of a new A1000 board called the Phoenix that pushes the A1000's potential performance up to the level of the Amiga 2000.

The board costs A$480 and upgrades the A1000 to 1Mb of RAM (expandable to 2Mb on the card itself, and up to 10Mb using a plug-in daughterboard), 32 x 32K blitter operations (that's 1,024 times better than on the original A1000) and allows for support of the Enhanced Chip Set (ECS) that everyone at Commodore is talking about.

The man behind the Phoenix board is Andrew Wilson, the original developer of the Proton memory boards, and responsible for many of the 8Mb expansion cards for the Amiga series.Wilson has been working on the Phoenix board for some time and, in order to cater for all A1000 users, is offering a number of optional extras such as a SCSI port ($80), B2000 video socket($15) and a B2000 expansion slot connector ($35). The board is actually a drop-in replacement for the existing A1000 Amiga motherboard.

Unlike most of the competition, the board retains the basic layout of the original, so that existing add-in cards for the A1000 – which usually fit on or over the microprocessor's position – can still be used. ■

# Maxwell gets busy on ST

**Maxwell CPU Software in the US has been busy releasing new packages for the Atari ST. Among the latest batch are *FractalFantasy* and *GoGo-ST*, as well as Megstender – a keyboard cable extender for the Mega ST series.**

*Fractal Fantasy*, which sells for $23.95, produces some interesting and colourful designs based on the Mandelbrot set. The package uses the mathematical systems of chaos to produce the designs. *Fractal Fantasy* is interesting, since its GEM-based options, context-sensitive help files and helpful manual assist even the most novice of ST users in creating fractal patterns without the need for a degree in mathematics.

*GoGo-ST*, meanwhile, is a GEM-based program that allows for simplified display and execution of programs. No more searching through desktop windows and folders for that program file, says the program's flyer. The latest version of *GoGo-ST* (1.3) also has a nice digital clock that can be zoomed and edited for display on-screen. A neat touch for a $19.95 package.

Maxwell's Megstender is a full keyboard cable extender for the Mega ST that comes with cable lengths of between 6 and 25 feet, and costing from $11.95 to $16.95. If your Mega ST cable is too short, the Megstender could be an ideal solution. Maxwell CPU Software can be found at: 507 West Baseline, Lafayette, CO 80026, USA. Tel: 0101-303-666-7754. ■

# Balls 'n' buttons on track

*• Space saver: TrackerMouse.*

**Military hardware specialist Penny and Giles has swapped submarines for secretaries in its combined keypad and trackerball called TrackerMouse Plus.**

**Working from the RS232 port or via infra-red connection, this 2.5-inch wide unit simplifies screen handling and allows the input of macros by a single keypress.**

**Born from the lack of space in submarines, the concept soon spread to the commercial world and the present version works with IBM PCs and clones.**

**Software to customise the TrackerMouse to industry standard programs is supplied with *SuperCalc*, Lotus *1-2-3*, *WordPerfect*, and *AutoCad* to name but several.**

**Price for the TrackerMouse is £222 and further information can be obtained from Penny and Giles on 0202 481751.** ■

# Amstrad makes PC transputer breakthrough

In a bid to bolster both City and public perception of it as a forefront technology company, Amstrad has announced production of a transputer add-on card for its 286 and 386 range of PCs. The card, known as the ALMICS 2 will connect via a 37-way endochronic parallel diffuser to the appropriate interface port.

Using a prototype of the transputer linked to high-resolution scanning devices, Amstrad's boffins were able to calculate the number of stationary molecules in one cubic metre of warm air in less time than a CRAY X-MP.

This test is at the heart of most modern benchmark trials involving complex calculations and has been developed in response to the needs of real-time monitoring of low-level nuclear processes active in power plants. Conventional map and plot techniques would have taken at least 4.7Mbq per Curie for each significant discrete Collective node equivalent

With the new transputer card, the same calculations took only 1.29 gigasieverts for the completion of the central component and a further 3.9 terraFLOPs for the all important cross-section routines.

IBM is said to be sufficiently impressed with the co-processor card to have offered Amstrad three of its new RISC 6000 Unix Personal Power Stations for further experimentation.

# Amiga and Next share OS

**Sources close to Irving Gould, Chairman of Commodore, have disclosed that the company is close to tying up a technology transfer agreement with Steve Jobs' NeXT Corporation.**

The basis of the link up is a hardware configuration allowing Amiga software to run on the NeXT machine and vice versa.

The key to the system is the recently announced Taos operating system developed by a British company, Tao Systems. Processors running under Taos effectively have an imitation computer or virtual processor built into them which have 16 32-bit registers.

What Commodore and NeXT have done is to sign agreements whereby badged Taos processors will be made available for each machine – allowing both to run the operating system of the other. As such, switching between applications running on either machine will be made possible through their respective multi-tasking capabilities. In this way, NeXT software will be able to run in windows alongside multi-tasking Amiga software and vice versa.

The move marks an extraordinary coup for the NeXT as until now it has had no colour capability. With the 4,096 colours of the Amiga at its disposal, the machine will be truly configured for the kind of multimedia applications its built-in optical disk drive is designed for.

On the other hand, Commodore's benefits are more difficult to gauge. One advantage will be the re-positioning of the Amiga as a high-end graphics workstation platform with Unix access, able to make more significant in-roads into Apple Macintosh territory.

Rumours that the Taos system will be the official processor in the Sir Clive Sinclair's new PCG-1 super-chip may ensure that both machines could use ferocious levels of computing power.

# OPTICAL DITHERING AIDS IN VIRUS WAR

**Scientists at the Phoenix Institute of Technology are close to a major breakthrough in the fight against computer viruses with a system which uses optical recognition software and hybrid light-and-particle microscopes to detect various forms of 'invader' programs.**

PIT, the prestigious science and technology annexe of the University of Arizona, last week announced that it will shortly be opening a commercial virus detection service for the US.

At the heart of AVRIL (Automated Virus Recognition and Identification by Lens) is a revolutionary new microscope which combines standard optical systems with a non-ionising particle scanner – a less detailed but neutral-in-use version of an electron scan microscope which overcomes the problem of examining magnetic media with electrically active systems.

• *Testing master disks with the system.*

The genius of the system is that it utilises a 35Hz 'dither' between the optical display (blurred at these high resolutions) and the sharp but 'flat' image from the scanner. The result is viewed as a 32 greyscale image said to be of 'astonishing' quality.

The image is sent to a computer database which compares the picture with thousands of stored images of known viruses. If a match is found, the computer halts the scan and flashes an outline around the suspect string, which is then checked by human operator.

"AVRIL represents a real breakthrough in the virus war," said PIT's head of Electro-Neutral Microscopy, Professor Jack Poisson. "Already we are in a position to examine both 3.5-inch and 5.25-inch floppies at a scan time of around four seconds per disk."

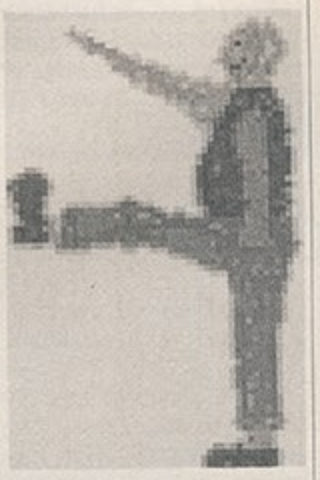
# New realism for footie sim

Deepdale MP Marten Wearer has reacted angrily to early reports on the contents of a new 'World Cup' computer game and has tabled a House of Commons early day motion intended to prevent its release.

The game, *Kick-In – Italia '90* from Sensitive Software, is not a soccer simulation at all, but pits gangs of hooligans against each other at a selection of this summer's World Cup venues.

Players can opt to control small units of football fans – including West Ham's 'InterCity Firm' and Chelsea's 'Head Hunters' – or take charge of a 'national squad' of over 100 rioting supporters.

Conservative MP Dr Wearer told *Express*: "England has the worst reputation in the world for football hooliganism, and when the authorities in other countries hear that soccer violence is being glamourized in this manner, it can only ensure that our ban from European football continues."



# Pooled resources

Oakland Corporate of California has launched a new micro-based environmental system to control pool, Jaccuzi, and shower fittings.

Based around stripped-down boards from the older 6502 chip based machines like the Commodore 64, Atari 8-bit and BBC, the system utilises the analogue ports normally used for joysticks for full control of temperature and humidity.

An octal channel system takes four channels to control, temperature, pH level, salt and chlorine balance.

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| Konix Speedking Joystick | £11.95 | For 40 3.5" Disks | £8.95 |
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| Plain blue Mouse Mat | £4.95 | Control Centre Atari or Amiga | £44.95 |

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# AMIGA

## COMMODORE MEGADRIVE?

Some of you may have noticed a feature in a certain games magazine concerning a little hardware widget for the Amiga called the A-megadrive. Since the magazine's release, I have recieved a number of phone calls from excited Amiga/Megadrive owners desperately trying to find out more about this wondrous device.

According to the article, the article in question can transfer any Amiga game onto a cartridge for use on the state-of-the-art games console, the Sega MegaDrive. The device, it is claimed, translates the Amiga code byte for byte into a megadrive-compatible form, which can happily be run on the Megadrive without modifications – just plug in the cartridge and your Megadrive will be able to play all your favourite Amiga games. Sounds good so far.

Is such a wondrous widget really possible? I hear you ask. Unfortunately, the answer is a definite **NO.** Before we go any further, it may be worth you taking a look at the cover date of the magazine which carried the article in question – April. I'm terribly sorry to shatter all the dreams of all you Amiga/Megadrive owners, but what we have here is nothing more than a gag in celebration of ye olde April Fools.

While many Amiga mags will no doubt regurgitate the article within their news pages, rest assured that both *Express* and our sister publication, *Amiga Format*, can spot a hoax.

Indeed, I will go so far as to say that due to substantial differences in the hardware of the two machines, such a feat as this widget would represent is simply not possible short of Sega producing an Amiga-on-a-card expansion unit for the Megadrive (which they cannot do).

## AMI-EXPO LATEST

It's official – the premier Amiga event is coming to England. Although popular opinion seemed to point towards a September date for the show, the London Ami-Expo isn't actually going to be held until the second week of February, 1991. According to the organisers, the show is to be held at Olympia 2 in London.

If you've never been to a computer show, but wish to try just one, then Ami-Expo has got to be the one to go for. If you want to meet and see the big names within the Amiga industry, then book your ticket for the London Ami-Expo now. (Rest assured that I'll be there, willing as ever to consume beverages with anyone who is kind enough to buy me a quick one). As always, remember where you read it first!

## SOUND CITY

MicroDeal has announced the impending release of the Amiga version of its highly-sucessful ST sound chip sequencer system, *Quartet*. After the huge success of the budget sound sampler, *MasterSound*, the company looks set to have another huge success on its hands with a product that has already recieved rave reviews from ST mags (I could plug *ST Format*, but I won't).

As soon as I recieve my review copy (where is it, MicroDeal), I'll bring you an in-depth look at this powerful package. Until then, get on the blower to MicroDeal, who can be roused by dialing the following sequence: 0726 68020.

## SNIPPETS

Compute! publications has announced the release of its latest Amiga book, which is aimed fairly and squarely at the budding video enthusiast. *Amiga Desktop Video* documents everything you could ever wish to know about getting started with video on the Amiga.

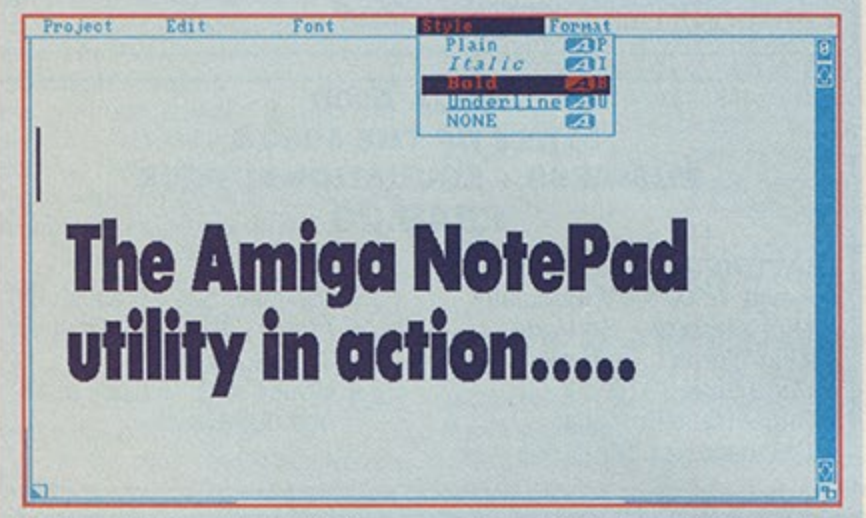
Edu-Vid Research in the States has developed a device which allows the Amiga to directly control any item of equipment which can be controlled from an infra-red remote controller. The IR remote control unit plugs into the parallel port of the Amiga and can learn the infra-red control codes for any video, TV, CD player, etc. Although such a device may seem like nothing more than just a novelty, the potential within areas such as desktop presentation, multi-media etc, cannot be stressed enough.

Look out for a review of Checkmate System's Amiga A1500 kit in *Express* very soon. From what I have seen from the prototype model, this kit could well be what every Amiga 500 owner has been crying out for.

Indeed, if you're an Amiga 500 owner, then there is simply no excuse for not buying an A1500 kit. As soon as my review model turns up, *Express* will be bringing you an in-depth review of this revolutionary piece of kit.

**Jason Holborn**

## NOTE PAD PROBLEMS




**The Amiga NotePad utility in action.....**

Readers of *Expresssister publication, *Amiga Format*, may have encountered a slight problem with the 'Stand Alone *NotePad*' tip in the Workbench section of that magazine. The problem is easy to describe – due to presence of several printing errors, the tip doesn't actually (as such) work.

As many *Express* readers are also readers of *Amiga Format*, I thought that this column presents the ideal opportunity to put you all out of your misery by printing the neccessary corrections to that tip.

For those of who who haven't seen the tip (why haven't you bought *Amiga Format* – you don't know what you're missing), the tip guides you through all the neccessary operations to create a bootable disk that will load the Workbench *NotePad* utility straight into your machine. Anyway, enough waffling, here's the corrections.

The first printing error cropped up in nearly all the 'copy' commands that appear at the bottom of the first column. Those of you who know AmigaDOS sufficiently well will probably have spotted it straight away – the exclamation marks should actually be vertical bar symbols ('|').

All you have to do is to substitute every exclamation mark for a vertical bar and you're away. For example, the first line that features this error currently reads

```
Copy C:Copy!MakeDir!Install!Ed RAM:,
```

this should of course read

```
Copy C:CopyakeDirnstall|Ed RAM:.
```

The second printing mistake can be found in the line that reads

```
MakeDir DF0:DEVS:Printers.
```

Anyone who knows AmigaDOS fairly well will probably have already spotted the mistake – the second colon (':') should actually be a backslash symbol ('/'). The line should now read

```
MakeDir DF0:DEVS/Printers.
```

Try the tip again and hopefully it should work (honest guv).

## AMIGA GAME of the WEEK – PLAYER MANAGER

**Anco • £19.99**

After coming up with the 'football game to end all football games' in the guise of *Kick Off*, Anco has produced what has to be the definitive Manager game – *Player Manager*.

Instead of giving the game a fancy soccer-oriented title with no bearing on the game itself, Anco's chosen title actually fits the product perfectly. As an international class player, you have landed the job as manager of a third division club with hopes of reaching the top.

As well as running the club, you can choose to watch the action take place on match days, play on the team yourself or control the whole team during the game. If you don't fancy the thought of actually getting on the pitch, then you can rely on setting the tactics and letting the team play under its own steam.

All the standard formations have been included, with the extra facility of being able to 'fine tune' the tactics to your own methods. This is done by positioning players from the squad on the pitch and designing running patterns for them to follow. It takes time to get the tactics right of course – so patience is required!

You can buy and sell players to strengthen your team to its maximum capacity, before the board of the club decides that it's time to hang up your boots!

The sheer depth of *Player Manager* is incredible. Almost every conceivable element of running and playing in a football team has been implemented, including virtually the whole game of *Kick Off*!

Some elements are lacking, such as the two player option and choice of referees, but this deficiency is more than made up for by the management section, which outshines every other game of the type yet seen.

Indeed, if you've ever got involved with a football manager game, or just enjoyed *Kick Off* (or even both), then you shouldn't be wasting your time reading this review – you should be in your local software shop buying *Player Manager*!

**Maff Evans**

PLAYING TIIP

## X-OUT

To get stacks of credits, buy the biggest ship and the cheapest satellite. Now discard the satellite and voila! 500,000 smackers to kit yourself out for a ferocious battle.

*Brett Cooper, Heanor, Derbys*

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# Technology Centre

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| STAR | LC-10 colour comm 64 | 144/36 | 166 |
| CITIZEN | 120D | 120/25 | 108 |
| CITIZEN | 120D comm 64 | 120/25 | 108 |
| CITIZEN | 180E | 150/30 | 118 |
| PANASONIC | KXP 1081 | 144/28 | 122 |
| PANASONIC | KXP 1180 | 192/36 | 139 |
| MAN. TALLY | MT 81 | 130/26 | 107 |
| OLIVETTI | DM 100SPR | 200/30 | 119* |
| OLIVETTI | DM 105SPR colour | 200/30 | 159* |
| EPSON | LX 400 | 180/30 | 135 |
| EPSON | FX 850 | 264/54 | 354 |
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| HYUNDAI | HDP 920 | 180/34 | 214* |

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### 24 PIN NARROW CARRIAGE

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|---|---|---|---|
| STAR | LC24-10 | 170/57 | 195 |
| CITIZEN | SWIFT 24 | 160/53 | 239 |
| PANASONIC | KXP 1124 | 192/63 | 219 |
| EPSON | LQ 860 colour | 290/88 | 549 |

### 24 PIN WIDE CARRIAGE

| | | | |
|---|---|---|---|
| STAR | LC24-15 | 200/67 | 325 |
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| PC 1640 | HD30 | 682 | 767 | 857 |

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8088; 4.77/7.16/9.54mhz; 640K ram; 3 slots; enhanced keyboard. Includes: serial/parallel ports; clock; 1 or 2 360K drives; hard disk controller; MS-DOS 3.21, GW basic & manuals.

| | | MONO £ | CGA £ | EGA £ |
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| PC 10 | SD | 495 | 629 | 739 |
| PC 10 | DD | 559 | 699 | 799 |
| PC 20 | HD20 | 679 | 799 | 929 |

(As PC 10 SD but includes hard disk drive)

### SAMSUNG (monitor not included)

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8088; 4.77/7.15/9.54mhz; 640K ram; 1 slot; 84 key compact keyboard. Includes: serial/parallel ports; clock; 1 or 2 720K drives; MS-DOS 4.1, GW BASIC & manuals.

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| MINI-PC | HD20 | 479 | 593 |

80286; 8/12mhz; 1mb ram (exp. to 8mb); 7 slots; enhanced keyboard. Includes: 2 serial/2 parallel ports; clock; 1 x 1.2mb drives; hard disk controller; MOUSE, WINDOWS, MS-DOS 4.01, GW BASIC & manuals.

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| AT 286-12 | SD | 779 | 876 |
| AT 286-12 | HD40 | 1071 | 1168 |

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| MONO | PHILIPS | BM 7913 FST | 12" | 80 |
| MONO | PHILIPS | BM 7713 FST | 14" | 96 |
| MONO | SAMSUNG | MA 2671/3/5 FST | 12" | 81 |
| MONO | SAMSUNG | MA 4671/3/5 FST | 14" | 88 |
| MONO | AKHTER | MONO 12 | 12" | 65 |
| MONO | AKHTER | MONO 14 FST | 14" | 79 |
| MONO VGA | PHILIPS | BM 7749 FST | 12" P/WHITE | 107 |
| MONO VGA | AKHTER | VGA 14M FST | 14" P/WHITE | 99 |
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| VGA | HYUNDAI | HDM 401 FST | 14" | 253 |
| VGA | PHILIPS | 3CM 9809 | 14" | 372 |
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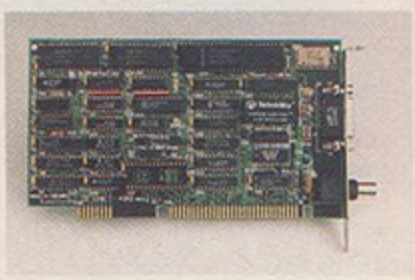

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## STE BOOSTER

At last the STE situation is looking up. There are now a number of games that take advantage of the STE extras. There's an art package that does the same (Microdeal's *Canvas*), and I hear a music program is on the way that makes the most of the STE's true stereo.

Meanwhile, the Demo Club has got its hands on the French 'Official Atari STE Demo.' I'm not certain how official it might be, though it's certainly French (French scroller – I'm pretty quick like that), and I have to say it's mighty impressive. "At last!" enthuses the Demo Club's John Pass, "It's about time there was something to shut up all the ST owners who bitch about the STE!"

The STE demo costs £2.50, or £1.50 if you supply the disk. Get yours now from The Demo Club, 23 Alma Place, Spilsby, Lincs PE23 5LB.

## ONE MILLION GOOD REASONS

There seems to be no end to the number of ST magazines-on-disk appearing. The latest, *Buzzbox*, comes to me fresh from the disk drives of one Mark Stevens. It's a very smoothly put together public domain compilation, and like all such ventures it is totally dependent on you for support and contributions.

The first edition contains a whacking great 1,140,000 bytes – no prizes for guessing that a fair amount of work has gone into archiving that lot! *Invaders*, *Blast*, a virus killer, a pools predictor, a disk formatter, a mono version of *Tetris*, a 2D CAD program, *Daleks*... the list isn't endless, but it sure seems it.

In addition there's an archived 'Goodies' section, containing such items as ACC files to explode and melt your screen, an ST accelerator, several demos (*Lostboys*, *Juggler*) and yet more. I never knew, as the man on the TV Times ad said, there was so much in it.

The price, including first class despatch in a padded envelope, is a very reasonable £2. Even better, submit some stuff good enough to appear in *Buzzbox* and you'll get your disk returned with the next issue already on it.

Send your two pounds (no cash) to: Buzzbox Computing, 5 Balmoral Rd, Moorlands, Lancaster, Lancs LA1 3BT. And tell Mark I said to.

## TOS RELOCATES

Incidentally, one or two snippets about the new TOS in the STE. When you're reading a text file, click left for the next page, right to quit. And you can reboot from the keyboard with the Control-Alt-Delete combination (PC compatibles have used that since 934BC).

One interesting effect of the new TOS, which is in a slightly different place from the old one, is that the Medway Boys bootsector virus detector and others doesn't work. Or rather, they assume your ST must be infected, since they're thrown by the new TOS.

I have been told CRL's *Virus Destruction Utility* is similarly confused, though I haven't checked that out yet.

## POOR TRACK RECORD

The Demo Club's John Pass (see 'STE booster' left) is swift to deliver a slap on the wrist to myself and my dear *Express* colleague Uncle Techtip ("And His Valuable RAM Memory") for blaming STE incompatibility on drives not reading past track 80 and suggesting that protection routines on tracks above 80 are the things really to blame.

"Cobblers!" protests John, somewhat robustly: "I've seen and used hundreds of 3.5-inch drives from various manufacturers (I used to make drives), and I've never found one that wouldn't read past track 80." As with the bootsector virus decectors, suggests John, it is mostly custom loaders/bootsectors that all the disks fail on.

Sorry all: I sit corrected. Unless, as that woman with the teeth says, you know different...

## ATARI GOES MARCHING ON

As Atari announces its last-quarter figures for 1989 (*Express*, last week), it is good to see that the company is finally getting it right. A loss of $97 million has been turned around into a profit of some $45 million – not bad going. And Atari president Sam Tramiel has committed the company to increasing its market share in the personal computer sector, referring specifically to the STE.

Indeed, reading between the lines (always the best bits) of last week's exclusive *Express* interview with Atari's UK boss Bob Gleadow, it does seem as if the STE's problems were local and temporary. With the anticipated relaunch of the machine, and the £100 differential imposed on it over the standard ST, it would appear that Atari is determined to push the machine as the upgrade option for current ST owners.

Myself, I can't see why anyone who already owns an Atari should be willing to sell an ST secondhand, losing a good amount of money in the deal, and then shell out fan extra £100 to get his or her hands on an STE – especially since it means parting with a quantity of software that won't run on the new machine.

On the other hand, if you know someone thinking of upgrading to an Atari from, say, a Spectrum, Commodore or Amstrad CPC, by all means encourage them to do so soon. There are still STE stocks in the shops selling at the same price as the ST – in effect, £100 less than they'll soon cost.

## TEACHING THE TEACHERS

Hard-pressed music teachers wishing to head in the direction of new technology can now take advantage of technology resource kits available from a new music and performing arts consultancy service.

With two new software packages for general classroom use, *Tunemaker* and *Rhythm Kit*, and curriculum materials based on commercial software and hardware, Impac provides all the gear to let classes of up to a maximum of 30 children use computers in composition and performance work.

The Impac *Music Education Package* contains an ST and monitor, MIDI keyboard, teaching and classroom management software, printer, paper, disks and cables, curriculum materials and optional installation and training.

*Tunemaker* and *Rhythm Kit* are available at £20 each, or together at £35 – though both come free with the above-mentioned package. Alternatively, you can try the £3 demo disk.

Whatever your inclination in this matter, more details are available from the good people at Impac: PO Box 1, Seamer, Scarborough YO12 4DL.

**Steve Carey**

## TIMEWORKS GETS NEW GUIDE

Users of GST's much praised *Timeworks DTP* package are soon to receive even more assistance. David Smith, a long time user himself, has written a users' manual that introduces the basics in such a way – it is said – that each new feature builds on what has gone before, to form a kind of 'learning curve.'

Of course, *ST Format* (available, all good newsagents) is currently running an introduction to desktop publishing that uses *Timeworks DTP* for its examples. But you already knew that, didn't you – being a regular customer and all?

The 270 page *User's Guide to Timeworks DTP* is available very soon, price £9.95, from those people at the ST Club, 49 Stoney Street, Nottingham NG1 1LX.

## MIDWINTER

ST GAME of the WEEK

**Microprose • £29.99**

Every now and again someone comes out with a winning formula that makes a truly top-quality game. It doesn't happen often enough. The last time we saw a really big game was when *Populous* was released, but there's been little since which could steal its crown. Now Microprose thinks it has come up with the answer.

*MidWinter* is set in the year 2099 after a meteorite has hit earth and sent our climate into sub-zero temperatures. The North and South poles have shifted, river levels are lowering and new land masses are evolving. It's the advent of one such land mass which provides the chilly, bleak setting for *MidWinter*.

You and a team of 31 characters have moved onto the frozen wastes of the island and as a group you have turned it into a haven. You've built heat mines to produce warmth, factories for food and transport to carry you round the island.

The game *MidWinter* starts when an enemy band of men land on the edge of your island and try to take over the whole thing. They've already blocked all your radio signals so you can no longer communicate with your men, and now they're advancing out of their base at Shining Hollow.

Playing the role of Captain Stark, your ultimate objective is to reach Shining Hollow and blow up the enemy headquaters. Before you can do so, you need to re-establish links with your team. In this way you can use them to help wipe out the enemy.

To re-establish those links you need to find other people and this involves moving around the map. Using all sorts of modes of transport from snow-buggies and cable cars to hang-gliders, you must operate the joystick to carefully control your movements across the frozen ice peaks.

Although joystick action is important to the game, it's your strategies which eventually provide the winning formula. *MidWinter* is played on a large map on which you can highlight the position of enemies, heat mines and other important landmarks. It's played as a series of turns and within each turn you have two hours of playing time for each character you've found. Thus, as you head for other team members and establish a stronger team, you'll begin to advance somewhat more rapidly.

*MidWinter* is certainly the very best of the year. The strategies are entertaining and the visuals are great – particularly the 3D representations of trees and landscapes. Only time is going to tell whether it finds as much fame as *Populous* – but my money is on it.

**Mark Higham**

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PC

## THE DIGITASK IN HAND

The latest catalogue from Digitask, the company which supplied my first ever PC (still chugging away under the desk as a Hercules-display/test machine) is full of laptops and other computing goodies. Although the top-of-the-range Axiom 33MHz 4Mb 386 machine looks a bit pricey at £5,475, some other bits and pieces are more interesting.

How about the BIT-PHAXswitch which answers the phone, waits for the caller to say 'FAX' and then transfers the call to the fax machine? Or the Smartshopper which reads bar codes and tells you whether the current shop's price is lower than its previously-recorded 'best buy'?

Or, if that wasn't enough, the Bondwell B-300, an 80286 laptop with 1Mb RAM, 20Mb hard disk and a super-twist LCD screen. It comes complete with an internal V21/V22 modem for £1,349.

Price for the PHAXswitch is £175, and for the Smartshopper: £69. Digitask is waiting for your call on 0293 776688.

## EVER DECREASING SPIRALS

Have you ever noticed that reviewers of computer software give bonus marks to products which supply manuals spiral-bound? This is reasonable, as manuals are nearly always laid flat on a desk or propped against a screen while the new owner learns the ins and outs of the software. If the manual is bound as a paperback, its hard to keep it open at any chosen page.

A spiral binding is not the complete solution, though. Several products I've looked at recently have chosen a binding with diameter too small for the number of pages bound by it. The result is that, when open, the left hand pages and the right hand pages overlap within the binding and get chewed up each time you close the manual.

This isn't the start of another pedant's revolt, in case you're wondering – much of this kind of jostling and the pages start to tear and come adrift at the spine.

For the little extra cost, you'd think a slightly larger binding would more than pay benefits in happy reviewers and – more importantly, of course – in the number of happy customers.

## MITSUBISHI RESETS CAD

There's been a lot of talk recently about add-on PostScript cartridges for LaserJet-type printers. While these are without doubt effective, they are usually limited by the speed of the processor in the printer. On fast PCs a PostScript emulator can be a lot quicker, since it uses the power of the computer's processor to build up the page image. It can also be a lot cheaper, as there is still something of a price premium on many PostScript cartridges.

*Freedom of Press* has been around for a year or so now, and has carved quite a niche for itself as just such a PostScript emulator. Furthermore, it has been harnessed to Mitsubishi's G370 thermal printer, which provides 300Dpi output in over 8000 colours. This is a near-photographic quality machine, and at the price of £4,995 it is still cheap for quality print at medium resolution.

The new system will work with any AT or PS/2 machine with 80286, 386 or 486 processor and at least 1.6Mb of memory. It will also work with any of the Macintosh II range with a minimum of 2Mb. If interested, contact Mitsubishi on 0707 278604 for more details, or even a brochure.

## PIGGY-BACK FONT CARDS

If you can't run to the Mitsubishi G370, but still want to improve the quality of your laser printer output, you may be interested in Printware's *FontShuttle* (now, why does that have to be one word?). This is a cunning bit of hardware which lets you plug up to four custom-made font cards into each cartridge slot on a LaserJet II-style, Canon-engined laser printer.

The *FontShuttle* cartridge embodies two slots down either side, each of which can accomodate a memory module. A memory module contains the equivalent of a 'regular' HP font cartridge – the ones labelled A to Z – or an IBM, Wang or DEC font library card.

Using a mix and match technique, Printware claims you can adjust your font set to your exact requirement. However, at £125 per *FontShuttle* and £95 per module, you're going to need a fair old investment to have enough modules to mix and match. If you insist on cartridges as opposed to soft-fonts, give Printware a ring on 081-665 5650.

## INMAC OVERDOES IT

It's always been hip to cock a wry phrase or two at Inmac, purveyors of useful accessories at vastly inflated prices. The company has been known to take offence at these digs, but really, it asks for it. The ever-so-American cover of its latest 'special edition' catalogue supplement sports a heavily-coiffured female model close to orgasm at the sight of a manual printer 'T' switch.

Inside, the company has a wide range of helpful accessories, including colour-coded serial and printer connector hoods. These are the plastic bits which fit over metal 9- or 25- pin 'D' connectors. Colour-coding is a very sensible idea, particularly for networking. Inmac's range of eight colours is attractive and the units are no doubt high-quality. Nonetheless, it's hard to believe they are genuinely worth 79p each.

That doesn't include the connector's guts, you understand; the 25 pins cost an extra £1.99. So for one coloured plug you or your company has to pay £2.78. And 42p VAT, making £3.19.

Lindy, a company also specialising in cables and accessories, offers *metal* hooded 25-pin D plugs for around 60p each. No colour-coding, but you could buy a lot of coloured sticky labels for the £2.59 difference. Contact your nearest computer dealer for Lindy's or Inmac's wares – take your choice.

**Simon Williams**

## DAVRELLE GOES ELECTRIC

A couple of years back, a new 3D presentation package was released by the UK company Soft Image Systems, intended for the corporate business market and priced accordingly. The product represented a departure from other graphics applications under GEM, as it could produce perspective/angled charts with all the facilities of the graphics operating system.

Today it still looks good against the likes of *Harvard Graphics* and *Draw Applause*, and it can be used in conjunction with a hardware remote control (the Wand) for fully computerised presentations. The good news is that the product is now to be marketed by Electric Distribution, the marketing arm of GST, which should assure it a wide audience. What's likely to assure it a wider market is that its price has been cut to £148.35. This doesn't include the Wand, which will still be sold by Soft Image at £399.

£148.35 is an extremely competitive price – less than half it's nearest rival. When you consider that *Davrelle* graphics can be imported straight into *Timeworks Publisher PC* and that GST's *Typographica* fonts can be used with either program, it looks like the start of a cost-effective product 'team'. The new *Davrelle* is not trimmed down in any way. In fact, it has a couple of extra bonuses – between 50 and 60 pieces of object-based clip-art and a new tutorial guide. Electric Distribution is on 0480 496666.

## CODE NAME ICE

PC GAME of the WEEK

**Sierra • £44.99**

For many PC owners, particularly in the States, computer entertainment is synonymous with Sierra's ever-expanding range of graphic adventures. Sierra is responsible for the well-known *King's Quest* series, and of course that leading figure of the computer industry – *Leisure Suit Larry*.

The company's latest title, *Code-Name Iceman*, was written by Jim Walls, author of the *Police Quest* series. It follows the exploits of Commander John B Westland, a member of the US Navy SEALS commando team (Sea, Air and Land), as he attempts the rescue of an American ambassador kidnapped by terrorists in a scenario that mixes Ice Station Zebra with James Bond.

The game opens with our Johnny taking a spot of R&R in true leisure suit style on Tahiti island, populated virtually exclusively by bikini-clad maidens. However sea, sand and sex are short-lived for our brave hero as he is summoned to Washington and put in charge of the infamous and nuclear-powered submarine, the USS Blackhawk.

*Iceman* works in much the same way as all Sierra adventures. You enter commands from the keyboard, just as you would with a text adventure, but instead of reams of text you are rewarded with (on EGA or VGA at least) a 16-colour animation of the action drawn to a resolution of 320 by 200 pixels.

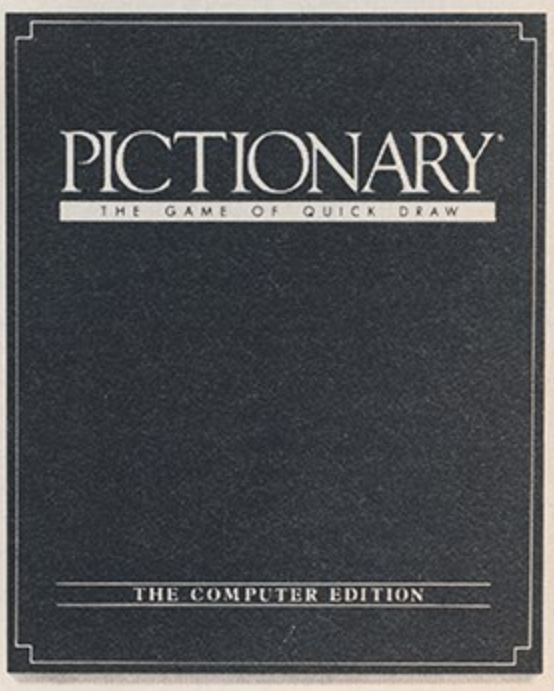
If you have one of a wide range of sound cards you also get a full-blown soundtrack, which is excellent – but, otherwise, you have to put up with the usual chorus of PC beeps.

The parser is not as flexible as an Infocom adventure and the user interface nothing like as sophisticated as in *Deja Vu II*, reviewed a few weeks ago. However *Iceman* has a strong plot and does include a reasonably elaborate submarine simulation, a dice game and several action sequences later in the game. It comes on nine 5.25-inch disks (four 3.5-inch) too, so there is plenty to keep you busy.

**Matt Nicholson**

# Save £5 on 16 bit software

## (Hardly a 2 bit offer)




Enter Boots before 21st April, and you'll find £5 zapped off selected 16 bit titles. From having the last laugh on the Joker, to joining Indiana Jones on the Last Crusade, the choice is mega. Drop in, and you could save quite a bit.

**A better buy at Boots**

AVAILABLE AT LARGER STORES ONLY.

# SPECTRUM

### ANNOUNCING YET MORE

After a deluge of begging letters overflowing with vast amounts of shameless and rather embarrassing creeping, fawning and whinging the SAM Coupé will have a regular, modest-sized slice of this column from next week on.

So if you've got any tips, pokes or wrinkles for our new found friend let me have them at the soonest opportunity. I'll also be handing out glowing plugs to SAM Coupé user groups, fanzines and PD libraries. Send everything and anything Coupé related to: Robin Alway, New Computer Express, 30 Monmouth Street, Bath BA1 2AP. You can get off your knees now.

### A ROLLING STONE

The Plus 3 Users Group is still going from strength to strength and only stopping on the way to recruit loads of new members to its ranks. As well as persuading hordes of Plus 3 users to join up, the group has also managed to take over another Plus 3 user group plugged recently in this very column.

From now on the Plus 3D group run by Gary Stimson is no more, but the organisers will be working for The Plus 3 Users Group and as a result there's going to be a new technical helpline made available to members and a few more shelves full of Plus 3 public domain software on offer.

Obviously being a bit of a Robert Maxwell on the quiet, and not content with just publishing one traditional, recycled tree-based mag, the Plus 3 Users Group is also planning to unleash an all-new publication on 3-inch disk called *Genesis*. Apparently, this will cater for the whole community of Plus 3 owners with game and utility reviews, free programs to boot up from disk and, from issue 2 onwards, something called a Grabber Review. This turns out to be another one of those revolutionary new features that we seem to get a lot of.

I'm told that these grabber reviews will consist of text based comment and criticism, stationary screen shots and also live, animated snippets of in-game action. You don't actually take part in these grabbed sequences of game but seeing the game in action before procurement strikes me as being a pretty unique idea and jolly useful at that.

Issue one of *Genesis* should be available by now for £3.50 (or £2 if you send your own 3-inch disk) and is available from Garner Design, 57 Lovers Walk, Dunstable, Beds LU5 4BG. If you want to find out more about the Plus 3 Users Group send an SAE to the same place and tell them I sent you.

### MORE FROM OLD FAITHFUL

Faithful regular, Ashley Price, has just sent me a letter shining brightly with praise for one particular software house that I think we would all benefit from hearing. The praise is for Tasman Software, who, as you probably know, produce some of the best utility software available for the Speccy.

Ashley tells me he's ordered a total of five items from them and on each occasion the materials have dropped through his letter box by return of post. And he tells me they're "polite and helpful" on the phone as well.

Finally, Ashley says their range of Speccy software is excellent and he: "would highly recommend anyone who is thinking of going into the more serious side of computers and has a Spectrum, to use Tasman." Contact the good people on 0532 438301.

### THE FACES OF MULTI

Romantic Robot Multifaces have the ability to stop any software you care to load dead in it's tracks and then allow you to insert pokes, transfer the program to disk, dump screen shots, and generally mess about. Romantic Robot has just lopped £10 off the price of its Multiface One, 128 and 3 so contact Romantic Robot at 54 Deanscroft Ave, London NW9 8EN.

**Robin Alway**

### MIKTOR POKES TWICE

**Following a dangerous fit of raw, unbridled generosity my good friend Miktor has just heaved another huge mound of pokes in my direction. To feel the benefits of infinite lives, bombs, energy and the like, simply bash them in, save the listing to tape for future reference, type RUN, play the game tape from the start and say thanks to Miktor for supplying them in the first place,**

```
10 REM GUARDIAN II
31 POKE 50233,0 : *LIVES
32 POKE 50435,0 : *BOMBS
50 MERGE "": RUN
```

```
10 REM JOE BLADE III (48k+128k) - Infinite energy and ammo
20 CLEAR 5E4: LOAD "" CODE
30 IF PEEK 23296<>0 THEN LET A=65273: POKE A,218: POKE A+1,9: LET X=11:
GO TO 50
40 LET A=65226: POKE A,194: POKE A+1,1: LET X=16
50 FOR N=23440 TO 23446: READ A: POKE N,A: NEXT N
60 RANDOMIZE USR 65024
70 DATA 175,50,X,148,195,0,138
```

**Comprehensive to the last, Miktor also supplied *Joe Blade II* pokes especially for Multiface owners. What a gent!**

**48K** – `POKE 37904`
**128k** – `POKE 37899,0`

# PCW

### IN THE DUMPS

"I was down in the dumps today," I told my girlfriend, "so I got a copy of *New Computer Express* to cheer me up". "Ah," she said, "so that's where you get the things".

In fact, dumps are an underrated feature of the PCW. You can produce screen dumps (on an 8512 or 8256, not a 9512). Just press [EXTRA][PTR] any time, in *LocoScript*, CP/M, BASIC or any program, and you get an image of the screen printed out on the printer.

So what? Well, it's great in *LocoScript* for producing a list of what's on a disk – just get a dump of the disk management screen. The image can be trimmed to fit the disk case. It's also useful if you want to remind yourself of a complicated layout or sequence of codes in *LocoScript*.

You can include these dumps in the middle of already printed documents, of course, by leaving an appropriate space – the only problem is that the dump starts against the left hand edge of the paper. To get the dump centred is possible, though I'm not sure if it does the printer any good! If you lift off the black top plate and gently push the print head along with your hand, it will move along. When it's at the right place for the left hand edge of the screen dump, press [EXTRA][PTR] as normal and the image will be printed right there instead of the left hand edge.

After you've finished, reset the printer by pressing [PTR], moving the cursor to 'Reset', and pressing [+]. You can leave with [EXIT].

### HEADING FOR SUCCESS

Users of the excellent word processor, *Protext*, can add large-sized headings to their documents using a new faster, improved version of PS headings. The program lets you insert special codes within a *Protext* document which print any text you like in characters up to an inch or more high.

They come out perfectly smoothly too – no jagged edges that make it look like the typographer was a Lego fan. You get the option of underlining, proportional spacing and reversed-out (white letters, black background) printing. PS Headings costs £11.95 from Orb Systems on 01-690 8534.

### PUZZLE ANSWER

How to split up a 350K file in *Protext*: load it, insert the commands `>WF B:CHUNK.1` then `>WF ON` at the beginning of the section to be split off, and `>WF OFF` at the end. Then print to screen with PS. The required section is written to a new file on disc. Repeat for all sections. Easy!

### CZECH POINT

We were told by our contacts in Czechoslovakia that satellite TV dishes overtook the Amstrad PCW last year as the in thing in technology. Apparently satellite TV has a very good image over there because it gives much-needed access to hard news from the West.

Or at least, it used to be much-needed. With the way things are going, will they find satellite TV dishes as useful as we do – just right for stir-frying? And will PCWs be back in fashion again?

**Rob Ainsley**

# MSX

### PORT CALL

If you read *Express* regularly you will remember that there was an article on exchanging data between computers, which recalled that the most common form of data exchange was by sending ASCII codes via an RS232 interface.

As not many MSX computers were fitted with these interfaces as standard, most users needed to purchase an RS232 that plugged into the cartridge slot. You could then exchange data, or go on-line by adding a Hayes compatible modem to the interface.

Finding an RS232 interface at a reasonable price has been very difficult for the average MSX user, but now salvation is at hand. Knights TV and Computers, of Aberdeen, informs me that it still has some Toshiba cartridge-type RS232 interfaces in stock, and they are priced at a very reasonable £49.00.

If I remember rightly, these interfaces contain all the necessary software for sending and down-loading data, so all you need to purchase is your actual modem, and check that you can afford the enormous telephone bill that you are almost certainly going to get, until you have learned to use the device wisely.

For those MSXers who are considering going on-line, but are worried that they may be the only MSX user taking advantage of computer communications, I can assure you that there are hundreds of MSX owners using the various systems, and, used properly, they can be a great source of fun and information. If you wish to purchase one of these RS232 Interfaces, Knight's TV and Computers can be contacted by writing to 108 Rosemount Place, Aberdeen AB2 4YW. Or telephone 0224 630526.

### FAIR GAMES

Capri Marketing, a company that supports the MSX and tries to keep us MSX users supplied with all the latest software, tells me that it has purchased a large quantity of MSX 1 cartridge-based games and will be selling them at a reasonable £18.95 each. There are 10 titles in all, including such classics as *Kings Valley*, *Hypersports 1* and *2*, and *Penguin Adventure*, all by Konami, and several other Japanese games such as *Gardic* by Compile, *Eggerland* by Hal and *Hydlide II* by T&E Soft.

Capri also has a few MSX joysticks at £9.95 each. I believe that they are Sanyo joysticks with two fire buttons, as needed on many MSX games. For a more detailed list of software, phone Capri on 0628 891101.

### COMPETITION END

At last all you MSX users who entered the Kixx Competition can breathe again:

First prize of *Sub-Logics Flight Simulator* and *Torpedo Attack* (on ROM), goes to Richard Cross, Bournemouth and the second prize of *Chicago 30s* by US Gold goes to Tony Sanderson, Scunthorpe.

The winners should already have received their prizes, and are, I hope, finding them enjoyable. Thanks to all who entered and also thanks to Capri Marketing for donating the first prize. As this competition has been so successful, I will, perhaps, have another one soon.

**Keith Neal**

# CPC

## ZUT ALORS!

Would you like to hear some very interesting facts about the French CPC scene? Well you're going to...

For a start, did you know that as many games are sold on the CPC as every other format put together? That's what sales figures from Loriciel show. And the top French CPC mag – *Amstrad Cent pour Cent* – has a regular circulation of 50,000 as well as the full and official support of Amstrad France.

Amazing fact number three is that Ubi Soft, now pretty famous in the 16-bit world, actually made its name with a game – *Fer et Flamme* – only ever released on the CPC!

The CPC really is the major format in France, with even the combined might of the 16-bits left trailing in its wake. Just last year, some 110,000 CPCs were sold, and the machine has shown few signs on the Continent of entering the kind of decline all the pundits over here have been predicting for years.

All that, of course, is without the news regarding the new CPCs. Rumours and gossip are circulating round the French press every bit as rapidly as the press over here. So how are the French reacting to the prospect of a complete revamp of their favourite machine? They're going absolutely potty...

Want to find out more about the exciting French scene? Simply check out the next issue of *Amstrad Action*, £1.45 from all good newsagents. And while you're at it, you can cop a load of astonishing new software heading our way from across the channel.

## EASTERN PROMISE

Never mind *Shinobo*. To hell with *Wild Streets*. *Double Dragon*? Do me a favour, matey, will you...!

No, Microprose has come up with the ultimate martial arts sim, whereby you get to practice four quite different sets of combat skills in a competition against some of the toughest fighters in the business.

In *Oriental Games*, though, you're not ridding the NY streets of low-life, or saving the President from swarms of nutter Ninjas and shaven-headed thugs with bicycle chains. No, in this game you're fighting for sport, not peace, justice, freedom, etc – which comes as a relief.

*Oriental Games* is rather like the usual multi-event *Epyx*-type sports sims, in that it's made up of a series of sub-events, each complete in their own right. However, Microprose has zeroed in on martial arts as a popular genre in its own right and as a way of maintaining a common theme throughout the games. And that theme is simply to leap, kick, punch and sweep your way through to the finals in each event – and ultimately, to win the gold medal.

There are four particular disciplines you have to master. Kung Fu is the gymnastic one, where you must defeat your opponent with agility, quick thinking and sheer stamina.

Kendo is next, where have to knock the daylights out of other guy with a walloping great stick, all the while stopping your bathrobe from flying open embarrassingly.

The third event is called Freestyle, and basically consists of all the usual Kung Fu discipline with some rather dirty moves – including head-butts – thrown in.

Last, but by no stretch of the imagination – or waistband – least, is Sumo. Two very fat man try to variously belt, bump or bull-doze their opponents from the ring.

Each event requires you to learn all the players' moves, and to time those offensive strokes to the nanosecond if you want to thrash the other guy, because the computer opponents are pretty tough, even in the first round. And it's going to take a pretty mean fighter to make the final.

Now there's nothing worse than a slow fighting game (What's that? *Double Dragon*?). Fortunately, *Oriental Games* isn't slow. The sprite convincing, and react quickly to joystick input.

The whole game is colourful and polished. The fighting moves take a bit of learning, and the computer opponents are tough enough to keep you nailed to the canvas for many a long hour. Combine that deeper-than-usual gameplay with four different events and you've got a fighting game definitely one cut above the rest.

**Rod Lawton**

## AGE DISCRIMINATION

**Now, does this sound familiar?**

**"I am a 12-year-old boy and I am sick and tired with the way I get treated like a ninth-class person in certain computer shops. Last Monday, I went down to this same computer shop to see the software.**

**"When I asked the nice man (*nice man? – Ed*) behind the counter if they stocked *The Pawn*, he went off to show another man an ST! Am I a leper? Do my socks smell? Or is it that those people down at that shop don't care whether I live or die? I wish that computer shops would treat under-16s like people!"**

**So do I, Robert Melody of Purley! The reason is that I was a 12-year-old once and I used to get the same treatment.**

**What shop assistants and proprietors don't seem to understand is that today's 12-year-olds just looking for software are tomorrow's serious punters looking for hardware. What's going to happen, of course, is that from now on you're going to take your business to a shop that treats you properly, right? And that's where you're going to spend all your serious money in the future?**

**So the owner of the first shop will go bust within five years and blame the recession, the government, the nasty smell from the drains...anything but customer snobbery. So, retailers, you have been warned...**

# C64

## ONE TWO THREE

A recent Gallup software chart for the Commodore 64 showed that each of the top three positions belonged to the same company. That company is Encore, and it held the number one spot with *Paperboy*, the number two spot with *Buggy Boy* and the number three spot with *Ikari Warriors*. I daresay that one of you will prove me wrong, but is this something of a record, I wonder?

## COMING SOON

Fans of US Gold might like to know that it is intending to release a new game in April. That game is called *Crackdown* and in it you play the part of an FBI agent, who is determined to stop the evil Dr K in an attempt to destroy the world.

There are 16 different levels of play, with you making your way around a maze of tunnels and bridges. You have a wide choice of ammunition to assist you, including rocket launchers and super bombs and, if all else fails, you can even indulge in hand-to-hand combat.

Destroy every level and you'll have to confront Dr K for the final showdown. Sounds fun, but do any of our London readers know a group called Dr K's Blues Band? They've been gigging for years and might like to know that US Gold has 'honoured' them in this way!

## NEW ADVENTURES

A new-ish company to keep an eye out for in the field of adventure games is Interactive Technology, whose recent release *Dead End* is as good an introduction to stylish play as anything. The game is set in 1942, and you play the part of the famous detective, Philip Marlowe, in an attempt to solve a puzzling murder. If you like playing detectives then write to PO Box 146, Sheffield S13 7YT for further details of this rather good adventure.

## CHEAT CHEAT CHEAT

I'm sure that every game, somewhere along the way, has a cheat mode built into it, and the determination of some people to find that mode never ceases to amaze me. Take Ocean's *Cabal*.

When you get to level two, enter your name as 'nth and' **do not** rewind the tape. You will then start on a higher level. When you die, enter your name as anything you like and, once again, **do not** rewind the tape. You'll find that you start on a higher level.

## PET HATES

One of my pet hates about any program is being allowed to press the shift and logo keys so as to change the display from a mixture of upper case and lower case letters, often completely altering what is shown on the screen.

Why programs let you do this is beyond me, since a simple command is enough to prevent the action of those two keys.

If you `PRINT CHR$(9)` then that action is disabled. Use `PRINT CHR$(9)` to get it back again.

If you want to go into lower case in the first place, use `PRINT CHR$(14)`, then `PRINT CHR$(142)` to get back to upper case again.

**Pete Gerrard**

# YOUR FORMAT


AMIGA 10
ST 12
PC 14
Spectrum 16
PCW 16
MSX 16
CPC 17
C64 17
Atari XE 18
QL 18
Archimedes 18
BBC 18

# QL

## ARCHIVE TIP

If you need to order on more than one Archive field, you should order them simultaneously:

```
ORDER field1;a,field2;a
```

If the fields are ordered using two statements:

```
ORDER field1;a
ORDER field2;a
```

the second statement cocks up the order produced by the first.

## THE QL – WORTH HAVING

Although the QL is in its sixth year, I have yet to see a machine with an operating system more user-friendly than QDOS. The QDOS command language is SuperBASIC, which makes it very easy to understand, even for a complete beginner.

SuperBASIC is a comprehensive form of BASIC, ideally suited to structured programming, with lots of nice features in common with Microsoft's Quick BASIC for the PC. Using one of the SuperBASIC compilers, even a novice can write multitasking BASIC programs which run as fast as programs written in C on many other machines.

Reader, Jeremy Benson, recently disagreed with me for: "making out that the Sinclair machine is on a par with Acorn's Archimedes". Although it is not as fast as the Archimedes, the QL has a better BASIC, a better operating system, and has more serious software available for it. It is also, at about £90, very much more affordable. By the way, if the ARM chip used in the Archimedes is so good, why doesn't anyone apart from Acorn use it?

## SINCLAIR QL WORLD

It was recently reported that Focus Magazines Ltd., the publishers of *Sinclair QL World*, had gone into receivership. *QL World*, although it had a circulation of only 12,400, was probably quite profitable; it would be a pity if the magazine disappears.

I've heard that production of the April and May issues is well advanced, so there is a good chance that they, at least, will appear; let's hope that *QL World* can hang in there.

## SCOTTISH GROUP

A group has been formed for Scottish users. Meetings are held near Edinburgh, and a monthly newsletter is circulated to members. For further details contact Alan Pemburton, 65 Lingerwood Road, Newtongrange, Midlothian, Scotland EH22 4QQ. Enclose an SAE.

## A MICRODRIVE HINT

It is a good idea to format new microdrive cartridges (if you can get them) several times. The easiest way to do this is with a little one-liner:

```
FOR i = 1 to 5: FORMAT mdv1_
```

You will probably see the number of usable sectors increasing the first two or three times.

**John Torofex**

# BBC

## BACK TO PASCAL

Regular readers of this column, and I'm sure you all are, will be aware that my taste in computers is eclectic. And no, it's not a strange prediliction for removing ladies underwear from washing lines (my other hobby), it just means that I take a wider view of the computer scene than the horizons of the BBC world.

Taking this view means that I am horribly aware of the veritable Babylon of computer languages 'out there'. Unfortunately, the BBC BASIC we all love, although well represented on a number of machines (IBM, Macintosh, Amiga, Z88) is by no means a standard.

Therefore, those of you looking to broaden your horizons are well-advised to learn another computer language, but which one? Pascal programs are generally well structured, fast, and easy to convert between machines.

Fortunately, a version of ISO (International Standards Organisation) Pascal from Acornsoft, is widely available for the BBC. There are actually two versions, one which contains two 16K ROMs, conforming to level zero, and the all-singing level one plus extensions version for the 6502 second processor.

The latter, when used with the optional stand-alone code generator (another £30) produces professional results. Most will be satisfied, however, with the cooking version.

As it happens, I have a copy of ISO Pascal, plus reference book, example source files and references to chase up going for...nothing. All you have to do is write to me c/o *Express*, giving good reasons why you should have it.

## BROWN'S QUESTION TIME

**Q: Do you know what is the most dangerous thing to an Eprom in the whole universe?**

**A: You. If you're surprised, you really shouldn't be, because apart from obvious hazards like inserting your Eproms under a sun-lamp, the sweat from your fingers is highly dangerous to these little devices. So wear gloves when inserting them, or try giving them a quick wipe with a solvent at the last minute.**

## LOOKING AT LASERS

As I predicted last year, laser printers have taken the printer market by storm, and they now hold over 50 per cent of the market (source ROMTEC). The release of such machines as the Canon LPBII4 – four pages-per-minute – has really opened the market at the low end, although high-end lasers are high priced.

Furthermore, mid-range machines are being squeezed in price. For example, the Epson GQ5000, which has a wide range of emulations (HP Laserjet2, Epson FX and LQ) plus expansion options, has had its price cut. Look out for deals in this range – they're definitely around for the finding.

**Andrew Brown**

# XE

## COMMS BUG CONT

Which modem should you buy, and what should you look for in a good modem?

First, speeds. All modems offer at least one and usually several data transfer speeds. Obviously, the faster you send and receive data, the quicker your telephone call will be and consequently the smaller the quarterly bill.

The best – affordable – modems offer V21, V22, V23 and V22bis (300/300, 1200/1200, 1200/75 and 2400/2400 respectively) and will enable you to log onto every bulletin board and public information service currently operating in the UK. However, a modem providing these speeds will costs several hundred pounds, so if cash is a little tight, then choose a modem that offers 300/300 and 1200/1200, V21 and V22.

You'll want to get an automatic modem ie, one that performs the dialing and log on sequence automatically under software control, rather than via twiddling knobs on the front panel – most modems on the market are automatic.

And if you're thinking of setting up your own bulletin board, an auto-answer modem is essential. Auto-answer modems pick up the telephone line when another modem calls and enables the caller to log on to your board.

One of the best modems available is the WS4000 from Miracom ltd (0473 233888). This is an auto-dial, auto-answer, Hayes compatible device, priced around £130. Look through the small ads in Shopping Express, there's a good chance you'll find one.

**Edmund Blake**

# ARCHIMEDES

## CONFIGURING IT OUT

In the Arc's early days there were a lot of programs that reconfigured the machine for their own use. Most were good enough to set it back to some kind of normality when they'd finished, but a few left it it in a peculiar state.

More recently, RISCOS applications have been much better about trampling on the configuration, mainly because they haven't been written to take over the whole machine. It's therefore annoying when you run an old disk and find it has left your precious Arc 'maladjusted'.

One way to resolve things is to perform an [R] switch on. This resets everything to its default setting, except the number of drives (floppy and hard), the country code (nothing to do with closing gates behind you) any information about expansion cards and, above all, the Econet station number.

## DIRECTORY OPEN

A reminder that you can open an application directory – one beginning with a '!', by clicking Select while holding down the [Shift] on the keyboard. Clicking Select on its own, of course, simply runs the !Run file within the selected directory.

## WANT LIST

I'd be interested to hear readers' ideas on useful programs they would like to see on the Arc. I can then pass on the best of these, or include details of existing products that fit the bill. I'd be equally pleased to hear of products about which I as yet know nothing, particularly if they'd interest other Arc users. You never know, I might even be able to drum up a few sales.

So for starters, has anyone a good screen grabber which can copy an Arc screen to a disk file, preferably in *!Paint* format? Not only would this be good for frustrated journos who find it hard to grab screens of products under review, but it might also brighten up this column, as it can then accomodate screen shots. Any takers?

The other request is on a related subject; graphic file transfer. There's a lot of clip-art sitting out there in standard Mac and PC formats, and much of it in the public domain.

Wouldn't it be nice to be able to import graphics files and convert them into *!Paint* or *!Draw* formats? The most common source formats are probably *Mac Draw*, encapsulated PostScript, PCX, IMG and GEM. There's a big market here somewhere for the right product.

## QUICK QUERY

What happens when you've installed so many applications and utilities on the icon bar that there's no room left? Or are we to assume there will never be *that* many applications?

## LATEST TEMPEST FORECAST

Clares Micro Supplies has delayed release of its DTP program *Tempest* until the end of May. Although it will be finished before then, the company has too much going on for the next month or so to gear up for an earlier launch.

Dave Clare, owner of CMS, claimed today that the program would work happily in 1Mb, would work a lot faster than Acorn's own DTP and would cost £50 less. This seems to be a recipe for success – time alone, of course, will tell.

*Acorn DTP* struggles to do anything in 1Mb and *Impression* starts to squeal 'Where did that memory go?' if you try to multi-task it with anything non-trivial. What it comes down to is cheaper memory upgrades – the Arc needs more than 1Mb for serious applications.

**Bertrum Carrot**

## A PROPER LAPSE

**Apologies to the Font Foundry for suggesting last week that the fonts might not print properly. It was my fault for having installed the LaserJet driver incorrectly.**

**The LaserJet was set to a resolution of 150dpi, which accounted for the rather ragged appearance of the fonts when printed. I'm spoilt enough to have almost forgotten what 150dpi text looks like.**

**Selecting 300dpi from the driver's option window sorted the problem and produced some good looking text. But what a silly default, when virtually all LaserJet type laser printers are capable of 300dpi printing.**

# 520ST-FM SUPER PACK

The Atari Super Pack is ideal for you if you want to get off to a flying start with the best in entertainment software. The Pack includes a 520ST-FM with ½Mb RAM, a built-in 1Mb disk drive, over £450 of top games and a joystick. If you buy the Super Pack at Silica Shop, we will add our own ST Starter Kit (worth over £200), Free Of Charge. Return the coupon for details.

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| Zynaps | Hewson Consultants | £19.99 |

### SPORTS SIMULATIONS

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| Eddie Edwards Super Ski | Elite | £19.95 |
| Seconds Out | Tynesoft | £19.95 |
| Summer Olympiad '88 | Tynesoft | £19.95 |

### PRODUCTIVITY SOFTWARE

| | | |
|---|---|---|
| Organiser | Triangle Publishing | £49.95 |

### JOYSTICK

| | | |
|---|---|---|
| Atari CX40 Joystick | Atari Corp | £4.99 |

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The range of Atari ST computers offers something for everyone. From the games enthusiast who wants the challenge of the very best in arcade action, to the businessman who wants to make financial forecasts or faultless presentations. The ST offers high quality graphics, sound and speed for the gamer, whilst providing a fast, user friendly and affordable solution to business. The ST is now firmly established in the home environment and boasts a wealth of users in education, local government, television, and a variety of different businesses. Software for the range stretches to cover applications as diverse as ENTERTAINMENT, ACCOUNTS, ART, COMMUNICATIONS, COMPUTER AIDED DESIGN, DATABASES, DESKTOP PUBLISHING, EDUCATION, MUSIC, PROGRAMMING, SPREADSHEETS, WORD PROCESSING and more. For a full list of the software available, as well as details of the ST range, complete and return the coupon below.

*All prices correct at the time of going to press. E&OE*

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The value for money offered by the Atari ST range is reflected in the Explorer Pack featuring the 520ST-FM computer with 512K RAM. The 520ST-FM computer now comes with a built-in 1 Mb double sided disk drive as well as a free mouse controller and a built-in TV modulator. The new 520ST-FM Explorer Pack includes the 520ST-FM computer, the arcade game Ranarama, a tutorial program and some useful desktop accessories. In addition, if you buy the Explorer Pack from Silica, we will give you the Silica ST Starter Kit worth over £200, FREE OF CHARGE. Return the coupon for details of our Starter Kit and of the full ST range.

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| | | |
|---|---|---|
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NORMAL RRP: £884.82
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# 2Mb & 4Mb MEGA ST

The MEGA ST computers are styled as as lightweight keyboard with a separate CPU, connected by a coiled telephone style cable. There are two versions of the MEGA ST, one with 2Mbytes of RAM and the other with 4Mbytes. Each version has a 1Mbyte double sided disk drive built-in to the CPU unit. The MEGA ST's do not come with modulator built-in and must therefore be used with a monitor. With every MEGA ST purchased, we will add the 'Professional Pack' software (worth £384.83) detailed above, plus the Silica ST Starter Kit (worth over £200) both Free Of Charge. Return the coupon for further details.

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+colour monitor = £1498

# DTP PageStream £149 +VAT =£171.35

Desktop Publishing (DTP) is one of the fastest growing applications for personal computers. We are pleased to announce a powerful low cost package for the Atari ST called PageStream. PageStream costs only £149 (+VAT=£171.35) and, because it works with an Atari 1040ST and a Seikosha SP-180AI printer, you can be up and running with a complete system for less than £1000. Some of the features of PageStream are listed to the right. If you would like further information on this program, complete and return the coupon below, ticking the 'DTP' box in the corner.

- TEXT-FLOW AROUND GRAPHICS
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# WHY SILICA SHOP?

Before you decide when to buy your new Atari ST computer, we suggest you consider very carefully WHERE you buy it. There are MANY companies who can offer you a computer, a few peripherals and the top ten selling titles. There are FEWER companies who can offer a wide range of products for your computer and expert advice and help when you need it. There is ONLY ONE company who can provide the largest range of Atari ST related products in the UK, a full time Atari ST specialist technical helpline and in-depth after sales support, including free newsletters and brochures delivered to your door for as long as you require after you purchase your computer. That one company is Silica Shop. We have been established in the home computer field for ten years with an annual turnover in excess of £8 million and can now claim to meet our customers requirements with an accuracy and understanding which is second to none. But don't just take our word for it. Complete and return the coupon below for our latest literature and begin to experience the Silica Shop specialist Atari service.

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# THE SHOPPING EXPRESS BUYERS' GUIDE TO

# 50 TOP PCs

Looking for a PC? Let *Express* help you make the right choice. Here's a definitive list of the top 50 PCs on the market with the vital details on each.

Each PC is listed alphabetically, with the manufacturer's phone number and the recommended retail price. It is often possible to get a better deal than this, especially by mail order – check out the advertisements in this issue.

Below the price is the technical specification of that computer; which microprocessor it has, how much memory, what kind of graphics display it uses, which disk drive, what input and output ports it's supplied with and any extras the manufacturer throws in.

## POWER RATING

We've worked out a power rating for each machine. Does it pack the punch you need? Anything under 50 is fine for most uses – word processing, running a club or small business, playing the odd game – while if you're after power computing you'll need a machine round the 100 mark. It's only a rough guide, of course, and only has a meaning relative to the other ratings. Check the tech specs to see if it'll do the specific things you need.

For the curious, here's how we worked out the power ratings. 386, 30 points; 286, 20 points; V20/40, 15 points; 86, 10 points; 88, 5 points; serial ports 2 points each parallel ports 2 points each; expansion slots 2 points each; 2.5Mb, 25 points; 2Mb, 20 points; 1Mb, 10 points; 640K, 8 points; 512K, 5 points; hard drive, 15 points; 3.5-inch disk, 10 points; 5.25-inch disk, 5 points: VGA, 20 points; EGA, 10 points; CGA, 5points.

## DESIRABILITY RATING

There's also a desirability rating out of 100 – although the power rating is the most important, this indicates essentially 'how good' the machine is. This takes into account intangibles such as build quality and appearance as well as the perceived 'slickness' of the machine. Anything with single figures you'd be happy to get for Christmas but wouldn't walk down the road to buy. 30s and 40s would be worth a trip out of town to get. Anything over 90 and you'd sell your house and all its contents to buy one.

## VALUE FOR MONEY

Finally there is the value for money rating. Measured out of five, the star rating indicates just how much computer you get for your pound.

### ● AMSTRAD PC1640

**£499 • 0277 228888 • 8086 CPU (4.77/8MHz) • 640K RAM • EGA • 1 parallel port • 1 serial port • 3 expansion slots • 5.25-inch floppy • GEM • Mouse**

Bottom of the – usable – range Amstrad PC. Plastic case of flimsy construction containing only three expansion slots and supporting a poor quality monitor which also houses the power supply (making it next to impossible to upgrade a mono system to colour). The package includes a GEM graphic operating system as well as MS-DOS and a mouse. Enjoys the somewhat ambiguous distinction of being cheap.

**Power: 43**
**Desirability: 15**

**VALUE FOR MONEY: ★★★**

### ● AMSTRAD PC2286

**£999 • 0277 228888 • 80286 CPU • 1Mb RAM • VGA • 1 parallel port • 1 serial port • 5 expansion slots • 40Mb hard drive • mouse and bundled software**

The Amstrad stab at high tech. Good quality VGA display let down by plastic machine with enormous footprint and slow hard drive. The machine is at least supplied with a reasonable – if not generous – supply of expansion slots.

**Power: 79**
**Desirability: 50**

**VALUE FOR MONEY: ★★★**

### ● APRICOT XEN-S PC

**£1,895 • 021-456 1234 • 386SX CPU • 1Mb RAM • VGA • 1 parallel port • 2 serial ports • 3 expansion slots • 30Mb hard drive**

Well-known for attempts at providing powerful computers, the XEN-S PC is Apricot's mid-range 386 machine. Reasonable construction, moderate keyboard but expensive.

**Power: 87**
**Desirability: 60**

**VALUE FOR MONEY: ★★**

### ● ARC PT88-1

**£810 • 01-684 1948 • 8088 CPU • 640K RAM • CGA • 1 parallel port • 2 serial ports • 4 expansion slots • 5.25-inch floppy • paper-white monitor**

ARC's bottom of range computer. A well made machine which, although expensive, comes with four expansion slots and a paper-white monitor.

**Power: 37**
**Desirability: 20**

**VALUE FOR MONEY: ★★**

### ● ARC PT 88-2

**£1,140 • 01-684 1948 • 8088 CPU • 640K RAM • CGA • 1 parallel port • 2 serial ports • 4 expansion slots • 20Mb hard drive • paper-white monitor**

One of a large range of PC compatibles from ARC, the PT88-2 is a well made computer which suffers from being a little expensive.

**Power: 47**
**Desirability: 30**

**VALUE FOR MONEY: ★★**

➤

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## REPAIRS FOR AMIGA AND ATARI

### ● ARC T304

**£3,650 • 01-684 1948 • 80386 CPU • 2Mb RAM • VGA • 1 parallel port • 2 serial ports • 8 expansion slots • 40Mb hard drive (and twin floppies) • paper-white monitor**
Starter computer for Arc's top the range machines, the T304 with 386 central processor, 40Mb hard drive and paper-white monitor is an excellent machine.

**Power: 107**
**Desirability: 85**

VALUE FOR MONEY: ★★★★

### ● ATARI PC3

**£919.99 • 01 309 7770 • 8088 CPU • 640K RAM • EGA • 1 parallel port • 1 serial port • 4 expansion slots • 30Mb hard drive • mouse**
Atari's foray into the PC compatible market opens with the PC3. Cheap, well made useable machine which commands consideration from anyone searching for a first PC with hard drive on a limited budget.

**Power: 50**
**Desirability: 45**

VALUE FOR MONEY: ★★★

### ● ATARI PC5

**£2,299 • 01-309 7770 • 80386 CPU • 2Mb RAM • VGA • 1 parallel port • 1 serial port • 5 expansion slots • 60Mb hard drive (with high performance controller card) • 1.2Mb 5.25-inch floppy**
The last word in PC power from Atari, the PC5 is aimed fairly and squarely at the 'power user'. Superior specifications and a very reasonable price ensures its success in the high-end market place.

**Power: 99**
**Desirability: 75**

VALUE FOR MONEY: ★★★★

**Power:45**
**Desirability: 38**

VALUE FOR MONEY: ★★★

### ● COMMODORE PC10

**£549 • 0628 770088 • 8088 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 3 expansion slots • 5.25 floppy**
Entry level PC compatible from home computer manufacturer Commodore. Well made, good keyboard but a little expensive.

**Power:33**
**Desirability: 20**

VALUE FOR MONEY: ★★★★

### ● COMMODORE PC 60-80

**£3009 • 0628 770088 • 80386 CPU • 2.5Mb RAM • VGA • 2 parallel ports • 2 serial ports • 8 expansion slots • 80Mb hard drive**
Power computing for the people! The PC60-80 is one of the most powerful of the affordable 386 machines on the market. The computer is thoughtfully designed, well made and at this price, sports unbelievable potential.

**Power: 114**
**Desirability: 95**

VALUE FOR MONEY: ★★★★

### ● COMPAQ DESKPRO 286

**£1,995 • 01-332 3000 • 80286 CPU • 640K RAM • VGA • 1 parallel port • 1 serial port • 7 slots • 20Mb hard drive • 1.2Mb floppy**
Renowned for quality, powerful – if expensive – computers, the DeskPro 286 carries on the tradition of Compaq.

**Power: 66**
**Desirability: 55**

VALUE FOR MONEY: ★★★

### ● COMPAQ DESKPRO 386

**£2695 • 01-332 3000 • 80386 CPU (20MHz) • 1Mb RAM • VGA • 1 parallel port • 1 serial port • 7 expansion slots • 20Mb hard drive • 1.2Mb floppy**
Compaq's top of the range power computer. Highly desirable machine featuring a 20MHz 386 central processor, clean construction, good keyboard etc.

**Power: 83**
**Desirability: 80**

VALUE FOR MONEY: ★★★

### ● DELL SYSTEM 325

**£4499 • 0800 414535 • 80386 CPU • 1Mb RAM • VGA • 1 parallel port • 2 serial ports • no expansion slots • 320Mb hard drive**
Dell is generally regarded as being the power computer manufacturer and the System 325 machine does nothing to dispel the fact. Powerful and with an enormous disk drive. A desire for power and bulging coffers are the necessary qualifications for this machine.

**Power: 81**
**Desirability: 90**

VALUE FOR MONEY: ★★★

### ● DOLAN XT

**£599 • 0267 234444 • 8088 CPU • 640K • Hercules • 2 serial ports • 2 parallel ports • 8 expansion slots • 40Mb hard drive • bundled software**
Cheap entry-level XT from Dolan. Very good value for money, with a paper-white monitor and fast hard drive. Recommended.

**Power: 60**
**Desirability: 60**

VALUE FOR MONEY: ★★★★★

### ● DOLAN 386

**£1145 • 0267 234444 • 80386SX CPU • 1Mb RAM • VGA • 2 serial ports • 2 parallel ports • 5 expansion slots • 20Mb hard drive • mouse, bundled software**
High-spec Dolan 386 AT which includes a fast hard drive at an incredible price.

**Power: 85**
**Desirability: 80**

VALUE FOR MONEY: ★★★★★

### ● ELONEX PC 88- M

**£645 • 01-965 3225 • V20 • 640K RAM • CGA • 1 parallel port • 1 serial port • 2 expansion slots • 20Mb hard drive • GEM, mouse**
The PC 88-C is Elonex's entry level machine. Sporting a fast V20 processor and 20Mb hard drive for a miniscule £700 the machine deserves a place at the top of any budget PC shopping list. This machine is essentially well-made and reliable.

# Abbot

**Telephone: Malvern (0684) 562061/569059**
**Fax: (0684) 569237**

CARRIAGE IS £10 PER ORDER, EXCEPT LEADS, IC'S, SOFTWARE AND DISKS WHERE THE CHARGE IS £1.50
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Access VISA

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**Price includes One Year On-Site Warranty, Integrated Software, Training Video, MSDOS Tutorial and Typing Tutor - THE IDEAL BEGINNERS COMPUTER!**

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| PC10 (XT) Single Drive/12" Colour | £667 |
| PC10 (XT) Single Drive/14" VGA Mono | £688 |
| PC10 (XT) Single Drive/14" VGA Colour | £780 |
| PC10 (XT) Dual Drive/12" Mono | £571 |
| PC10 (XT) Dual Drive/14" Colour | £715 |
| PC10 (XT) Dual Drive/14" VGA Mono | £734 |
| PC10 (XT) Dual Drive/14" VGA Colour | £826 |
| PC20 (XT) 20Mb HD/12" Mono | £734 |
| PC20 (XT) 20Mb HD/14" Colour | £872 |
| PC20 (XT) 20Mb HD/14" VGA Mono | £918 |
| PC20 (XT) 20Mb HD/14" VGA Monitor | £1010 |
| PC30 (XT) 20Mb HD/14" Mono | £1061 |
| PC30 (XT) 20Mb HD/14" EGA Colour | £1238 |

## COMMODORE AMIGA

| | |
|---|---|
| A500 + TV Modulator | £322 |
| A500 + TV Modulator A501 RAM & Dragons Lair | £390 |
| A500 + 1084S Colour Monitor | £538 |
| A2000 Computer | £930 |
| A2000 Colour Monitor | £1154 |
| Ten Star Games Pack (rrp 199) | £30 |

We Supply **ALL** Amiga peripherals, please call for details.

## AMSTRAD PC1512

Supplied with Migent Ability Integrated Software and Four Games.

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|---|---|
| Single Drive/Mono Monitor | £375 |
| Dual Drive/Mono Monitor | £467 |
| Single Drive/Colour Monitor | £430 |
| Dual Drive/Colour Monitor | £545 |

## AMSTRAD PC1640

| | |
|---|---|
| Single Drive/Mono Monitor | £464 |
| Dual Drive/Mono Monitor | £545 |
| 30Mb HD/Mono Monitor | £728 |
| Single Drive/Colour CGA Monitor | £571 |
| Dual Drive/Colour CGA Monitor | £641 |
| 30Mb HD/Colour CGA Monitor | £815 |
| Single Drive/Colour ECD Monitor | £667 |
| Dual Drive/Colour ECD Monitor | £728 |
| 30Mb HD/Colour ECD Monitor | £908 |

## AMSTRAD MODEMS

| | |
|---|---|
| MC2400 2400 Baud Modem Card | £179 |
| SM2400 Baud Modem | £224 |

## AMSTRAD FAX MACHINE

| | |
|---|---|
| FX9600T Fax Machine | £559 |
| Fax Paper (10x30m rolls) | £36 |

## SEIKOSHA SPECIAL!

| | |
|---|---|
| SP180AI - 80col/120cps/1.5k Buffer | £120 |
| SP1200AI - 80col/120cps/2.3k Buffer | £131 |
| SL80AI - 24 pin/80col/135cps/16k Buffer | £241 |

## AMSTRAD PC2086

Supplied with Lotus Symphony (worth £550.00 plus VAT)

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| Single Drive/12" VGA Mono | £560 |
| Dual Drive/12" VGA Mono | £627 |
| 30Mb HD/12" VGA Mono | £806 |
| Single Drive/14" VGA Colour | £650 |
| Dual Drive/14" VGA Colour | £717 |
| 30Mb HD/14" VGA Colour | £896 |
| Single Drive/12" VGA Colour Hi-Res | £739 |
| Dual Drive/12" VGA Colour Hi-Res | £806 |
| 30Mb Drive/12" VGA Colour Hi-Res | £986 |
| Single Drive/14" VGA Colour Hi-Res | £829 |
| Dual Drive/14" VGA Colour Hi-Res | £896 |
| 30Mb Drive/14" VGA Colour Hi-Res | £1075 |

## PRINTERS

| | |
|---|---|
| Amstrad DMP3160 80col/160cps/P | £123 |
| Amstrad DMP3250 80col/160/40cps/S&P | £129 |
| Amstrad LO3500 24pin/80col/160cps/P | £199 |
| Amstrad LO5000 24 pin/136col/288cps/P | £329 |
| Citizen 180E 120cps/80col/P | £178 |
| Citizen MSP15E 160cps/136col/P | £223 |
| Citizen Prodot9X 300cps/80col/P | £340 |
| Citizen Prodot24 200cps/24pin/S&P | £434 |
| Citizen Swift24 194cps/24pin/80col/P | £302 |
| Star LC10 80col/125cps/P | £147 |
| Star LC10C Colour/80col/125cps/P | £179 |
| Star LC10II 80col/180cps/P | £167 |
| Star LC15 132col/120cps/P | £289 |
| Star LC24 - 10 80col/24pin/180cps/P | £214 |
| Star LC24 - 15 136col/24pin/200cps/P | 349 |
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| Star FR15* 136col/300cps/P | £436 |
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| Star XB24 - 10* 136col/24pin/240cps/P | £573 |

* INCLUDE 1 YEAR ON-SITE MAINTENANCE

**PLEASE CALL FOR ACCESSORIES/RIBBON PRICES**

PARALLEL CENRONICS PRINTER LEAD £7.50

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| HP Laserjet II* 8ppm/512k | £1378 |
| HP Laserjet IID* Dual Bin/Duplex | £2075 |
| Star LP8II* 8ppm/Dual Interface | £1436 |
| Star LP8DB* As LP8II with Dual Bin | £1895 |
| Star LP8PS* As LP8II with Postscript | £2074 |
| Star LP8DX* As LP8II with Dual Bin and Duplex | £2276 |

* INCLUDE 1 YEAR ON-SITE MAINTENANCE

## JUMBO TAPESTREAMER 40/60Mb

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| Amstrad PC1640 External Version | £378 |
| Internal XT/AT Version | £269 |
| External XT/AT Version | £371 |
| 40Mb Formatted Tape | £25 |
| 60Mb Formatted Tape | £38 |

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SUNDAY 10.00 am - 12.30 pm

## MONITORS

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| Amstrad 12" Mona VGA (66 Grey Scale) | £129 |
| Amstrad 14" Colour VGA (0.42 D?Pitch) | £229 |
| Amstrad 12" Colour VGA Hi-Res (0.28) | £329 |
| Amstrad 14" Colour VGA Hi-Res (0.28) | £429 |
| NEC Multisync 2A | £422 |
| VGA Card | £169 |

## TANDON AT RANGE

### PCA/12s1
**12Mhz 80286/640k RAM/5.25" 1.2Mb FD**

| | |
|---|---|
| PCA/12sl - Singls Floppy Drive | £869 |
| PCA/12sl - 20Mb Hard Disk | £999 |
| PCA/12sl - 40Mb Hard Disk | £1129 |

### PCA/12
**12Mhz 80286/1Mb RAM/5.25" 1.2Mb FD**

| | |
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| PCA/12 - Single Drive | £1186 |
| PCA/12 - 40Mb Hard Disk | £1499 |
| PCA/12 - 110Mb Hard Disk | £1719 |

### PAC 286/386sx
**With removable Hard Disk**

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| PAC286 - 12Mhz, 30Mb Data Pac Inc. | £1429 |
| PAC386sx - 16Mhz, 30Mb Data Pac Inc. | £1829 |
| 30Mb Data Pac | £190 |
| 40Mb Data Pac | £323 |

### TARGET 386sx
**16Mhz 80386/1Mb RAM/1.2Mb FD**

| | |
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| Target 386sx-40 - 40Mb Hard Disk | £1430 |
| Target 386sx-110 - 110Mb Hard Disk | £1734 |

### 386/20 and 33
**20Mhz & 33Mhz 80386/1Mb RAM/1.2Mb FD**

| | |
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| 386-20/sf - 20 Mhz, Single Drive | £2018 |
| 386-20/40 - 20Mhz, 40Mb Hard Disk | £2414 |
| 386-20/110 - 20Mhz, 110Mb Hard Disk | £2652 |
| 386-33/sf - 33Mhz, Single Drive | £3111 |
| 386-33/110 - 33Mhz, 110Mb Hard Disk | £3903 |
| 386-33/300 - 33Mhz, 300Mb Hard Disk | £4900 |

**486 VERSION AVAILABLE - PLEASE CALL**

The above prices include Mono Monitor, MSDOS, Windows, GWBASIC, Keyboard. For other monitors please see below:-

| | |
|---|---|
| **Mono VGA - add to the above prices** | **£155** |
| **Colour VGA - add to the above prices** | **£349** |

## HARD DISK DRIVE

| | |
|---|---|
| 30Mb Hard Card | £205 |

## LOOK! A 16mhz 'AT' COMPATIBLE FOR ONLY £700

| | |
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| **Newtron 286 Base Unit/1.44Mb Floppy Drive/ MSDOS 3.3/16Mhz 80286/512k RAM/6 Expansion Slots.** | **£700** |
| Additional 512k RAM = 1Mb On Board-Add | £65 |
| Additional 1.5Mb RAM = 2MB On Board - Add | £130 |
| On-Site Maintenance - Add | £50 |

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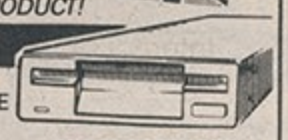

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| A590 HARD DRIVE | £379.99 |
| RAM CHIPS FOR A590 TO GIVE UPTO 2 MEGS | £45.00/512K |
| PHILIPS CM8833 STEREO COLOUR MONITOR | £244.99 FREE CABLE |
| PHILIPS 12" MONO MONITOR FOR AMIGA | £84.99 FREE CABLE |
| STAR LC 10 PRINTER | £169.99 FREE CABLE |
| STAR LC10 COLOUR PRINTER | £214.99 FREE CABLE |
| STAR LC24 — 10 24 PIN PRINTER | £249.99 FREE CABLE |
| CITIZEN 120D PRINTER | £139.99 FREE CABLE |
| DIGIVIEW GOLD V4.0 | £139.95 |
| PACE LINNET MODEM & CABLE FOR A500 | £174.95 |
| MINIGEN GENLOCK FOR A500 | £109.99 |
| MARCONI TRACKERBALL FOR AMIGA | £54.95 |
| REPLACEMENT MOUSE + MOUSE HOLDER & MAT | £29.99 |

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STEREO SAMPLER MK II ..... **£39.99** AUTOMATIC
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Our original superb **MONO SAMPLER** is still available — **only £27.99.**

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**MINIAMP 4 STEREO SPEAKER SYSTEM** A SUPERB STEREO SOUND SYSTEM FOR YOUR AMIGA
A new two chip 'bridge' circuit now gives over 5 watts of high quality sound per channel, & the now standard 2 pin Din speaker sockets enable many domestic speakers to be used. The improved, compact, twin cone speakers come with 6' of cable for ideal placement & perfectly match the Amiga's amazing stereo sound. Also suitable for boosting personal stereos etc. Complete with audio leads & mains power unit.

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Power: 51
Desirability: 40

VALUE FOR MONEY: ★★★★

### ● ELONEX PC286M - 120

**£1495 • 01-965 3225 • 80286 CPU (12MHz) • 640K RAM • CGA • 1 parallel port • 2 serial ports • 3 expansion slots • 40Mb hard drive • GEM • mouse**
Mid-range Elonex compatible featuring 40Mb hard drive and a small footprint.

Power: 58
Desirability: 40

VALUE FOR MONEY: ★★★★

### ● ELONEX PC 382S-200

**£3095 • 01-965 3225 • 80386 CPU • 1MB RAM • VGA • 1 parallel port • 2 serial ports • 3 expansion slots • 320Mb hard drive • GEM, mouse**
The top of range Elonex computer sporting a 320Mb hard drive and VGA graphics at an affordable price.
Power: 87
Desirability: 75

VALUE FOR MONEY: ★★★

### ● EPSON PSE HD

**£849 • 0442 61144 • 8088 CPU • 640K • CGA • 1 parallel port • 1 serial port • 3 expansion slots • 20Mb hard drive**
Epson provided the industry standard for 9-pin printers and control codes but is not going to set any standards with the PCe. Expensive and under-powered .

Power: 33
Desirability: 0

VALUE FOR MONEY: No stars

### ● EPSON AX FD

**£1,599 • 0442 61144 • 80286 CPU • 640K • CGA • 1 parallel port • 1 serial port • 7 expansion slots • 5.25 floppy**
Mid-range Epson 286-based PC. Incredibly overpriced.

Power: 51
Desirability: 2

VALUE FOR MONEY: ★

### ● EPSON AX80 HD

**£2,499 (excl. monitor) • 0442 61144 • 80286 CPU • 640K • CGA • 1 parallel port • 1 serial port • 6 expansion slots • 80Mb hard drive**
Ridiculously overpriced top of range computer from Epson. Price does not include a monitor (!).

Power: 64
Desirability: 0

VALUE FOR MONEY: ★

### ● IBM PS/2 30

**£1,391 • 01-747 0747 • 8086 CPU • 640K RAM • EGA • 1 parallel port • 1 serial port • 3 expansion slots • 3.5 floppy**
IBM's starter machine. Very well made, reliable and with the backing of Big Blue. Not cheap, but then the best always costs a little more, right?

Power: 48
Desirability: 75

VALUE FOR MONEY: ★★

### ● IBM PS/2 50

**£2,580 • 01-747 0747 • 80286 CPU • 1MB RAM • VGA • 1 parallel port • 1 serial port • 3 expansion slots • 20Mb hard drive**
From the company that started it all, the mid-range computer. All the superlatives associated with the model 30 and 10 times the desirability.

Power: 65
Desirability: 95

VALUE FOR MONEY: ★★

### ● IBM PS/2 80

**£4,763 (from) • 01 747 0747 • 80386 CPU • 2MB RAM • VGA • 1 parallel port • 1 serial port • 7 expansion slots • 44-314Mb hard drive • 1.2 Mb floppy • floor standing**
The computer from the computer company.

Power: 103
Desirability: 100

VALUE FOR MONEY: ★★

### ● NEC POWERMATE 1

**£1,395 • 01-993 8111 • 80286 CPU • 640K RAM • VGA • 1 serial • 1 parallel • 6 expansion slots • 20Mb hard drive**
NEC's entry level computer. Fast but expensive.

Power: 59
Desirability: 50

VALUE FOR MONEY: ★★★

### ● NEC POWERMATE 386 20

**£3795 (excl. monitor) • 01-993 8111 • 80386 CPU • 2Mb RAM • VGA 2 serial ports • 1 parallel port • 8 expansion slots • 300Mb hard drive**
Top of range NEC 386-based machine. Vast power but an expensive buy.

Power: 95
Desirability: 65

VALUE FOR MONEY: ★★

### ● NESS AT-286 S

**£1,195 • 01 806 1072 • 80286 CPU • 512K RAM • CGA • 2 parallel ports • 1 serial port • 5 expansion slots • 20Mb hard drive**
Mid-range PC compatible notable only for its non-conformist specifications!

Power: 61
Desirability: 30

VALUE FOR MONEY: ★★

### ● OPUS PCIII SF TURBO

**£549 • 0737 765080 • 8088 CPU • 256K RAM • CGA • 1 parallel port • 1 serial port • 7 expansion slots • 5.25 floppy**
The UK's second largest PC compatible manufacturer (Amstrad being the first) Opus have a fine reputation for quality machines. The PCIII is ideal for use as a LAN terminal.

Power: 34
Desirability: 30

VALUE FOR MONEY: ★

### ● OPUS PC IV TURBO

**£1199 • 0737 765080 • 80C88 CPU • 768K RAM • CGA • 1 parallel port • 1 serial port • 2 expansion slots • 20Mb hard drive**
Mid-range Opus machine which is reasonably priced but lacking in ➤

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12MHz, V20, 0k, 8 slots. Small size, takes 256k x 4 DIL.
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**£158.00** + £4.50 p&p

**AT TURBO PLUS**
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## "SKELETON" SYSTEMS

These systems include case, 180W PSU and motherboard, fully assembled. You add memory, keyboard, display, floppy drive and adapter cards.

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**12MHz AT £250**
**16MHz AT £305**
Carriage £10

## CASES

**XT/AT CASE**
Space for three 5.25" floppy/hard disk drives and one 3.5" drive.
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180W PSU **£44.85**
(+ £3 p&p)
(Suits budget case)

**DE-LUXE CASE**
Same disk space but prettier! Speed display.
**£65.00** (+ £6 p&p)

**MINI TOWER CASE**
As DE-LUXE case but desk-top tower style.
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200W PSU **£69** + £3

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If you are not sure how to go about building your own PC, this book is for you. 112 pages full of DIY tips for **£7.95** including postage. (No VAT)

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This board auto-switches between 8 and 16 bit, drives mono, EGA and VGA monitors, (in native mode) and supports all standard VGA modes. Easy upgrade to extended VGA to give 1024 by 768.
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**102 keyboard £46**
+ £6 p&p

## I/O ADAPTORS

**RS232** short card
**£16.10** (+ £2 p&p)

**SERIAL/GAME/ PARALLEL CARD**
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|---|---|---|---|---|
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| Amstrad DMP4000 | F | 4.70 | 8.93 | 21.15 |
| Amstrad LQ5000 | F | 5.28 | 10.03 | 23.75 |
| Brother HR15/EM200 | F | 3.57 | 6.78 | 16.06 |
| Brother HR15/EM200 | MS | 4.03 | 7.66 | 18.13 |
| C.Itoh Pro I/II | F | 4.06 | 7.71 | 18.27 |
| Canon 1156A | F | 3.73 | 7.10 | 16.78 |
| Centronics H80 | F | 3.73 | 7.10 | 16.78 |
| Citizen 1200 | F | 3.44 | 6.48 | 14.74 |
| Citizen Swift 24 | F | 4.95 | 9.40 | 22.27 |
| Commodore MPS1230 | F | 3.43 | 6.52 | 15.44 |
| Commodore MPS801 | F | 3.34 | 6.35 | 15.03 |
| Epson MX/RX/FX100 | F | 4.30 | 7.78 | 17.35 |
| Epson LX80/86 | F | 2.47 | 4.70 | 11.11 |
| Epson FX/MX/RX 80 | F | 3.44 | 6.48 | 14.74 |
| Epson LQ1000 | F | 4.38 | 8.32 | 19.71 |
| Epson EX800/1000 | F | 5.17 | 9.52 | 19.96 |
| Epson LQ2500/2550 | F | 4.73 | 8.99 | 21.28 |
| Facit 4512 | F | 2.75 | 5.24 | 12.37 |
| H.Packard D/Jet Cart | | 14.80 | 28.12 | 66.60 |
| IBM 4208/Pro, 24XL | F | 7.26 | 13.80 | 32.67 |
| NEC P2200 | F | 5.20 | 9.88 | 23.40 |
| OKI 390/391 | F | 4.60 | 8.74 | 20.70 |
| OKI 393 | F | 9.50 | 18.05 | 42.75 |
| Olivetti DM100 | F | 3.43 | 6.52 | 15.44 |
| Olivetti 35/40/45 | F | 7.11 | 13.51 | 31.99 |
| P'sonic KXP1080-1180 | F | 4.00 | 7.60 | 19.00 |
| Star LC10 | F | 3.44 | 6.48 | 14.74 |
| Star LC10 4 col | F | 7.70 | 14.63 | 34.65 |
| Star LC24-10 | F | 3.50 | 6.65 | 15.75 |
| Star NX15 | F | 5.71 | 10.85 | 25.69 |
| Star NL10 | F | 5.11 | 9.70 | 22.99 |
| Star SD10 | F | 4.81 | 9.15 | 21.64 |
| Star NC10 | F | 4.30 | 7.78 | 17.35 |
| T.Adler SE310 | F | 3.69 | 7.02 | 16.60 |
| T.Adler SE310 | MS | 4.56 | 8.67 | 20.52 |

.....and many many more
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| | | per | 25 | 23.43 |
| 5.25" | DS96tpi | per | 10 | 5.61 |
| | | per | 25 | 12.56 |

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really usable and useful expansion options.

**Power: 41**
**Desirability: 40**

**VALUE FOR MONEY: ★★**

### ● OPUS PC VI TURBO

**£1,999 (from) • 0737 765080 • 80286 CPU • 1Mb RAM • VGA • 1 parallel port • 1 serial port • 5 expansion slots • 60Mb hard drive • mouse port**

Top of range computer from Opus featuring good specifications.

**Power: 79**
**Desirability: 65**

**VALUE FOR MONEY: ★★**

### ● PHILIPS NMS 9115

**£799 • 01-689 2166 • 8088 CPU • 640K RAM • EGA • 1 parallel port • 1 serial port • 4 expansion slots • 20Mb hard drive**

Philips is a company with a deservedly good reputation in the consumer electronics market place for good quality, reliable and well made equipment. The NMS 9115 is the mid-range PC compatible from the company, offering decent specifications and a moderate price, the machine is worth more than a cursory glance.

**Power: 50**
**Desirability: 45**

**VALUE FOR MONEY: ★★★**

### ● PHILIPS PC FAX 2

**£1,049 • 01 689 2166 • 8088 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 4 expansion slots • 20Mb hard drive • internal Fax card**

The Philips PC Fax-2 offers the unusual add-on of a Fax card included in the price. An ideal computer for those concerned with communication as well as computing.

**Power: 50**
**Desirability: 60**

**VALUE FOR MONEY: ★**

### ● RSC 386T 20

**£2,229 (from) • 0923 243301 • 80386 CPU • 2Mb RAM • VGA • 1 parallel port • 2 serial ports • 8 expansion slots • 40-122Mb hard drive**

Top of the range 386 computer from relative newcomer RSC. Thoughtful design and quality construction guarantee the machine a share of the market.

**Power: 97**
**Desirability: 75**

**VALUE FOR MONEY: ★★★**

### ● SAMSUNG SPC 3000/2

**£699 • 01-391 0168 • 8088 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 7 expansion slots • 5.25 floppy**

Entry-level PC compatible from Korean computer manufacturer Samsung. The SPC3000 offers a good range of expansion options, quality construction and reliability.

**Power: 41**
**Desirability: 50**

**VALUE FOR MONEY: ★★**

### ● SAMSUNG MFC 60/100

**£1499 • 01 391 0168 • 0168 • 80286 CPU • 1MB RAM • EGA • 1 parallel port • 1 serial port • 6 expansion slots • 20Mb hard drive • 1.2Mb sloppy**

Samsung's attempt at attracting the power user, the MFC6000 computer is powerful and like all Samsung computers, well made and reliable.

**Power: 45**
**Desirability: 47**

**VALUE FOR MONEY: ★★★**

### ● SCHNEIDER EURO PC

**£446 • 0604 766572 • 8088 CPU • 512K RAM • CGA • 1 parallel port • 1 serial port • 1 expansion slot • 3.5 floppy • bundled software**

Entry-level PC compatible which breaks with the traditional '3 box' style of PC design and instead, includes motherboard and drive in the keyboard (similar to Atari ST and Commodore Amiga) – fine but where do you put expansion cards? There is one expansion port at the rear of the computer the use of which entails having your add-on hanging free at the exposed rear. Definitely for those with severely limited budgets (for another £50 you can have the Amstrad PC1640).

**Power: 31**
**Desirability: 5**

**VALUE FOR MONEY: no stars**

### ● SCHNEIDER TOWER AT

**£1398 • 0604 766572 • 80286 CPU • 512K • EGA • 1 serial port • 1 parallel port • 5 expansion slots • 20Mb hard drive bundled software**

The exact opposite of Schneider's other computer the Euro PC, the Tower AT is aimed at the power user with money to burn. The machine, however, offers reasonable specifications at a very moderate price and as such deserves your attention.

**Power: 50**
**Desirability: 45**

**VALUE FOR MONEY: ★★★**

### ● TANDON PCX20

**£1,045 • 0572 46800 • 80C88 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 5 expansion slots • 20Mb hard drive**

Tandon is a computer manufacturer responsible for a large range of PC and AT compatibles. The PCX 20 is an entry level computer which is robust and fully featured – worthy of close examination for those looking for a first PC.

**Power: 47**
**Desirability: 50**

**VALUE FOR MONEY: ★★★**

### ● TANDON PAC286 1.2 PLUS

**£1,688 • 0572 46800 • 80286 CPU • 1 Mb RAM • 1 parallel port • 1 serial port • 3 expansion slots • 20 Mb hard drive • 1.2Mb floppy**

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| 1640-HD (30) | 751 | 852 | 949 |

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| 2086-SD | 579 | 674 | 769 | 863 |
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| 2386-HD(65) | 1699 | 1783 | 1876 | 1963 |

## PORTABLES

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| PPC 512D | 485 |
| PPC 640S | 457 |
| PPC 640D | 578 |

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| Super Calc 3.21 | 77 |
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| Infomaster | 55 |
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| MODEL | Mono 1402 12" | Col 1084 14" | Mono VGA 1403 14" | Col VGA 30MG 809 14" |
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| PC10 Single Drive | 489 | 625 | 646 | 729 |
| PC10 Double Drive | 534 | 668 | 685 | 773 |
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| PC30 20MB Hard disk 'AT' | – | – | 996 | 1159 |

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| LC10P | 9 | 80 | 144/36 | 129 |
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| LC10PC | 9 | 80 | 144/36 | 168 |
| LC15P | 9 | 136 | 180/45 | 268 |
| FR10P | 9 | 80 | 300/76 | 299 |
| FR15P | 9 | 136 | 300/76 | 393 |
| LC24-10P | 24 | 80 | 170/57 | 199 |
| LC24-15P | 24 | 136 | 200/67 | 335 |
| XB24-10P | 24 | 80 | 240/80 | 395 |
| XB24- 154P | 24 | 136 | 240/80 | 519 |
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from Tandon featuring a high density floppy drive as standard. It is a little expensive.

**Power: 65**
**Desirability: 55**

**VALUE FOR MONEY: ★★**

### ● TANDON 382/20 110

**£3,399 • 0572 46800 • 80386 CPU • 1 Mb RAM • VGA • 1 parallel port • 1 serial port • 5 expansion slots • 110 Mb hard drive • Microsoft windows**
Top of range Tandon 386 featuring large capacity 110 megabyte hard drive, robust construction and reliability. This machine has everything you could ask of a PC compatible machine and has a price to match.

**Power: 79**
**Desirability: 65**

**VALUE FOR MONEY: ★★★**

### ● TANDY 1000SL

**£900 plus • 0922 710000 • 8086 CPU • 384K RAM • CGA • 1 parallel port • 1 serial port • 5 expansion slots • 20Mb hard drive**
Tandy is a company with a large amount of experience in the electronics industry. Tandy has numerous outlets around the country and the person-power to cope with warranty repairs etc. Consequently Tandy PC compatibles are a surprisingly good buy if a little expensive. The 1000SL is an unusual looking entry level computer which suffers from a small RAM to large price ratio.

**Power: 44**
**Desirability: 20**

**VALUE FOR MONEY: ★★★**

### ● TANDY 5000MC

**£3,999 • 0922 710000 • 80386 CPU • 2Mb RAM • VGA • 1 parallel port • 1 serial port • 10 expansion slots • 40Mb hard drive • bundled software**
Fully-featured 386 computer from Tandy. A high quality of construction and plenty of expansion potential.

**Power: 99**
**Desirability: 75**

**VALUE FOR MONEY: ★★**

### ● VICTOR VPC11C

**£1499 • 0494 461600 • 8086 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 3 expansion slots • 30-60Mb hard-drive**
No frills PC compatible from relative new-comer Victor. The machine is well made, has a super keyboard and crisp display. A little expensive at £1100.

**Power: 48**
**Desirability: 35**

**VALUE FOR MONEY: ★★★**

**Power: 70**
**Desirability: 60**

**VALUE FOR MONEY: ★★**

### ● VICTOR V386S

**£3,899 • 0494 461600 • 80386 CPU • 2Mb RAM • 1 parallel port • 1 serial port • 8 expansion slots • 130Mb hard drive**
Top of range 386-based computer from Victor. Expensive.

**Power: 95**
**Desirability: 70**

**VALUE FOR MONEY: ★★★★**

### ● VIGLEN VIG1

**£789 • 01-997 3000 • V20 CPU • 640K RAM • CGA • 1 parallel port • 1 serial port • 5 expansion slots • 30Mb hard drive**
The VIG 1 is an imaginatively titled entry-level computer from Viglen. Fully-featured and cheap.

**Power: 57**

**Desirability: 50**

**VALUE FOR MONEY: ★★**

### ● VIGLEN VIG1 PLUS

**£1,189 • 01-997 3000 • 80286 CPU • 640K RAM • VGA • 1 parallel port • 1 serial port • 5 expansion slots • 30Mb hard drive**
Mid-range 286 machine from Viglen with the name of VIG1. An excellent, worthy and cheap computer .

**Power: 77**

**Desirability: 70**

**VALUE FOR MONEY: ★★**

### ● ZENITH EASY PC

**£499 • 06286 68588 • V40 CPU • 512K RAM • CGA • 1 parallel port • 1 serial port • no expansion slots • 3.5 floppy**
Vaunted as an entry level PC, but it doesn't cut the mustard..

**Power: 29**
**Desirability: 5**

**VALUE FOR MONEY: no stars.**

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| MODEL | MON | COL |
|---|---|---|
| PCS86SD | 562 | 719 |
| PCS86DD | 630 | 803 |
| PCS86HD | 803 | 976 |
| PCS286DD | 889 | 1062 |
| PCS286HD20 | 990 | 1149 |
| PCS286HD40 | 1062 | 1235 |

All PCS have VGA Monitors

### COMMODORE

NEW RANGE

| MODEL | MON | COL | VGA | VGA |
|---|---|---|---|---|
| | | | MON | COL |
| PC10SD | 499 | 649 | 669 | 759 |
| PC10DD | 564 | 699 | 726 | 819 |
| PC20HD | 699 | 829 | 726 | 964 |
| AT80286 | | | | |
| PC30HD | | | 1022 | 1167 |
| PC40HD40 | | | 1399 | 1599 |
| PC40HD-T | | | 1699 | 1899 |
| PC50HD | | | Call | Call |
| PC60HD | | | Call | Call |

All Commodores come with 12 Months on site warranty

### SCHNEIDER

| MODEL | MON | COL | ON-SITE |
|---|---|---|---|
| EURO PC | 375 | 525 | Included |
| 5.25" Ext D/Drive | 99 | | |
| 3.5" Ext D/Drive | 119 | | |

### HYUNDAI

| MODEL | MON | COL | EGA | VGA |
|---|---|---|---|---|
| XT-S/D | 399 | 549 | 699 | 759 |
| XT-D/D | 469 | 609 | 759 | 819 |
| XT-HD20 | 599 | 749 | 899 | 959 |
| XT-HD30 | 619 | 769 | 919 | 979 |

All Above have 640K Ram 5 slots 102 Keyboard 10Mhz processor MSDos 3.3 GWBasic 5.25" 360K Floppy.
For 3.5" 720K Floppy ADD £30

12 Months on site = £35

PORTABLE

| | |
|---|---|
| LT3 AT 1MB RAM 20MB | 1399 |

### SHARP

PORTABLES

| | |
|---|---|
| 4602 DUAL DISK XT | 863 |
| 4641 40MB XT | 1463 |
| 5541 40MB AT VGA | 2330 |

### SAMSUNG

| MODEL | MON | COL | EGA | VGA |
|---|---|---|---|---|
| PC/XT | | | | |
| 3001 SD | 479 | 629 | 799 | 899 |
| 3001 DD | 549 | 699 | 869 | 969 |
| 3001 HD20 | 679 | 829 | 999 | 1099 |
| 3001 HD30 | 699 | 849 | 1019 | 1119 |
| AT80286 10Mhz 640K RAM | | | | |
| 6001 SD | 879 | 1029 | 1199 | 1299 |
| 6001 DD | 949 | 1099 | 1269 | 1369 |
| 6001HD20 | 1079 | 1229 | 1399 | 1599 |
| 6001HD30 | 1099 | 1249 | 1419 | 1619 |
| AT80286 12Mhz 1MB RAM VGA | | | | |
| 6512 SD | 1099 | 1249 | | |
| 6512 DD | 1169 | 1319 | | |
| 6512HD20 | 1299 | 1449 | | |
| 6512HD40 | 1349 | 1499 | | |
| AT80386 20Mhz 2MB RAM | | | | |
| S800DD | 1699 | 1859 | 1899 | |

All Samsung Computers and Monitors have 12 months On-Site-Maintenance included

### STAR

| MODEL | SPEED | PRICE |
|---|---|---|
| 9 PIN DOT MATRIX | | |
| LC10 | 144/36 | * 127 |
| LC10-II | 180/50 | * 150 |
| LC10-Colour | 144/36 | * 164 |
| LC15 | 180/45 | * 254 |
| FR10 | 300/76 | * 289 |
| FR15 | 300/76 | * 379 |
| 24PIN DOT MATRIX | | |
| LC24-10 | 200/67 | * 194 |
| LC24-15 | 200/67 | * 324 |
| XB24-10 | 240/80 | * 375 |
| XB24-15 | 240/80 | * 495 |
| LASER PRINTERS | | |
| LASER 8 | 8PPM | *1198 |
| LASER 8 D | 8PPM | *1685 |
| CONSUMABLES | | |

| RIBBONS | MONO | COLOUR |
|---|---|---|
| LC10 | 3.50 | 5.50 |
| LC24-10/15 | 4.50 | |
| FR/XB10/15 | 6.00 | 12.00 |

### PANASONIC

| MODEL | SPEED | PRICE |
|---|---|---|
| 9 PIN DOT MATRIX | | |
| KXP1081 | 144/28 | * 123 |
| KXP1180 | 192/36 | * 149 |
| KXP1592 | 216/45 | * 254 |
| KXP1595 | 288/65 | * 314 |
| 24 PIN DOT MATRIX | | |
| KXP1124 | 192/63 | * 225 |
| KXP1540 | 288/65 | * 405 |
| LASER PRINTERS | | |
| KXP4450 | 11PPM | *1169 |
| ACCESSORIES | | |

| | RIBBONS | S/FEED |
|---|---|---|
| KXP1081 | 5.80 | |
| KXP1180 | 5.80 | 70 |
| KXP1592 | 5.80 | 161 |
| KXP1595 | 5.80 | 161 |
| KXP1124 | 5.80 | 80 |
| KXP1540 | 6.90 | 161 |

### CITIZEN

| MODEL | SPEED | PRICE |
|---|---|---|
| 9 PIN DOT MATRIX | | |
| 120D PAR | 120/25 | * 107 |
| 120D SER | 120/25 | * 124 |
| 120D COM | 120/25 | * 139 |
| 180E PAR | 173/30 | * 128 |
| 180E SER | 173/30 | * 154 |
| PRODOT 9 | | * 279 |
| SWIFT 24 PIN | 160/60 | * 245 |

### MANNESMAN

| | | |
|---|---|---|
| MT81 | 120/25 | * 104 |

### HYUNDAI

| | | |
|---|---|---|
| HY910 10" | 216/37 | * 135 |
| HY920 15" | 216/37 | * 199 |

### H P

| MODEL | PRICE |
|---|---|
| THINKJET | * 254 |
| QUITEJET | * 334 |
| QUITEJET+ | * 398 |
| DESKJET | * 434 |
| DESKJET+ | * 519 |
| PAINTJET | * 644 |
| RUGGED WRITER | * 849 |
| HP LASERS | |
| LASERJET IIP | * 879 |
| LASERJET II | *1248 |
| LASERJET IID | *1879 |

### AKHTER

| | | |
|---|---|---|
| ACL135 | 135/27 | * 119 |
| ACL480 10" | 480/55 | * 299 |
| ACL700 15" | 480/55 | * 399 |

### EPSON

| MODEL | SPEED | PRICE |
|---|---|---|
| LX400 | 180/30 | 130 |
| LX850 | 240/48 | 199 |
| FX850 | 264/54 | 329 |
| FX1050 | 240/48 | 393 |
| EX800 | 300/60 | 459 |
| EX1000 | 300/60 | 599 |
| DFX5000 | 533/400 | 1139 |
| LQ400 | 180/60 | 209 |
| LQ550 | 180/60 | 279 |
| LQ860 | 290/88 | 499 |
| LQ1050 | 264/88 | 589 |
| LQ1060 | 290/88 | 639 |
| LQ2550 | 400/133 | 899 |
| TLQ4800 | 250/83 | 1499 |
| SQ850 | 600/198 | 499 |
| SQ2550 | 600/198 | 863 |
| GQ5000 | LASER | * 939 |

## PRINTERS = * INCLUDE ON-SITE-MAINTENANCE

### A1 PLOTTER

HITACHI 674-DR
Floor standing A4/A1 4 pen plotter, HP7580B compatable
128K buffed RS232 interface
re-plot facility, Auto pen capping
Zoom-up/down facility
400mm/sec 0.025 resolution
61 built-in character sets
LCD menu driven display
12 Months on-site-replacement
optional 1MB buffer upgrade

£2999

### A3 PLOTTER

HITACHI 681-XA
Desk top A4/A3 4 pen plotter
HP7475A compatable
400mm/sec speed
RS232/Parallel Interface
19 Built in character sets
8K buffer
0.025" resolution
Soft pen landing (Quiet)
Weight = 6.5Kg

£599

### CANON

| MODEL | | PRICE |
|---|---|---|
| LASERS | | |
| LBP4 | 4PPM | * 869 |
| LBP8-III | 8PPM | *1359 |
| LBP8-IIIT | 8PPM | *1764 |
| LBP8-IIIR | 8PPM | *1909 |
| SCANNERS | | |
| IX-12 ROLLERBED | | 374 |
| IX-12F FLATBED | | 665 |
| IX-31F INTERFACE | | 99 |
| OCR SOFTWARE | | 304 |
| BUBBLEJETS | | |
| BJ-130 | | 528 |

### DISK DRIVES

| | | |
|---|---|---|
| 3.5" 720K | INTERNAL | 59 |
| 3.5" 1.44MB | INTERNAL | 69 |
| 5.25" 360K | INTERNAL | 39 |
| 5.25" 1.2MB | INTERNAL | 59 |
| 3.5" 720K | EXTERNAL | 135 |
| 5.25" 360K | EXTERNAL | 69 |
| 5.25" 1.2MB | EXTERNAL | 95 |
| 40MB TAPE STREAMER | | 249 |
| 32MB HARDCARD 40MS | | 199 |
| AMIGA 2ND DRIVE 3.5" | | 65 |
| ATARI 2ND DRIVE 3.5" | | 73 |
| AMIGA/ATARI 42MB H/D | | 399 |

### MONITORS

| | |
|---|---|
| MONOCROME | |
| PHILIPS 7513 12"GRN | 71 |
| MITSUBUSHI 12" GRN | 65 |
| CGA | |
| PHILIPS 8833 14" | 199 |
| EGA | |
| ECM 5400 14" | 249 |
| VGA MONO | |
| SAMSUNG 2611 | 85 |
| VGA COLOUR | |
| ECM 5413 14" | 259 |
| MULTI-SYNC | |
| MTS 9600 14" | 309 |

### W/P

| | |
|---|---|
| GEM 1ST WORD + V2 | 134 |
| LOTUS MANUSCRIPT | 269 |
| MULTIMATE ADVANTAGEII | 259 |
| PROF WRITEV2.1 | 169 |
| SMART WP inc Spellcheck | 150 |
| SMARTWARE II WP | 150 |
| BORLAND SPRINT | 120 |
| TURBO LIGHTNING | 39 |
| SUPERWRITER | 117 |
| WORD V5 | 259 |
| WORDCRAFT V6 | 261 |
| WORDPERFECT V5.1 | 255 |
| WORDSTAR PROF V5.5 | 189 |
| WORDSTAR 2000 + R3 | 245 |

### NOVELL

| | |
|---|---|
| ELS I 4 USER V2.0A | 359 |
| ELS II 8 USER V2.15 | 920 |
| ADVANCED V2.15 | 1660 |
| SFT V2.15 | 2596 |
| NETWARE 386 V3 | 4020 |
| NE1000 COMPAT CARD | 139 |
| CALL FOR FURTHER INFORMATION | |

### DATABASE

| | |
|---|---|
| ASPECT | 377 |
| CARDBOX PLUS V4 | 236 |
| PERSONAL CARDBOX + | 93 |
| CLIPPER | 305 |
| DATAEASE V4 | 417 |
| DATAFLEX DEV | 399 |
| DATAFLEX R/T | 155 |
| DATAPERFECT | 280 |
| dBASE IV | 320 |
| dBASE IV DEV | 499 |
| dBXL V1.3 | 179 |
| DELTA 5 | 365 |
| FOXBASE PLUS V2.1 | 257 |
| FOXPRO V1 | 387 |
| PARADOX 3 | 357 |
| PARADOX 2 | 270 |
| RETRIEVE III | 99 |
| RETRIEVE IV | 209 |
| SMART DATA MANAGER | 270 |
| SMARTWARE II DATA MAN | 270 |
| SUPER dB | 170 |

### SPREADSHEET

| | |
|---|---|
| EXCEL V2.1 | 257 |
| HAL | 90 |
| INWORD | 46 |
| LOTUS 1-2-3 REL 3 | 259 |
| MULTIPLAN V4 | 98 |
| PC PLANNER | 129 |
| PFS PROF PLAN | 126 |
| PLAN PERFECT V5 | 168 |
| QUATTRO V1 | 60 |
| SIDEWAYS | 35 |
| SILVERADO FOR 123 | 125 |
| SMART SPREADSHEET | 195 |
| SMARTWARE II SPREAD | 225 |
| SUPERCALC 5 | 238 |

### COMMS

| | |
|---|---|
| SAGE CHIT-CHAT | 69 |
| CROSSTALK XVI | 69 |
| DATATALK | 80 |
| MIRROR III (UK) | 130 |
| MODEMS | |
| AMSTRAD MC2400 INT | 129 |
| AKHTER 2400 AUTO INT | 119 |

### DTP/GRAPHS

| | |
|---|---|
| TIMEWORKS | 69 |
| BYLINE | 126 |
| db PUBLISHER | 275 |
| FINESSE V2 | 97 |
| GEM ARTLINE | 334 |
| GEM DTP V2 | 233 |
| GEM SCAN V1.1 | 67 |
| PAGE ABILITY | 115 |
| ALDUS PAGEMAKER 3 | 450 |
| VENTURA 2 | 520 |
| WORDCRAFT ELITE V4 | 519 |
| OFFICE PUBLISHER | 327 |
| 3B2 V2 | 780 |
| CHART 3 | 163 |
| CHART MASTER | 127 |
| CONCORDE V3 | 420 |
| DRAW APPLAUSE | 310 |
| FREELANCE PLUS V3 | 265 |
| GEM DRAW PLUS V2.01 | 134 |
| GEM PRESENTATION V3.1 | 267 |
| GRAPH WRITER | 265 |
| HARVARD GRAPHICS V2.1 | 217 |
| SIGN MASTER | 95 |

### UTILITIES

| | |
|---|---|
| AGENDA | 220 |
| CLAM | 105 |
| EUREKA | 78 |
| FASTBACK PLUS | 95 |
| IZE | 195 |
| MACE UTILS | 53 |
| MAGELLAN | 69 |
| NETWORKER PLUS | 155 |
| MENUGEN | 40 |
| METRO | 55 |
| NORTON UTILITIES | 45 |
| NORTON ADVANCED | 67 |
| NORTON COMMANDER | 35 |
| NORTON EDITOR | 35 |
| OFFICE WORKS | 185 |
| OVERDRIVE | 41 |
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| REFEREE | 37 |
| SIDEKICK PLUS | 78 |
| SIDEKICK | 36 |
| SUPERKEY | 36 |
| ULTRALOCK | 128 |
| XTREE V2 | 32 |
| XTREE PRO | 60 |

### LANGUAGES

| | |
|---|---|
| BASIC COMPILER V6 | 146 |
| C COMPILER V5.1 | 202 |
| COBOL COMPILER V3 | 358 |
| FORTRAN COMPILER V5 | 202 |
| MACRO ASSEMBLER V5.1 | 75 |
| PASCAL COMPILER V4 | 137 |
| QUICK BASIC V4.5 | 49 |
| QUICK PASCAL | 49 |
| SORT V1.01 | 98 |
| TURBO ASSEM-DEBUG | 78 |
| TURBO BASIC | 36 |
| TURBO BASIC DB TOOLS | 36 |
| TURBO BASIC ED-TOOLS | 36 |
| TURBO C PROF V2 | 120 |
| TURBO C V2 | 60 |
| TURBO PASCAL V5.5 | 60 |
| TURBO PASCAL PROF V5.5 | 120 |
| TURBO PASCAL DEV LIB | 138 |
| TURBO PASCAL DB T/BOX | 36 |
| TURBO PASCAL ED T/BOX | 36 |
| TURBO PASCAL GAMES | 36 |
| TURBO PASCAL GR/TBOX | 36 |
| TURBO PROLOG | 60 |
| TURBO PROLOG T/BOX | 36 |

### INTEGRATED

| | |
|---|---|
| ABILITY | 59 |
| ABILITY PLUS | 115 |
| FIRST FRAMEWORK | 56 |
| FRAMEWORK III | 325 |
| LOGISTIX | 115 |
| OPEN ACCESS II PLUS | 357 |
| PFS FIRST CHOICE | 76 |
| SMART SYSTEM V3.1 | 350 |
| SMARTWARE II SYSTEM | 348 |
| SYMPHONY V2 | 370 |
| WORKS V1 | 94 |

### ACCOUNTING

NEW SAGE STERLING RANGE

| | |
|---|---|
| BOOKEEPER | 64 |
| PAYROLL 2 | 129 |
| JOB COSTING | 129 |
| ACCOUNTANT | 162 |
| ACCOUNTANT PLUS | 259 |
| FINANCIAL CONTROLLER | 324 |

SPECIFY 3.5"/5.25"

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Outrun
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*All for only* **£339.00** Inc VAT & delivery

### STE Memory Upgrades (SIMMS modules)

Simple plug-in modules with fitting instructions. Please note that you cannot mix RAM module types eg. (0.5Mb with 1Mb). We will fit them for you free of charge when bought with any STE; simply add the cost of the upgrade shown below to the price of the STE.

| | |
|---|---|
| 0.5Mb module (upgrades 520 STE to 1Mb) | £59.00 |
| 2Mb module (upgrades 1040 STE to 3Mb) | £175.00 |
| 4Mb module (upgrades 520 to 4Mb with 0.5Mb removed) | £350.00 |
| 1040 STE includes 1Mb drive, 1Mb RAM, with built-in TV modulator | £399.00 |
| Mega ST1 with monochrome monitor | £599.00 |
| Mega ST2 with monochrome monitor | £849.00 |
| Mega ST4 with monochrome monitor | £1099.00 |
| SM124 monochrome monitor ..... £119.00 bought with an ST | £110.00 |
| SC1224 colour monitor | £279.00 |
| Philips CM8833 14" colour monitor (stereo sound) c/w ST cable | £249.00 |
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We offer a wide choice of Amstrad PCs with many upgrade options. For the hard disk option, check our 'Evesham Upgraded Models'. Only the best will do - so we normally upgrade by means of a Western Digital Filecard, which includes XTree & SpeedRead software; however on single drive 1512/1640 models we can offer internal installations at the same price (leaving more expansion room but no upgrade opportunity for a 2nd floppy drive). Prices in lighter type exclude VAT.

***Free with 1512 models... Ability and 4 US Gold Games***

| | SD | DD | AMS H.D. | SD 21MEG | DD 21MEG | SD 32MEG | DD 32MEG |
|---|---|---|---|---|---|---|---|
| | | | | EVESHAM UPGRADED MODELS | | | |
| MONO 1512 | 384.35<br>442.00 | 477.39<br>549.00 | N/A<br>N/A | 580.00<br>667.00 | 673.04<br>774.00 | 592.17<br>681.00 | 685.22<br>788.00 |
| COLOUR 1512 | 494.78<br>569.00 | 555.65<br>639.00 | N/A<br>N/A | 690.43<br>794.00 | 751.30<br>864.00 | 702.61<br>808.00 | 763.48<br>878.00 |
| MONO 1640 | 474.78<br>546.00 | 555.65<br>639.00 | 738.26<br>849.00 | 670.43<br>771.00 | 751.30<br>864.00 | 682.61<br>785.00 | 763.48<br>878.00 |
| CGA (colour) 1640 | 581.74<br>669.00 | 651.30<br>749.00 | 825.22<br>949.00 | 777.39<br>894.00 | 846.96<br>974.00 | 789.57<br>908.00 | 859.13<br>988.00 |
| EGA (ECD) 1640 | 677.39<br>779.00 | 738.26<br>849.00 | 938.26<br>1079.00 | 873.04<br>1004.00 | 933.91<br>1074.00 | 885.22<br>1018.00 | 946.09<br>1088.00 |
| 2086 MONO | 564.35<br>649.00 | 633.91<br>729.00 | 813.04<br>935.00 | 760.00<br>874.00 | 829.57<br>954.00 | 772.17<br>888.00 | 841.74<br>968.00 |
| 2086 CD | 656.52<br>755.00 | 726.09<br>835.00 | 903.48<br>1039.00 | 852.17<br>980.00 | 921.74<br>1060.00 | 864.35<br>994.00 | 933.91<br>1074.00 |
| 2086 12" HRCD | 746.96<br>859.00 | 813.04<br>935.00 | 995.65<br>1145.00 | 942.61<br>1084.00 | 1008.70<br>1160.00 | 954.78<br>1098.00 | 1020.87<br>1174.00 |
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**12 MONTHS ON-SITE MAINTENANCE PROVIDED WITH ALL MODELS OF PC1512, 1640 AND 2086 FREE OF CHARGE!**

## upgrades / accessories

| | | | |
|---|---|---|---|
| PC1512 memory upgrade to 640K | £39.95 | Enhancer 101 replacement keyboard | £74.95 |
| Maths Co-processor 8087-2 | £119.00 | 3.5" drive (720K) for SD models | £79.95 |
| NEC V30 (8086 replacement) | £24.95 | PC2000 series compatible 5.25" (360K) external drive | £84.95 |
| Archive XL 40Mb Ext. tape streamer | £379.00 | Genius GM6000 Mouse package | £34.95 |
| Amstrad Modem Card V21/23 | £99.00 | Konix Joystick & Controller Card | £28.95 |
| Communicate Fax Card SR | £199.00 | | |

## Amstrad PPCs

**Low prices on all portable PCs - especially twin drive models**
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| | | | |
|---|---|---|---|
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| PPC512D | (£433.91) £499.00 | PPC640D | (£546.96) £629.00 |

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| Star LC15 wide carriage version of LC10 | £329.00 |
| Star LC24-15 wide carriage version of LC24-10 | £409.00 |
| Star FR-10 new Professional 9pin 300/76 cps, 31K buffer, 16 NLQ fonts, EE-PROM configuration memory and 12 months on-site maintenance | £399.00 |
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| Star XB24-15 wide carriage version of XB24-10, with 41K buffer | £649.00 |
| NEC P2+ budget 24pin | £299.00 |
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| Panasonic KXP1081 reliable budget 10" printer 120/24 cps | £159.00 |
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| Panasonic KXP1124 good quality 11" multifont 24pin printer | £269.00 |
| Panasonic KXP1624 wide carriage version of KXP1124 | £399.00 |
| Epson LX800 popular 10" 180/25 cps | £159.00 |
| Epson LQ550 (was LQ500) good 24pin printer 150/50 cps | £349.00 |
| Mannesmann Tally MT-81 130/24 cps | £149.00 |

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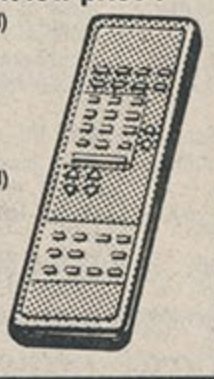

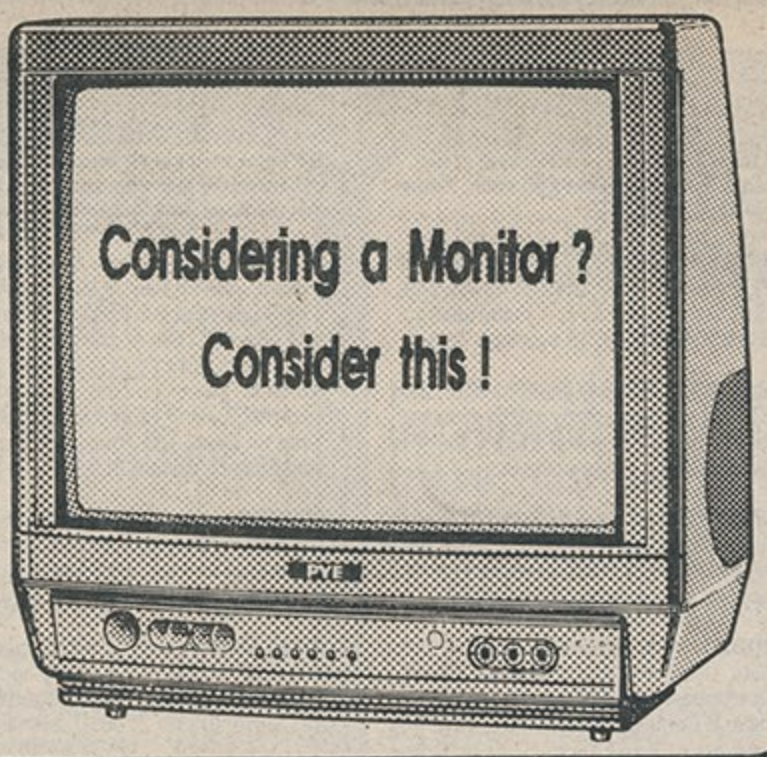


**£249.00**
Includes VAT, delivery and computer connection lead

# ATARI ABC-286

**Prices include Olivetti DM100S printer and Logotron '8-in-1' integrated software package !**

- ☆ 80286 Processor with 8 Mhz clock speed
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| Vortex System 2000 40Mb Hard Disk ..... | £499.00 | Contriver Hi-Res replacement Mouse pack ... | £22.95 |
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## Top value, high performing 9-pin dot matrix printer

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| TWIN FD | £803.85 | £1033.85 |
| 20MB HD | £1033.85 | £1263.85 |

- ◆ NEC-V30 microprocessor 10Mhz clock speed, 0 wait states
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- ◆ Single or Double 3.5" floppy drives with 720K formatted capacity
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**SEGA,** Light Phaser, Rapid Fire, 7 games, fully boxed, £133. Acorn Electron, 11 games, Diary program, £60. Tel (0734) 402787 (after 4.00pm weekdays, ask for David)

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**AMIGA** Datadisk for Superbase Personal. Complete British Amiga magazine index. S.A.E. for details or £10 for disk to: Twiddle, 52 Littleham Close, Bransholme, Hull, HU7 4RR.

**OCEAN** OC-118N disk drive, fully compatible with Commodore C64 1 1/2 year old, excellent condition £79. Phone Hemel (0442) 50680.

**ARCHIMEDES** 310 Riscos, Taxan 770+ Multisync monitor, plus extras, almost one year old, but excellent condition, manuals, disks. Selling to upgrade £1100 o.n.o. (0926) 339932.

**AMSTRAD** CPC6128 colour monitor, 3-inch disk drive £250.00. Deliver North West. Tel: (Works no.) (051) 236 0881 ext. 308 Mrs Strange.

**C1541** disk drive v. good condition. Some software with 1520 plotter and leads £90.00 o.n.o. Phoe Rhayaoer (0597) 810374 Mid Wales after 6.00pm. Can arrange delivery if needed.

**COMMODORE** 64 (SX) 1541 drive 6-inch colour monitor + joystick and many games + demo's. Swap for LC10C printer or Mega Drive or sell £200 o.n.o. (061) 740 8188 6.30pm.

**EXCHANGE** your original games for my originals, all Commodore computers. Send S.A.E. for details. J. Bosworth, 106 Ardgowan Road, Catford, London, SE6 1UU.

**ATARI** 520STFM plus Philips CM8833 colour monitor, original 22 game pack, mouse, joystick £375. Casio Electronic Keyboard, many features, boxed £75. Tel: (0603) 632857.

**ARCHIMEDES** A440 base unit, 4Mb memory, 40Mb hard disk, as new only £1395 inc. software, no offers! Call (0532) 842780 evenings and weekends.

**DRAGON** 32 with some games £30, Commodore 16 with 26 games, tape deck etc £45. Both good working order. 168 Stoney Stanton Road, Coventry.

**ATARI** 520STFM with games and utilities with hardly used Centronics parallel printer and a Zenith hi-res mono monitor, serious offers aroung £500. Call (0276) 26072.

**STE** upgrade 520 to 1040 plug in Sim cards. 2 sets available £55 each. Phone Jim (0232) 794812.

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**ATARI** STFM for sale, including mouse, joystick, games (Hard Drivin', Stunt Car Racer, Power Drift and others) unwanted Christmas present. Call Matt on (0530) 38684.

**ODDS** 'n' ends sale. (mainly games) all formats. Good selection of Atari XL/XE and Commodore. Send letter and S.A.E. to Dave: 8 Carfield, Skelmersdale, WN8 9DL.

**MEGA 1** Atari ST, high res monitor all as new £500. Atari 520STFM £190. Memory upgrad for STE £60. Phone (0495) 272092.

**QL** + disk drive + monitor (colour) + books etc. £175. Spectrum 128 + data recorder + books etc £75. Can deliver reasonable distance. Phone evenings - Reading (0734) 422908 Steve.

**AMSTRAD** CPC6128 disk with monitor, keyboard and printer with Mini Office Two. The Master disks and one game and cassette cable for £300 o.n.o Tel: Ilford 550 2919.

## ● GOODS WANTED

**WANTED** PC engine games or sega mega drive games. Cash waiting. Tel: (0271) 46155.

**AMIGA** 5 1/4 drive offered for free!!! Just write and offer me a swap (Amiga related) Gordon Keenan, 61 Glenfinnan Road, Glasgow, G20 8JG (A590 RAM chips??)

**HAVE** you got a complete collection of Zero magazine? If so do you want to swap for a different collection NCE/ACE? Interested? Call Jason on 01-556 1318 after 6pm.

**VAX** or Microvax wanted. Don't laugh! I'm serious! Any configuration considered, will collect. Write to: Paul Roberts, 5 Arlington Close, Yeovil, Somerset, BA21 3TB.

**SWAP** Michael Jackson, Bowie autographed glossy promo photos for Atari STE hardware (disk drive, monitor etc) or sell, details: Paul, 38 Bolan Square, Lochgelly, Fife, KY5 9NF.

**PLEASE** help me. I need to get hold of "Superscript: for the CBM64. Yes! cash paid!! phone (061) 224 9751.

**WANTED:** Memotech MTX512 computer in goode condition, also Pascal ROM board. Please contact Shaun (0493) 665883.

**WANTED.** Cheap 2nd hand C64 software tape or disk originals only. Write to: G. Johnson, 14 Daly Park, Belleek, Fermanagh, N. Ireland, BT93.

**WANTED** help! Desperate! I will swap original Kick Off game for either TV Sports Football or Gazza Football. Phone Mike (0625) 525847.

**WANTED:** Midi Interface and/or Midi compatible step or real time sequencer for Amiga 500. Any offers? Phone Brian on (0279) 34906.

**WANTED** for C64/128 typing tutor and educational games, reasonable price paid or exchange. Tel: (0642) 613382 or write: 62 Humber Road, Thornaby, Stockton, Cleveland.

**PD** software urgenely needed. Please donate to the following address: 115 Beacon Hill Road, Newark, Notts NG24 2JN.

**GOOD** Electron software and hardware wanted write to: Paul, 3 Moorend Avenue, C'Wood, B'Ham, B37 5SD. Also Sega for sale offers of cash or computer stuff.

**ATARI** XL games on cassette plus old Atari user mags, must be in good condition. Write to: Dean, 138 Townsfield Road, Westhoughton, Nr Bolton, BL5 2NT.

**WANTED:** Your unwanted 3 1/2 disks, any condition, with or without labels, stick them in the post to: Paul, 38 Bolan Square, Lochgelly, Fife, KY5 9NF.

**ATARI** SM124 mono monitor required. Make me an offer - I'll probably accept, I'm so desperate!! Will collect in West Yorkshire. Call Steve: (0535) 273810, evenings.

**WANTED** Amstrad DD.1 disk drive. Must be excellent order. Tel: (0254) 392220 (Lancs).

**WANTED:** Original Amiga games- Rocket Ranger, Forgotten Worlds, Continental Circus, Kick Off. Will pay £10 each. Anyone got Bon Jovi or other Rock music demos. (0506) 39722.

**MSX** books magazines, useful programs. Disk or tape wanted. Particularly Spectravideo Express. Dave. Tel: (0908) 501310.

**WANTED.** Atari STFM (1 meg drive) approx £200 in used crinkleys for best package. Hurry before ye olde license gets cash! Tel: Steve (091) 5870610 (Wearside).

**URGENT!** I needs you! Calm down this isn't a proposal! Just call the latest BBS soon. Not Forem but hi to Forem BBS anyway. Tel: 01-920 1991.

**WANTED** components off all kinds, Resistors, Capacitors, Trans, IC, etc:- Also wanted DUFF Occiliscopes, Test Equip, CB/Ham Radios etc:- Jim, Fourwinds, Lower Moor, ST Davids, Wales, SA62 6PR.

**CHEAP** Obsolete computers (Aquarius, Texet, Tandy etc) also hardware, software and contacts for enterprise, Memotech, Oric, Electron, BBC, C64, Amstrad, PC, Spectrum. Tel: (0935) 25974.

**IS** anyone brave enough to sell me their dead ST/Amiga, modem, Printer, Disk drive or monitor. Contact Khalid, 01-550 7793 Ilford. Max cost £40. Will collect nearby.

**WANTED** Psion PC Four software please write to: T.S. Bimbra, 56 Upton Park Road, London E7 8LD.

**MOUSE** wanted urgently for use on Atari ST. For anything up to £15. Phone Daniel on (01) 773 1654 after 5pm week days.

**GENISCAN** GS4500 scanner for ST £70-£90 waiting for quick purchase Tel: Paul, Leeds (0532) 498985 evenings please.

## ● HELP WANTED

**PCW** wanted. Expansion edge connector pinout assignment and/or circuit diagram for RS232C interface addressable by PCW utilities and software. Costs refunded, phone, stamp, etc. Thanks. 01-261 0132.

**COULD** anyone tell me how to access the missions on ST version of Elite, I would be very grateful for help. J. Williams, 4 Hurstbourne House, Tangley Grove, Roehampton, London, SW15 4EJ.

**INFORMATION** on how to link Amiga or 64, to a pocket radio modem. Can you help? Send replies to: Andy, 25 Melrose Avenue, Sutton Coldfield, West Midlands, B73 6NT. Hi to Headhunter, Snatch, Turbo Dist, SI'87, Mark I + II, Frame.

**HELP:** can anyone help me with STBase, all letters replied guaranteed. Write to: A Bass, The Maltings, Haviker Street, Collier St, Nr Tonbridge, Kent, TN12 9RE.

**I'VE** just purchased a second hand CP80 printer type 1. Can anybody tell me the make of the machine please! And whether there is a Public Domain program for the printer driver. I own an Atari STE 520. Tel: (0532) 786129.

**MY** ST Xenon/Starquake and organiser disks have been corrupted - can anyone please re-copy them? I'll pay all postal costs. Tel: (0384) 396522 around 6pm.

**COULD** anyone help with Comms software for Spectrum to use with WS200. Write: M Stevens, 6A Lydford Rd, Paddington, W9 3LU.

**TUITION** wanted in Amiga assembly language, must be in Midlands preferably Rugby/Coventry area. Please contact: Ben 84a Cambridge St, Rugby, Warwks.

**WANTED** information/software/hardware about Epson PX8 CPM2.2 system disk also required for drive. Any information would be helpful. Tel: Aylesbury (0296) 28645, Martin.

**WANTED.** Can anyone tell me if its possible to load items saved in MDM. Rez from the Geniscan scanner to low Rez on the Degas Art Program. D Wood, 126 Hervey St, Ipswich, Suffolk IP4 2EU.

**MULTIFACE** owner needs help with Lifeguard. Dave: (0322) (Dartford) 229822.

**HELP** Chaos Strikes Back - how do you cast spells? Also appreciate some strong characters from Dungeon Master. Eddie, 62 Broxholme Lane, Wheatley, Doncaster, DN1 2LW.

**HELP** Someone sent me some disks, including Vision Megademo IV - I've lost your address so please write again. Steve, 14 Braehead Drive, Barnton, Edinburgh EH4 6QL.

**HELP** is there anyone who can help me find fonts for Signum II (some 800?) contact: Jim, The Caravan, Four Winds, Lower Moor, St Davids, Haverfordwest, Wales, SA62 6PR.

**HELP** where can I get a +3 midi lead from? Please send advice to: John Birch, 36 Cotswold Drive, Rothwell, Leeds LS26 0QZ, West Yorkshire. Thank you.

## ● HELP OFFERED

**HELP** given on all level 9 adventures for the MSX, please enclose SAE to: Bill Lewis, 49 Chestnut Ave, Carcroft, Doncaster, South Yorks DN6 8AP.

**AMIGA** + PC help, training, installation with most hardware/software, DTP, Word Processing, etc. Phone Phil: (0942) 31172. Write: 54 Boyswell House, Scholes, Wigan, Lancs, WN1 3QQ.

## ● OTHER

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**MANY** computer mags, mainly Spectrum user and C & G and Crash to swap for any ACU, AA or other mags, books etc. Tel: Bob on B'Ton 597450, anytime or SAE.

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**RICHARD** Daley from Poole, remember Mark from Wales with Atari Eight Bit? Please contact me. Mark 26 Hill Street, Newbridge, Gwent. Tel: (0495) 247328, after 7 pm.

**PROGRAMMERS** - Charity project needs your Spectrum and ST programs urgently. Use your skills to help others. Details contact: Paul, 19 Moore Street, Normanton, Derby DE3 6SN.

**AMIGA** coders + also musicians needed to help write demos. Tel: Evan McFadyen (Morph of Scum UK) on (0382) 542247 if you can help.

**SWAP** commodore 128/64K, disk drive, cassette deck, software + cash for a Amstrad PC1512/1640, please ring (0494) 763342 (6pm-8pm).

**STILL** a few CPC mini newsletters left, just send SAE 10x7 envelope to: Carl Surry, 37 Fairfield Way, Barnet, Herts, EN5 2BQ. Hurry while stocks last.

**ELITE** - hints and tips wanted for Amiga version 1.0 - anything gratefully received - please contact: Eddie Holden, 210 Liverpool Rd, Hutton, Preston, PR4 5HB.

**CPC** cheat Chase-HQ on title screen, redefine keys as: 'Shocked', test will appear. Keys 1-4 activate various cheats.

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**AMIGA** contacts fast reliable, everyone that sends a disk will get one in return. Beginners welcome, contact: Darryl, 13 Greenfields, Mayfields, Redditch, Worcs, B98 7DZ.

**HELP!** Printer driver urgently required to connect an Atari STFM to a Uchida DWX-305 daisy wheel printer. Contact C Jones, "ST Ivy", North Rd, Queenborough, Kent.

**19K** users wanted to Beta test D52. Protocol on Max BBS. Tel: (0905) 56610, 20 lines, multi line chat etc. Live games millions of files.

**THE** Micro Postal Club requires writers for quarterley newsletter. Must be reliable and work to tight deadlines. P Downey, Fairbanks, School Lane, Great Leighs, Chelmsford, Essex, CM3 1NL.

**COMING** soon Review CPC Fanzine, contains everything you need to know about your CPC for details write to: Simon Williams, 24 Chalcot Drive, Hednesford, WS12 4SF.

**ON** North and South, click on the photographers bum and get a surprise!!!!! from Simon Shields from North Humberside.

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## ● PERSONAL

**STE** owner needs help with STE software. Starting to get cheesed off with current STFM software. Either non-compatible or don't work at all. Please help (0227) 761636.

**AMIGA** contacts for serious software swaps, midi, DTP, graphics, utilities, wanted. Please write with list and disks. Dave, 1 Thomas Wall Close, Sutton, Surrey, SM1 1SP.

**C64** contacts wanted to swap new or o.dish stuff on tape only. Contact Little Dan, 30 Danefield Road, Northwich, Cheshire, CW9 5PX.

**SAM** Coupe contacts wanted. Write now to Steven Jones, 16 Brackley St., Runcorn, Cheshire, WA7 1EQ.

**BEGINNER** 68000 Amiga programmer seeks contacts and tips. No swappers, coders only. Write to: Darryl Blandford, 168 Furlong Road, Goldthorpe, Rotherham, South Yorkshire, S63 9PY.

**AMIGA** contacts wanted! Send disks and letters to: Andy, 35 St. Annes Drive, Aylestone, Leicester, LE2 8HU. No Lamers please!

**MOONCHILD** looking for fast Amiga contacts, other females especially write to: 73 Mantle Close, Rowner, Gosport, Hants, PO13 9QT or ring (0705) 522377. Greets to Mighty Druids Synchronous + Wraith.

**MSX** contacts wanted to swap games, tips, etc. 100% reply. Write to: Daz, 40 Roe Hey Drive, Coppull, Nr. Chorley, Lancs, PR7 4PU.

**AMIGA** contacts wanted to swap latest stuff, send disk or list to: Matthew Millard, 3 Teglease Green, Leigh Park, Havant, Hants, PO9 4HB, no lamers please!

**C64** contacts wanted, (disk only). Anyone with M/C problems or willing to swap routines etc. Tom, 21 Leonard Road, Gosport, Hants, or phone (0705) 510497.

**AMIGA** contacts wanted to swap software, hints, tips, etc. Send disks, lists 100% reply. Write to: Iain Sloan, 166 Oilmills Road, Ramsey, Mereside, Huntingdon.

**AMIGA** swappers call 0202 477658 to swap the latest stuff. Ask for Hairgel (0202) 477658.

**YEP** it's another Amiga contact. Nik, 1 Downsview Rd, St. Helens, Ryde, Isle Of Wight, England, no beginners. Greetings to Adrian + co! + Darren etc.

**I WISH** to contact Alan Sharp of Aberdeen. Writer of the Kirk Word Processor and Database. Ray Neil, 56 Houldsworth Crescent, Coventry, CV6 4HJ. Tel: (0203) 362063.

**PROGRAMMERS!** Put your skills to good use by helping charity. Spectrum and ST programmers needed for new charity project contact: 19 Moore St, Normanton, Derby, DE3 6SN, NOW!

**I AM** trying to obtain software for my Vic 20 Commodore computer. Tel: Troon, (0292) 311096, will pay by post.

**AMIGA** programmer (68000) seeks non-swapping contact to swap code only. Interested? Write to: Darryl Blandford, 168 Furlong Rd, Goldthorpe, Rotherham, South Yorkshire, S63 9PY.

**BALD** Eagle or any other G.O.L. members please contact me. You're bringing out your disks so fast I can't keep up!!! Please Tel: (0272) 513439.

**AMIGA** contacts wanted: Write to: Sean Smith, 38 Valleyside, Warners End, Hemel Hempstead, Herts. HP1 2LN or Tel: (0442) 215738, anyone welcome.

**AMIGA** contacts wanted. Must be quick. Contact me at: 33 Dewsland Park Road, Newport, Gwent, NP9 4EG. Tel: (0633) 251480, ask for Andy. Hi to Froggy!

**AMIGA** ST users interested in starting a club in the Barmouth area. Contact me: Colin, 2 Mona Flats, Jubilee Rd, Barmouth, LL42 1LT.

**AMIGA** owner wants to learn to code. No lamers. Tel: (0202) 477658 and ask for Yucel!! Bournemouth area please.

**AMIGA** contacts wanted, must be good and fast!! Write to: Tariq Al-Ali, PO Box 66957, Bayan, 43760 Kuwait. 101% reply to all. no lamers please.

**AMIGA** contacts wanted, 100% reply. Guaranteed. Get in touch with the best. Kevin, 25 Morlich Place, Dalgety Bay, Fife, Scotland, KY11 5XY or Tel: (0383) 824968, after 6pm.

**AMIGA** contacts wanted, write to: Ian, 26 Templemore Ave, Belfast, BT5 4FT. Beginners Welcome.

**WANTED** Amiga and VHS contacts. Send to: Mark, 1 Melville Close, Halton View, Widnes, WA8 0BN.

**MATTHEW** Owens, how you doing? Any more stuff yet? Hello Tizwas, Vibro, Baggy, Jow, Leelee, Lee, Mark + Firmstone. See you! Rob Hi to Ken 'n' Nick.

**CPC** 464 or 128 contacts wanted to swap old or new games. Please contact me at: 6 Wentworth Close, Rudheath Cheshire.

**HI** to all Crystal Unicorn members, oldies and newies. From David T Wilkinson, an Amiga owner. Contact address same as Baldys (Dave Mason). Write Soon.

**YO!** Humourous Amiga pals needed! Games, demos, anything swapped or just chit-chat. Beginners welcome: Ajay Patel, 26 Kenilworth Close, Tipton, West Mids, DY4 8EQ.

**COULD** anyone out there advise me on a good (?) PC Emulator for the Amiga, any info write to: Shaun Pugh, 17 Springfield Mount, Horforth, Leeds, LS18 5DP.

**PAULINE** Lewis, I love my computer, but I love you and Nicola 1,000 times more. All the best for your operation, Love Bill & MSX.

**HX-20** if you've got any software or hardware to sell, particularly UD80, please reply to: Mr S Takhar, 6 Goathland Rd, Stenson Fields, Derby, DE2 3BJ.

**PASCAL** 80, Amstrad CPC 6128, CIPM version. Contacts wanted for Sixth Form Computer Studies Student. Write to: Paul, 39 Guilton, Ash, Kent LT3 2HL.

**AMIGA** contacts wanted, 102% reply. Everybody welcome. Don't delay write today. Contact: Chris Tood, 82A, Main Street, Kings Newton, Melbourne, Derby, DE7 1BX.

**C-64** contacts wanted. Contact Ryan Donaghey, 23 Memount Gdns, Strabane, Co. Tyrone, N. Ireland BT82 9EB NOW!!

**AMIGA** contacts wanted. 200% reply, no lamers, write to: Lee, 28 Maes Gywn, Pentwynmawr, Gwent. Hi to David, Colin and Stutter.

**AMIGA** contacts wanted, will reply to all. Swap hints and tips etc. Write to: Garry, 27 Goosebutt Street, Parkgate, Rotherham, South Yorkshire S62 6AN.

**ASTRONOMY** on the Amiga. Would like to correspond to anybody interested. Perhaps with practical applications. Please write: Philip Thain, 89 Cemetery Rd, Darwen, Lancs. BB3 2LZ.

**SOCIAL** work and computers, would like to hear from anybody who uses them: Please write: Philip Thain, 89 Cemetery Rd, Darwen, Lancs. BB3 2LZ.

**AMIGA** contacts wanted to swap hints and tips. 100% reply. Contact: Fraser, 107 Oakland Rd, Sheffield S6 4LT.

**C64** anyone out there know how to do scrolling graphics bit-mapped screens. If so contact: Colin Howie, 2 Maree Rd, Paisley, Renfrewshire PA2 9DG.

**C64** amateur 6510/Vic/Sid wizards wanted and badly needed to join forces, making mega demos. Don't hesitate contact: Kristian Koivisto, Kiviportinti 9, 00950 Helsinki, Finland.

## ● PEN PALS

**AMIGA** contacts wanted. 100% reply, must be fast contact: Jason, 76 George St, Portland, (Vic), 3305 AUSTRALIA.

**AMIGA** contacts wanted to swap. Beginners welcome, also Pro Punter or similar wanted. Contact: Colin, 2 Mona Flats, Jubilee Rd, Barmouth, Gwynedd, LL42 1LT.

**ATARI** contacts wanted into Automation and other groups Stos etc. 100% guaranteed reply, write now: Steve at 6 Fairview, Canvey Island, Essex, S58 9TS. Hello Automation.

**AMIGA** contacts wanted (UK only) please reply to: Ian, 211 Verity Crescent, Canford Heath, Poole, Dorset, BH17 7UA, anyone welcome.

**AMIGA** contacts wanted to help with my software collection. I can compose music for you. Write to: Phil, 113 Andover Road, Bestwood Estate, Nottingham NG5 6FU. Hi to K. Ram.

**THE** Quartet searches for Atari ST contacts, 100% quick reply - please write to: The Quartet, 7 Hollingworth Drive, Marple, Nr Stockport, Cheshire, SK6 7JE..

**AMIGA** serious software contacts wanted. Music, Art, DTP, WP etc, 100% reply - no messing. Write to: Ian, 15 Acacia Drive, Townville, Castleford, West Yorkshire, WA10 3PF.

**ST** contacts wanted - Into Automation or other compact stuff, 150% reply. Write to: Rob, 57A Queen St, Waingroves, Ripley, Derbyshire, DE5 9TJ. Tel: (0773) 744967.

## ● ANNOUNCEMENTS

**AMIGA** and C64 contacts wanted, especially Amiga. Contact Ryan Donaghey, 23 Melmount Gdns, Strabane, Co. Tyrone, N. Ireland, BT82 9EB, Write NOW!!

**ATARI ST** Newport software club, free disk magazine 5 out now! Send disk plus stamp to: 5 Alpine Drive, Cannock, Staffs, New Members: 05438 4102.

**ATARI** ST demo group: We need music for our first ST demo. Send examples to: K.M.E. 34, Aravon Court, Meath Rd, Bray, Co. Wichlow, Eire, ASAP.

## ● SERVICES

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**ST** PD disk mag, loads of free PD software each month!! Interested? Write to: Andrew, 49 Parklands Road, Hassocks, West Sussex, BN6 8JY. Please enclose S.A.E.

**AMIGA.** Send disk containing something (anything) Get my cheats disk in return. (Nothing on, gets nothing back). Jerry Larkin, 132 Windmill Road, Marham, Norfolk, PE33 9LD.

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**CPC** tape to disk transfer service (including loading screens and infinitive lives etc). For free details send SAE to: IFE, 128 Oakbrook Rd, Sheffield S11 7ED.

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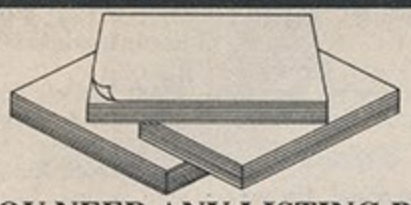

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### 5 IBM MEMORY

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| 3MB card | PC6-PA7137U | 485 |
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| | (£) |
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### 10 HP LASERJET UPGRADES

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# TECH TIPS

• *I have a Spectrum: what's the next step Uncle TT?*

## HELP! Coupé or Amiga?

**I am trying to decide which computer to buy. I have narrowed the choice down to the MGT Coupé or a Commodore Amiga. I can spend up to £500. I want the machine mainly for word processing, games, art, etc.**

**As I already have a Spectrum, the Coupé would seem to be the ideal choice, but it might not get the software support that the Amiga has. On the other hand, the Amiga has lots of brilliant public domain art packages, word processors, desk top publishing packages and so on, but as far as I know, the Coupé is bundled with the *Flash* package.**

**Recently, on the Coupé hotline, it was revealed that Tasman would soon be bringing out a version of *Tasword* which exploits the machine's 80 column mode. Will other software houses follow suit?**
**PS. Will there be a Coupé column in the near future?**
*Chris Mathews, Co. Widdlow, Eire.*

Sounds to me, Chris, that you really want to buy the Sam Coupé yet cannot quite bring yourself to part with hard-earned cash on a machine that might quickly fade from view. Fair enough, but the Coupé is an excellent machine with some quite superior features at a price that leaves all other computers for dead.

Unfortunately, it's based in early '80s 8-bit technology and as such, will be sneered at by those in the industry who drive Porsche cars, wear Gucci shoes and Armani ties – basically those who buy their lifestyle off-the-shelf and like to display their financial wheeling and dealing. These guys will never support a machine such as the Coupé regardless of its ability to 'do the job'.

So. Which machine? If your interest lies with art packages and graphically-orientated programs, then the Amiga is a very good choice. Powerful and well supported by quality software the Amiga is definitely the machine of the moment.

If, however, your main interest is in word processing and playing games (and presumably you already have a collection of these from your Spectrum days), plump for the Coupé. It's never going to break any sales figures, but will probably enjoy moderate success among those who manage to leave the hysteria out of computing.

As for a column devoted to the machine, our policy is very definitely to support all our readers and if enough of those readers own, intend to own, or just want to read about the comings and goings of the Coupé, then we will be glad to provide a column. Indeed, starting next week, Robin Alway will be giving over a portion of his Spectrum column to the Coupé.

## HELP! Can't dump!

**I have recently bought a Commodore Amiga 500 computer with a Star LC10 printer. I have managed to print text files but cannot get a graphics dump.**

**Could you please explain roughly how to do this? I also have an older printer – an Olivetti JP101 – and wondered if I could use this with my Amiga computer (for graphics and text, scores from *DeLuxe Music Construction Set* and pictures from *DeLuxe Paint II*). If so, what printer driver would I need to use?**
*K. Marrs, Dumfries, Scotland.*

You've answered the questions yourself, K, for the Star LC10 needs a printer driver of some description (either an example specifically intended for use with that printer, or one for use with an Epson FX80) and the Olivetti requires a printer driver that will work with an Olivetti JP101.

Facetious? No, simply factual. The Olivetti will work happily with your Amiga, providing any applications which make use of the printer send the correct codes. Two methods exist in order to achieve this state. You can pore over the Olivetti's manual locating the lists of control codes, then type them into the application you want to run – this works but is tedious and means that you must have access to a manual – or you can atempt to locate an existing driver from the public domain. This latter option is probably out of the question in this instance however, as the JP101 is hardly a popular printer and isn't, to my knowledge, compatible with anything.

If you want to look in the public domain, try calling George Thompson Services on 0770 82234. This is one of the best Amiga public domain libraries and may be able to help.

## TIP Z88 connectivity

**Like David M Turvey of Enfield (*Express* 65), I also find the Z88 an excellent tool for everyday use but often need to transfer files to my static machine at home for enhancement and quality printing. Although the latter system is Amiga-based, the same principles apply when connecting the Z88 to other computers.**

**The Z88's external port presentation is a serial port with a 9-way D-type female connector, and a suitable Z88 serial cable can be purchased by contacting Alpine Software of 21 Girton Road, Northolt, Middlesex (01-864 0408). This cable costs £9.95 and has a 9-way D-type male connector to 25-way D-type female connector.**

**While the Z88 has quite sophisticated built-in communications software for modem connection, I find it is much easier to dump files from the Z88 to the host machine via the basic output to printer command <>PO. This even preserves the formatting attributes when the file is loaded to the Scribble! word processor on the Amiga (both this and the Z88's *Pipedream* are *WordStar*-like).**

**May I commend David to the excellent Z88 User's Club at 68 Wellington Street, Long Eaton, Notts NG10 4NG. Very good value at £10 per year including 10 issues of *Z88 Eprom* magazine, which contains much useful advice. Roy who runs the club, always advertises for any 'old Sinclair products for private collection' and can help with the problems of comms software for the Spectrum.**

**A better alternative to using rechargeable batteries all the time – which are liable to go flat unpredictably – is to keep normal alkaline batteries inside the Z88 for quiescent power and occasional short-term switched on use, and to use rechargeables externally, via the Z88's mains adapter socket.**

**Those excellent poeple at Maplins (*I agree with you – TT*) can supply everything necessary which comprises a coaxial DC power plug and a 6-way AA size battery holder. The sixth battery position should be shorted by soldering a wire across it. The Z88 will work happily with the 6.75V provided by five rechargeables. This gives an economical and mobile alternative to the normal mains adapter.**
*Alan Francis, Blandford Forum, Dorset*

## HELP! Comms

**I have a Commodore Amiga 500 computer and I would like to have your advice on which modem is the best value for money and which communications software and books are worth looking at.**

**Also, can you tell me what speeds V29 and V32 are, and is it worth buying a modem with these speeds?**
*Nick Taylor, Sunderland, Tyne & Wear.*

Several good modems are currently on the market and it used to be that Miracom (formely Miracle Technology) modems ranked among the best available. Now, however – although some stores still stock the range – it appears that something horrid has happened to Miracom, ie it has gone bust, and so it may not be a good idea to buy a

Miracom modem. If you want to chance it, go for the WS4000, an auto answer, auto dial, Hayes compatible modem offering a range of speeds including V21, V22 and V23. This device should cost around £120 and is available from advertisers in Shopping Express.

You could, of course, take out a subscription to *Prestel*, and for £129 or thereabouts, you'll receive a 'free' modem and connect time to one of the largest information networks in the world – not a bad deal!

In order to learn all about the world of communications, get hold of the latest copy of Hugo Cornwall's *The Hacker's Handbook*. As well as providing information on how to get into private computers, it also contains a wealth of good stuff about setting up a modem, choosing the right comms software and fitting it all together. *The Hacker's Handbook* (ISBN 0 7126 34541), published by Century costs £9.95 and is available from all good high street book stores.

Don't worry about buying a modem with V29 and V32 – the former is a specialised data interchange method also known as X.25 or packet switching and the latter is simply more of the same. Look for a modem offering 300/300, 1200/1200, 1200/75 and 2400/2400 – V21, V22, V23 and V22bis respectively. These speeds will enable you to log on to any bulletin board or public information service available in the UK.

## HELP! Bombed out!

**About nine months ago I had my Atari 520STFM upgraded to 1Mb of RAM and had a Cumana double-sided internal disk drive fitted to facilitate desk top publishing work.**

**Since then, I have been completely unable to load *EZ-Score Plus*. After startinfg to load I am prompted to insert disk B – interesting, as there isn't one! If I click on continue, I am told that the drive is not responding etc, etc. Then if I re-try, the whole thing crashes about my ears.**

**Hybrid Arts has been quite helpful and has replaced the master disk, but the new one behaves in exactly the same manner. Could there be a compatibility problem with the new drive? If so, what can I do about it? Have I lost £70 worth of good software? If I could find a single-sided Atari drive would that help?**
*Paul Ibbot, Watford, Herts.*

The problem almost certainly lies with the larger capacity disk drive. Many, many programs experience incompatibility problems when confronted with Atari's 'middle-period' disk drives, and several of the third-party drive upgrades present the same problem.

Perhaps the best course of action would be to ask the good people at Hybrid Arts if they will send you a copy of the program – minus any protection code. They've been helpful supplying you with a new master disk and will realise that you are not a pirate, but a genuine user who cannot access the software you've paid for. I'm sorry that I can't provide you with a solution, but the problem is out of my hands I'm afraid.

## HELP! Hard card

**I recently bought an Amstrad PC2086S and now I have a need to upgrade to a hard drive. Would a hard disk drive be a better buy or would a hard card? I understand that my machine has no controller card so one will have to be fitted with the hard disk drive. Will fitting such a drive invalidate my warranty if I perform the task myself? My electronic abilities are strained putting a plug on!**

**Would it be safer and in the long run cheaper to fit a hard card? I will need at least 30Mb and have been looking at different models, mainly the Western Digital and the Kyocera models. Which of these is the most reliable, and is there any type of hard card my Amstrad will not support?**
*Darren John Dean, Worksop, Nottinghamshire*

The PC and its compatibles rank among the few machines that you can open and add to without invaildating the guarantee. Likewise your Amstrad PC2086.

Fitting a hard drive and controller card will not prejudice your guarantee in any way. Right, so you can open the case and bung things inside, but what should these 'things' be?

Several years ago, when hard cards first appeared, many computer journalists and PC oriented magazines gave them a thorough drubbing as being unreliable, prone to crashes and not worth a fraction of their price – harsh criticism, some of which was, in my opinion, valid.

Nowadays however, the hard card scene is very different. Like all technology, the hard drive on a card had a shaky start but progressed to the point where today, they're as reliable as any other form of drive.

The hard card also has the advantage of being very simple to fit. Open the computer's case, locate a free slot – granted, a difficult operation in any of Amstrad's PCs – and plug in the card. Re-sealing the case and booting the machine with a hard drive utilities disk supplied, will enable you to have a hard 'un up within the hour. And that is no mean feat.

Both the Western Digital and Kyocera drives are quality devices, reasonably priced. As there's little to choose from in terms of construction, you should look around for the best deal and choose on that basis.

## HELP! Pain in the azimuth!

*• Atari's 8-bit series: tape loading troubles?*

**I have been the proud owner of an Atari 65XE computer for some two years, but right from the start I have had loading problems from the datacorder supplied. I have already had two replacement datacorders from the shop I originally purchased the computer from, and the latest of these seems to be working most of the time.**

**I am now thinking over the possibility of adding a disk drive to my system and purchasing one of the tape to disk copier programs regularly advertised in the computer press. This is in order that when a game has loaded once via the datacorder, I can then transfer it to disk, which will also speed up loading times greatly.**

**I am reluctant to purchase the Atari XF551 as it is far too expensive at present and I have been enquiring as to which alternative drives on the market would be compatible with my computer. I understand that – as it is an 8-bit machine – there are not too many drives which will work with it. Would either the Cumana 1Mb or the NEC 1Mb be compatible?**

**Furthermore, before I purchase any sort of drive, can you advise as to the reliability of the aforementioned tape-to-disk copier programs, and do you recommend any particular one?**
*Stephen Terry, Tooting, London.*

Reliability problems are a re-occurring and annoying feature when using cassette-based storage for programs and data. There are, however, several steps you can take to ensure that you get the best possible service from your datacorder.

Always keep a dust cover over the device to stop dirt accumulating under the cassette lid. Always keep the read/write heads clean by using a Q-tip and a solvent (such as methylated spirits available from chemists). Dip the one in the other and wipe over the surface of the head.

Always keep the head aligned by ensuring the azimuth angle is correct. This angle is the position of the read/write head relative to the magnetic tape passing by it. The angle should be at 90 degrees, ie a perfect right angle. If this is not the case, then data which recorded perfectly well, will not be accessible.

To adjust the azimuth angle, a small screw is usually visible somewhere above the read/write, occasionally on the outside of the case (I can't be more specific as Atari has several datacorders in the field). Play an ordinary music tape in the datacorder so that it can be heard through your monitor or TV and slowly trun the screw this way and that until you receive the best tone possible – this sounds difficult, but is in fact, surprisingly easy!

Finally, never store your cassettes close to a strong source of radiation such as on top of a television or near a telephone. The strong radiation fields produced by these common household items can totally destroy valuable data.

The XF551 is ridculously expensive. An ancient, 360K 5.25-inch drive retailing at well over £150 is a positive outrage! (The ST's 1Mb 3.5-inch drive can be had for around £70). And even if you had the money, the XF551 is difficult to get hold of.

The best course of action is to place a free ad in Shopping Express asking for someone to sell you their unwanted Atari floppy drive. If you can, buy a 1050 drive. This is a middle-period Atari drive offering 127K storage in dual density format, and it is a reliable device of quality construction. Expect to pay around £50 for a second hand example.

There is also another Atari drive available, although it's now a little long in the tooth. The 810 was the first 5.25-inch disk drive made available for the Atari 8-bit. It is a single-density device providing 90K of storage. It's a hulking great slab of a disk drive, but works fine and can probably be had for around £35/£40.

There are lots of tape to disk copiers available. One of the best is *Transdisk IV* from Digicom (0735 761444). This is a menu-driven, simple-to-use program that is effective and comprehensive. *Transdisk IV* will copy almost all tape programs even – those which rely on multi-load modules to provide protection. The program costs £14.95 and is available mail-order from Digicom on the above number.

Neither the Cumana nor NEC drives will connect to the Atari 8-bit, because it has non-standard interface ports that were never intended to connect to anything other than peripherals bearing the legend 'Atari'.

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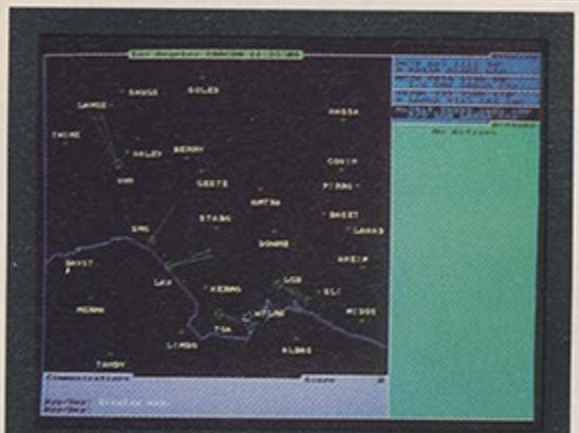
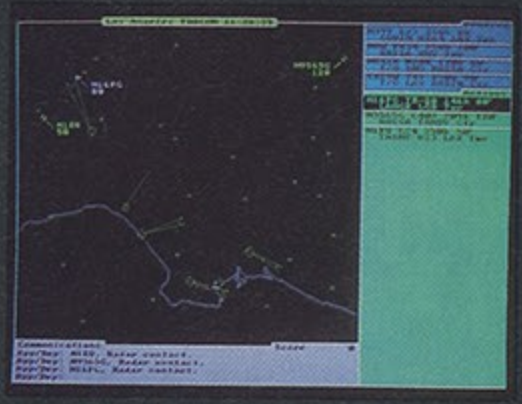
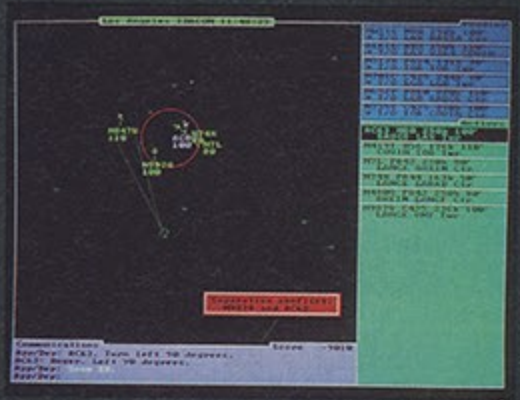


• The Los Angeles sector right at the start of a simulation, overlaid with the names of airports and fixes.



• Three flights have entered, one to land at LAX (Los Angeles), one at LGB (Long Beach) and one flying through.

• It's getting quite busy now, and you're concerned about getting flight N8W down at Van Nuys airport. First step is to call up FAF details.



• You zoom in close to check details of a separation conflict before deciding what to do.

• The controller's nightmare – two heavy passenger planes crash just off LA airport.

# SKY LARKING

## They're always there, but we only think about them when it all goes wrong. Matt Nicholson steps into the shoes of an Air Traffic Controller.

● **TRACON**

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"...string of pearls now, kiddo. American 11 on the profile 25 left; United 567 and Air France 341 right on his tail; gotta get PSA 112 in trail so I've got that Clipper at 200 knots to make that hole. Oh, and there's a Lear over here who wants to change to Long Beach – he's only got about 20 minutes fuel left. Got all that?"

If you've got all that, then you're an air traffic controller sitting in front of a radar screen with just your wits and the computer standing between several thousand tragedies and the ten o'clock news. This is *TRACON*, standing for *Terminal Radar Approach Control*, and it's serious stuff – even if it's just a software package for your PC.

For most of us *TRACON* is a computer game, although it could be used in anger by a trainee controller to good effect. It was designed in the States by Dr Robert Wesson whose thesis involved applying artificial intelligence to air traffic control; specifically, what are known as 'separation problems'. *TRACON* derives from the simulation component of this work and additional input from the Federal Aviation Administration and professional controllers.

The program comes on both 3.5- and 5.25-inch disks with an 80-page manual and a cassette tape containing samples of controller/pilot dialogue. Installation simply involves copying the files onto your hard disk or suitable set of floppies.

It is best to start the program with the demo, a pre-programmed scenario covering 15 minutes or so in the Los Angeles sector. This is totally confusing at first as most of the messages are in a shorthand, but on a VGA display it looks quite stunning. *TRACON* uses the highest resolution 640 by 480 mode in 16 colours to give a very realistic display. Resolution goes down to 640 by 350 on an EGA machine, while on CGA it is displayed in monochrome at 640 by 200 pixels. Hercules is also supported, where it should look quite respectable.

Also astounding is that Wesson has managed to get the PC to talk! Not very comprehensible perhaps, but both sides of the conversation between controller and pilot are audible, and apparently sound as good as you get in a real a Cessna. The speech is duplicated on screen and can be turned off – useful because otherwise the program freezes whenever anyone says anything.

The main display shows a radar scan of the area under your control together with a map of the coastline, the airport approach paths and 'fixes' – the navigation points between which planes fly. You can also toggle various overlays showing a compass rose, airport and fixes names, flight paths, and the boundary of your control area. Planes are shown as tiny aircraft symbols, each labelled with their flight number, height and speed. Selecting one of these provides further information on the type of plane, its performance and intended flight path. This display can become pretty busy!

As its name suggests, *Terminal Radar Approach Control* looks after the airspace in a sector containing a number of airports. This means you do not have to handle the actual landing or take-offs as these are taken care of by the Ground Control at each airport. When a plane wants to take off Ground Control lets you know, and only releases the plane on your say so. As soon as the plane is released it becomes your responsibility though, and appears on your display.

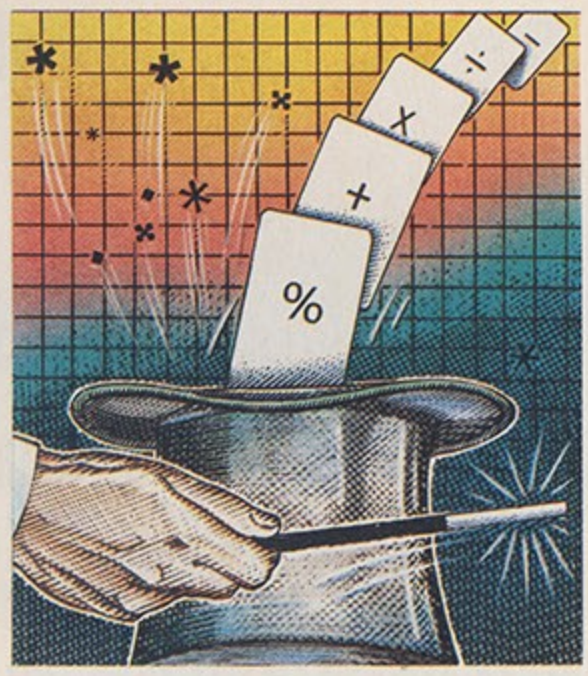
Conversely, when a plane is landing in your sector it is your responsibility to get it to the FAF (Final Approach Fix) so you can hand it over to Ground Control. This can be quite tricky if the plane entered your sector from the north-west but final approach is from the south!

You do not have to bother about planes after they leave your sector either, although it is your responsibility to 'handoff' to ARTCC (Air Route Traffic Control Centre), who look after planes en route. ARTCC will only accept a plane when it appears on their scope.

With just a few planes in the air, operating *TRACON* is fairly straightforward: the problems start when you've got four or five planes all trying to land at the same airport; a couple of Cessnas crawling across the screen and a load of take-offs scheduled. How difficult it all becomes depends on a number of parameters that you set at the start of a simulation. This principally depends on the number of planes that need handling within a given time, but also on weather conditions and pilot proficiency. In the worst, case you're coping with pilots that don't hear or misinterpret commands and are prone to overshoot runways, coupled with storms gusting to 90 knots.

Thankfully the user interface is relatively sensible, particularly if you have a mouse, although on this reviewer's machine the pointer disappeared behind the menus, which turned selection into a hit or miss affair. The program comes with five sector files covering various locations in the States and it is possible to construct your own.

If all goes well you end up with a clear screen and a reasonably high score. If, however, you let two planes approach within three miles horizontally or 1,000 feet vertically you are warned of a 'separation conflict' and penalised accordingly. If the approach is less than half a mile or 500 feet it's a crash, and you are vividly reminded of how many lives have been lost (which depends on the type of planes involved), and just what sort of pressure air traffic controllers live under every moment of their working lives. *TRACON* is a real challenge and a superb simulation.■



# SOFTLY SOFTWARE

**No matter how complex that package you've purchased may seem, its underlying principles are relatively straightforward and simple. To introduce a three-part series on the whys and wherefores of word processors, databases and spreadsheets, Tim Smith gets down to BASICS.**

All the software which flows from the manufacturers into the retailers and eventually dribbles out to you has one thing in common. Be it *LocoScript 2* or *Lotus 1-2-3*, *Pagemaker* or *PostScript* – they all started off as an idea in the head of someone who is now excrutiatingly wealthy. The idea was all well and good: "God I'm hacked off with this word processor/database/spreadsheet, let's have a new one". But then it had to be programmed.

Non-programmers need not run screaming in fear of their social lives. There is more to programming than sitting through the night moving through binary forests with the stealth and style of a wounded warthog. Any piece of software involves at least three stages in its development. Planning, design and programming are the holy trinity, each being as important as the others.

There is simply no use in having a programmer who can speak in hexidecimal figures if the plan of action he or she is given comes on the back of a matchbook and is a stream of consciousness job, filled with inspiration, ideals and no solid basis. So planning and programming are in each other's pockets. Equally you cannot expect a programmer to provide the design of a program. The front-end (the element which the user sees and which they utilise to get to grips with the progam functions) must be constant, unjarring and easy to use. All three roles intermingle and react. Any piece of software is a team effort.

## TEAM TALK

The aim of this brief series is to show how three of the mainstay pieces of software are put together. What should you be looking for in a word processor? How does a database magically find the entry for G Hurst among all the other Hursts in a city? What lies behind the slick grid of a spreadsheet and how does the computer know where cell A1 is in relation to cell X1212?

Having this kind of information to hand is useful on two counts. Once you know a few of the details it might make your next purchase that bit more educated and hence save you heartache in future as well as money in the here-and-now. More interestingly, why bother forking out a couple of hundred notes for a database to keep track of your rare film collection when you (and maybe a few friends) could probably sit down and build your own?

The anatomy of any program is a complex, fascinating thing. Getting away from 'what it does' and moving towards 'why and how it does it' will give you more information about your machine as well as cutting a swathe through the complexities of software buying.

## MAKE THE MOST OF IT

Another thought to bear in mind is that nearly every machine you can buy, from the Amiga to the CPC, comes replete with a programming language. All well and good, but many people don't even bother with these freebies. Think about it, if you went out and bought a car with a seventh gear to improve fuel consumption, increase power and make the tea, would you use it? Or would you say, "Well I've only ever used five gears and I'm not about to change now. And anyway I've seen a turbo-thruster add-on pack, which only takes three days installation and it can do the same at a cost of £500."? Maybe not.

Learning to understand a program genre such as a spreadsheet can be as simple and fulfilling as studying a racing form, playing chess or telling Bobby Robson that Paul Gascoigne is not half bad.

All it takes is a little time, some patience and imagination. And you could get at least another few hundred pounds' worth of value from your PC, ST or possibly even a SAM Coupé.

## PLAN A FROM INNER SPACE

The first thing we are going to deal with is the database. Why? because most computers come with one form of BASIC or another, because BASIC is nearly as simple to learn as ordering a cup of coffee in French and finally because most BASICs are really decent file handlers.

We will look at what you would want from a database – and what you wouldn't want, which is equally important, as extraneous functions use up precious memory and slow down access time. After this we will take a glimpse or two at what lines of code you might use to begin programming the beast.

The first thing to realise is that you do not need to have a degree in Applied Mathematics to program. Far from it. Any programming language relies on your ability to grasp form and structure. There is no point in providing yourself with multiple search paths if all you are ever going to look for is first names.

## PARTY TRICKS

BASIC, which we will be using, would prefer you to have a grasp of logic than logs. One trick to try out before tackling a program is to sit down with a friend. You then have to tell them to close their eyes, then instruct them to pick a matchbox up from a table, open it, light a match, close the box, blow out the match and put the box back on the table.

The instructions you give your friend, which to you were blindlingly unambiguous, can easily be misinterpreted by a human. This game will give you some idea as to just how stupid a computer can be and how much you could also be in charge.

All you are doing when you program a machine is giving it simple instructions. Every program ever written is at its most simple a list of commands. Forget the maths and the learning of a new language and get on with working out what you want, how you want to see it happen, how much time you are going to spend on it and how much energy you are going to expend on it.■

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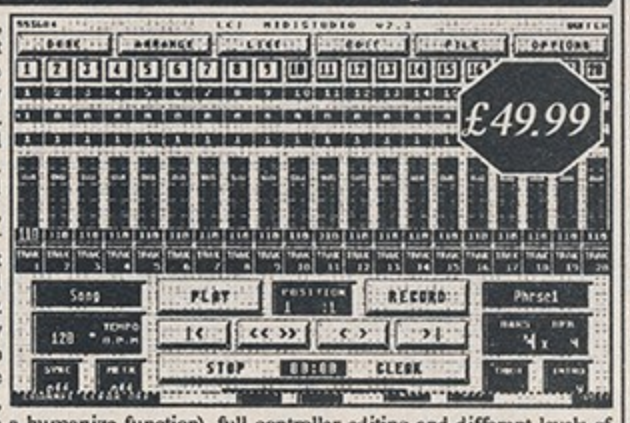


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The IMG scanner is a realistic, low cost scanner which can offer high quality graphics digitising for a tenth of the cost of other scanners. This simple unit plugs into the cartridge port of the ST and accepts scanned information via optical cables which fix easily to the head of any Epson compatible dot matrix printer. The software allows grey scales to be replaced with colours, 4 in medium resolution and 16 in low resolution and offers scanning resolutions of 75, 150, 216, 300, 360 and 1000 dots per inch horizontally. Best results are achieved with photocopies. Greater than screen resolution images are saved in IMG file format and can be edited with any compatible art package. Screen resolution images can be saved in Raw data, Degas or Neochrome formats and edited with compatible art packages.

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| Star LC-24/10. | 170/57cps | £ 239.99 * |
| Citizen HQP 40. | 200/66cps | £ 254.99 * |

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| Star FR-15. | 15" carraiage version. | £ 688.99 * |
| Star XB-24/10. | 24 pin, 80 cps SLQ, LQ. | £ 688.99 * |
| Star XB-24/15. | 15" carriage version. | £ 907.99 * |
| Colour upgrade for Star XB & FR range. | | £ 39.99 * |
| Star Laser Printer 8, 1 Mb RAM. | | £ 2287.35 * |
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| Atari SLM804 Laser with 90 days on site warranty. | | £ 1099.99 |

* All these printers carry a 12 months on site maintenance warranty and come complete with Centronics cable. On site warranty UK mainland only. All printers are top quality products for the UK.

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Why pay pennies less for an inferior drive when you can get quality Cumana drives at these remarkable prices.

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* Deduct £10 if bought with computer, Scart cable included

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| Supra 30 | (ST) | £474.99 |
| Third Coast 65Mb | (Amiga) | £659 .99 |
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* Please check configuration before ordering. Our Atari trained engineers can repair all hardware, including Amigas, in minimum time at competetive prices. Fitting prices quoted for machines not previously tampered with. All upgrades and repairs carry our 3 months parts and labour guarantee.

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*With 128K ROM's £ 384.99*

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| | |
|---|---|
| *520 STE Explorer* | *£279.99* |
| *520 STE Power pack* | *£369.99* |
| *1040 STE Hyper pack* | *£459.99* |
| *520 STE upgraded to 1Mb* | *£339.99* |
| *Amiga Batman pack* | *£369.99* |
| *Amiga Batman + pack* | *£399.99* |

*STE Prices While Stocks Last*

Power pack consists of Organiser software, First Basic, First music and games including, Afterburner, R-Type, Gauntlet II, Super hangon, Space harrier, Mousetrap, Buggy boy, Super huey, Fliminator, Nebulus, Pacmania, Predator, Bombjack, Bombuzal, Xenon, Double dragon, Blacklamp, Outrun, Stargoose, Starray.

Hyper pack includes Hyper Paint art package, Hyper draw vector drawing package, Borodino strategy game and Metacomco Basic.

Batman + pack includes A500 Batman pack, mouse mat, joystick and the Tenstar games pack with Photon paint.

## Quality 3.5" Disks

| Quantity | Unbranded Loose | Unbranded Boxed | Sony Branded Boxed |
|---|---|---|---|
| 10 | £6.99 | £7.99 | £9.99 |
| 100 | £64.99 | £74.99 | £89.99 |

All disks are Sony, Maxcell or Kao and carry an unconditional lifetime guarantee. Please add 60p P&P for each pack of ten disks.

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| ST Centronics lead | £14.99 | Monitor covers from | £4.99 |
| Atari DIY Monitor lead | £5.99 | LC-10 printer cover | £7.99 |
| Pair of Midi leads | £7.99 | Hard drive cover | £4.99 |
| Amiga Scart with sound | £14.99 | ST cover | £3.99 |
| ST Scart | £14.99 | Amiga A500 cover | £3.99 |
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| Atari DMA cable | £15.99 | Disk drive cover | £2.99 |

Disk boxes from £4.99. Phone for care kits.

## Business & DTP Systems

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| *Mega ST1 + SM124* | *£* | *599.99* |
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| *Atari PC4 (80286)* | *£* | *1349.99* |
| *Atari PC5 (80386)* | *£* | *2069.99* |
| *DTP Mega 2 pack* | *£* | *1674.99* |
| *DTP Mega 4 pack* | *£* | *1999.99* |
| *A4 Flat bed scanner* | *£* | *449.99* |

This high quality 200dpi flat bed scanner is also a thermal printer and photocopier. It can scan high resolution images in up to 16 grey scales. Software runs on Amiga and ST (ST software includes editor) and requires 1Mb of memory. This is probably the most cost effective piece of office equipment you could own. Centronics cable included.

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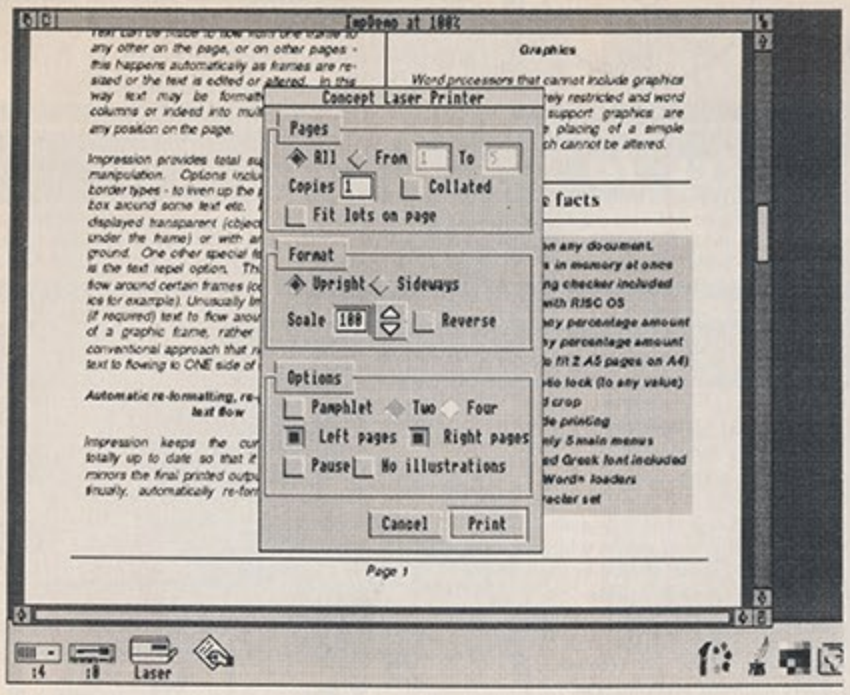
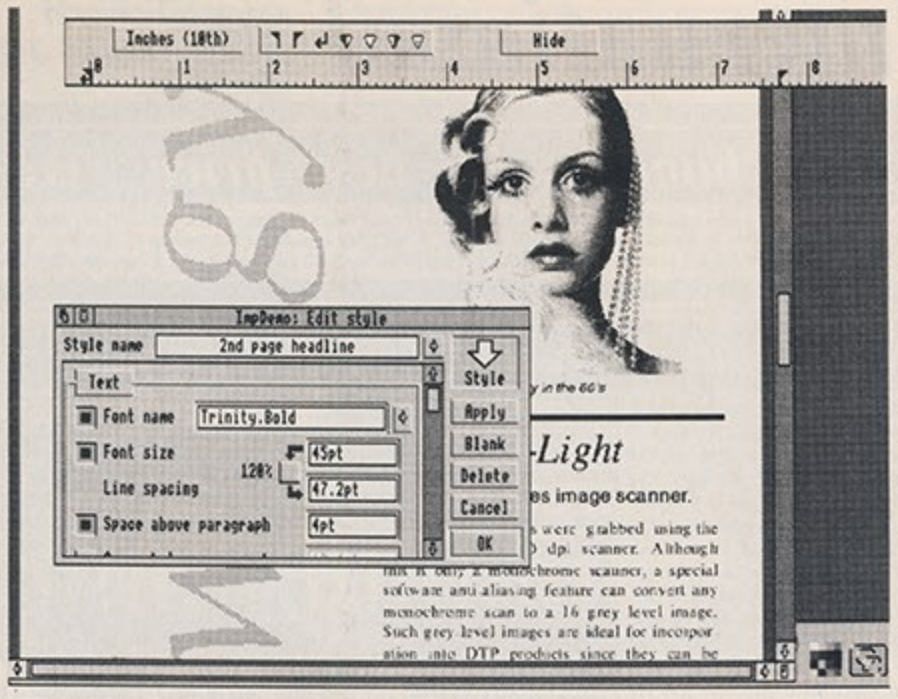



• *High-quality scanned pictures can easily be imported into documents and rescaled. Over 60 clips are supplied free with the program. Accompanying text can be automatically flowed around the graphic's box.*




• *The printer window lets you print more than one page per sheet of paper: useful for drafting a longer document.*

# IMPRESSION

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# IMPRESSIVE!

**DTP could be the niche market which makes the Archimedes – and *Impression* is the most sophisticated DTP yet released for the machine.**

Desktop publishing is one of the major market areas available to the Archimedes, for many of the same reasons it was for the Mac. Both machines started life with graphic operating systems, fast processors with specialised image handling and output to high-quality printing and image-setting devices.

So far, only *Acorn DTP* fills the DTP slot on the Archimedes, but *Impression* claims a host more features. The manual – which is well written with a nice touch of wit to lighten the text – outlines them well in three separate sections, with plenty of technical detail in the appendices. A separate booklet *DTP at a glance* is also supplied with the program – though none was supplied for review.

*Impression* refers to itself as a document processor. This is meant to imply that you can word process at respectable speed within the application. You can – and text is fully WYSIWYG (What You See Is What You Get) – thanks to Acorn's outline font manager. The anti-aliased fonts can look a little blurred on a medium-res monitor, but are very readable on a multisync. Text editing facilities include block handling, spell checking (including 'while you type'), automatic abbreviation expansion and search and replace.

Search and replace is particularly advanced as you can include tabs, carriage returns and styles. *Impression* is strong on styles, maybe too strong, in fact, as it insists that all typographical changes are made within them.

While the idea of applying a series of changes in one fell swoop is appealing, it's good to have the flexibility to change individual fonts or point sizes 'on the fly' – something *Impression* doesn't allow. In fact styles are only part of a whole Document Description Format within the program, which lets you embed layout control characters and style changes into an imported text file. Supported text formats include *Inter-Word*, *1st Word Plus* and *Acorn DTP*.

The typographical control of kerning can be applied separately in horizontal and vertical directions, and leading can be automatically assigned to 120 per cent of the current point size or set explicitly. These and many other layout functions are controlled from the style editing window, which like most others in *Impression* is a very neat affair with shadowed buttons and indented text windows. The style window has an indented scrolling browser containing all the available categories of control.

Graphics are well supported and *Impression* can handle both bitmap and vector images. These can be rescaled within their boxes and text can be auto-wrapped around the box, though not directly around the graphic. A selection of around 60 clips, both vector and bitmap, is supplied with the program. How many uses there are for the included pencil sketch of Dennis Healey, though, is open to question. There are a good few extras within the program that few DTPs enjoy. These include index and table of contents creation and the ability to handle colour.

*Impression* is a full RISCOS application and can be multi-tasked with other programs on the Desktop, memory permitting. Memory can be a problem on a 1Mb machine. Although the program will run with this amount, there's little room for a second document or to run *!Draw*. This is rather a blow when so much is made of the multi-tasking.

With a base A3000 you're going to have a slow time with a lot of disk swapping. Add 1Mb of memory and a second floppy and you can afford a decent-sized font cache and stick most of the ancillaries *Impression* will want on the second floppy. Add a hard disk and another 2Mb and you have a very flexible system.

## CONCLUSION

*Impression* promises a lot, but to use the program even semi-professionally within Acorn's multi-tasker, you need 2Mb of memory and twin floppies. Indeed, it is much better to have 4Mb and a hard disk.

I hope it was the restricted size of the review machine (A310) which caused the frequent error messages from *Impression* during testing, and not some unresolved bugs. Either way, the program should let you save your files before forcing you to remove it, and all open documents, from memory.■

## THE KEY TO SUCCESS?

**Every copy of *Impression* is supplied with a software key, or 'dongle'. This is attached to the printer port and is checked by the program at various times during each session. If it doesn't find the key in place, it refuses to start or continue running.**

**Computer Concepts claims the key has no effect on other software and is transparent in use. It's there, the company says, to protect the two and a half years of development that has gone into the program.**

**There are two potential problems with the use of this kind of key: It may not be as transparent as the supplier believes and it may prove inconvenient for the legitimate user. The first key supplied by Computer Concepts with the review copy of *Impression* proved unreliable, causing printing errors under *Impression* and other programs. Some other users have experienced similar problems, though the supplier puts this down to an early faulty batch of keys.**

**If every major application was to be supplied with a gadget which sticks out of the printer port by a good two inches, there would pretty soon be no way you'd be able to get an Archimedes onto your desk. Even if you had a big desk.**

**The alternative of swapping dongles with application is also not a solution, particularly on a multi-tasking machine. There are better ways of protecting software, such as typing in passwords from a manual.**

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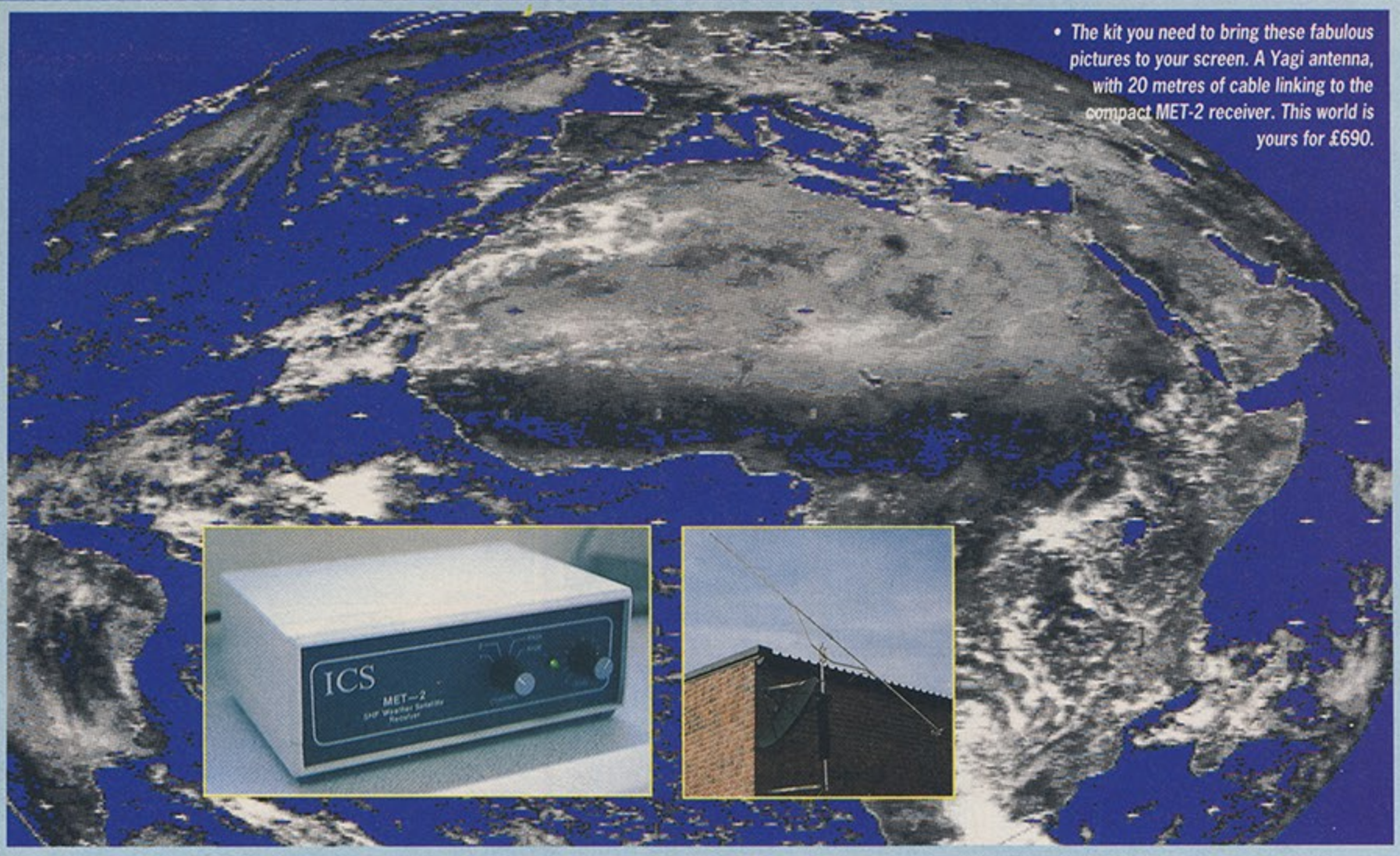


• The kit you need to bring these fabulous pictures to your screen. A Yagi antenna, with 20 metres of cable linking to the compact MET-2 receiver. This world is yours for £690.

# BROADCAST FORECASTS

**ICS's MET-2 is a weather satellite receiver for your PC, ST or Amiga. Andy Storer downloads the data that travels 23,000 miles.**

The favourite British opening subject of conversation has taken an even higher profile recently with our very own hurricanes and overdue concern with the effects of global warming. For PC, ST and Amiga owners with added enthusiasm and some £690 to back it up, long-time comms specialist ICS has just released a geostationary weather satellite receiver to allow you to pick up live images on your monitors.

The kit consists of a receiver and pre-amplifier, a 3 metre antenna with 20 metres of cable, and appropriate software to receive, display and manipulate the images. Though nearly £700 for the set up might sound expensive, ICS, European market leader in data and radio communications – with a turnover of £2m – claims a comparable system would knock you back £5,000 or so.

In Europe and Africa images are taken from the Meteosat satellite positioned some 23,000 miles above the Greenwich meridian and the equator in geostationary orbit. As such it monitors the same view of the globe twenty-four hours a day. It's also possible to download pics from the US GEOS satelllite serving the American continent. These are the main two satellites, but you can also try your luck at two Russian ones and the NOAA satellite orbiting at only 450 miles, which passes the UK three times a day, taking only 100 minutes to complete an orbit.

The antenna used to collect the images needs to be mounted on the side of a building and pointed in the rough direction and elevation of the satellite you wish to access. A coaxial cable links the mast to the receiver, where fine tuning is enabled, and a lead connects this to the parallel port of your computer. Since the downloads are infra-red images appearing as mono, it's best to view the material in grey scale resolution, but the supplied software offers you the choice of adding your own colours. As such, it is possible to assign varying RGB values to different areas of the image in order to highlight particular features – and as you can see, the results are rather impressive to say the very least.

Furthermore, with PC software it's possible to select any graphics mode you may have from CGA to VGA though the manufacturers recommend 16 grey level screens as producing the best results. Once read in, the 512K images can be coloured and magnified for close-ups.

It's the same with the ST version, but you'll need a 1Mb machine. Here it's best to view the material as grey scale images and for this reason ICS supplies a separate adapter which allows you to convert your colour monitor to grey scale. Pics can be saved as NEO files for subsequent screening as animations or dumps to printer. On an Amiga with at least 1Mb of RAM, resolutions of up to 600x400 x 16 grey levels in interlace mode are supported with selectable zoom. Images are stored as `.ILBM` files for easy transfer into paint packages and the *PIXmate* image proessing program. Both the ST and Amiga can continuously capture images as they are broadcast every half-hour – so if you

• *Whole earth images downloaded from Meteosat 4 and displayed on a VGA PC with its resolution of 800x 600 pixels and 256 colours, produce the best results of all. The image can be zoomed to reveal greater detail and re-coloured according to your tastes. The original material is grey-scale infrared - the whites of the cloud formations are the coldest areas, while the land masses - particulary the hot areas of Africa come out dark.*

have sufficient RAM you can dump them all into memory for subsequent replay.

The resolution of the images generated by Meteosat and GOES is 800 x 800 pixels and this consists of information picked up by infra-red sensors looking at emitted heat values. The images are transmitted to an earth station, either at Darmstadt in West Germany or Lanion in France, where they are processed and re-broadcast to the satellite for dissemination to anyone with the equipment to capture the signal. At the earth station, the processing involved adds coastal outlines to the map.

The pictures are composed of 2,500 lines, which are broadcast at a rate of two or four a second; thus it takes nearly four minutes for a complete image to be read on to your monitor. Depending on the machine you're using you can animate the various images – if you have 4Mb of RAM it's possible to store up to 64 frames of data while with a more down-to-earth system offering 640K you can store eight frames or four hours of weather data.

So, if you're an amateur meteorologist, farmer, seafarer, school teacher or guide, you might find MET-2 a bargain. At any rate, for more information give ICS a call on 0903 731101.■

**WHAT YOU GET**

- Updated images every four minutes, 24 hours a day.
- The whole earth picture updated every hour.
- Images of Europe updated every 30 minutes.
- Four close-ups of Europe every hour.
- Options to view the earth in infra-red, visible light, or water vapour.
- With these it is possible to determine height and types of cloud cover, sea and cloud surface temperature, wind directions and speed, distribution of water vapour in an atmosphere near you!

• *On all machines the images can be run as animated sequences allowing you to see meteorological progressions of the world's weather every half hour. This sequence from the ST is stored as NEO files and displayed using the built-in animation software. The ST's resolution is improved if you convert your color monitor into a grey-scale one, though .*

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# READER'S DIGEST

**Do you really understand what the computer mags tell you? Rodney Indesit presents a guide to believing what you read**

There are something like 200 magazines and periodicals devoted to computers, and much, if not all, of what is written is inaccurate.

The basic problem, as I see it, is that anyone who can write won't waste his or her time with computers (he or she will have a PCW instead). Further, anyone who knows about computers tends to be happier writing in op codes than English – the sort of people whose shopping lists look like this:

```
;SHOPPING LIST BY WAYNE CRAPPER
;(C) W CRAPPER 1990
FSH             ;Fresh fish if possible
SPDS 3          ;For mashing
BNS 50,G        ;If no beans, then peas
BG ROLL         ;Must've for guest room
MLK PTS,1       ;add to stack in fridge
```

and so on.

Therefore you can't approach a piece of computer journalism as you would a normal piece of literature; after all, would you expect the average piece of business software to be usable without reading the manual, buying a book on it, and attending a six-week intensive training course in London? Of course not. You need some preparation. Here, then, are five of the most vital rules to help you make sense of some of what you read.

## RULE 1
## NEVER BELIEVE ANYTHING UNTIL IT'S DENIED

Computer news journalists rarely have time to check up their facts properly and don't know how to get hard news from the on-line news services, because PCWs don't work very well with modems. Therefore they have to guess most of the news that you read. If they guess wrong nobody minds, but if they guess right, the companies concerned in the item strenuously denies everything. Suppose, for example, journalist X guesses that Comari Corp. is about to launch a £50 32-bit hand-held colour VGA Spectrum-compatible games machine. If this is nonsense the company will let the item pass as it'll just put wind up the opposition, furnish an air of mystique and give it some more publicity. On the other hand, if it's near the mark, it will deny it strenuously, because if its competitors knew what it was up to it might lose its competitive edge.

## RULE 2
## NEVER BELIEVE ANYTHING UNTIL IT'S CORRECTED

Writers compiling problems pages of technical advice and so on tend to write the first thing that comes into their heads in the morning. (In fact, the first thing that goes into most technical writers' heads is a shot of Bell's and a Gauloise.) Most of what they write is wrong (one technical author was nicknamed Robin Hood because he was always writing wrongs). Lazy types print up tips and pokes and so on that readers have sent in, without checking first that they work. They never do.

Three weeks later someone will try the tip and find that, instead of reformatting the current paragraph as it claims, that short-cut keystroke in fact reformats the hard disk and creates 256 files on the floppy all called ABCDEFGH.123. An apology will be printed with a correction. You can sometimes believe the correction.

## RULE 3
## NEVER BELIEVE ANYTHING BEFORE IT IS CONTRADICTED

In letters pages and so on people express their views on computers forcibly. Unfortunately these views tend to be like those claimed by seaside boarding houses: drab, uninspiring and obtainable only by sticking your neck out a long way.

And, all too often, they haven't taken into account significant facts – perhaps the mail order company they praise has just gone into liquidation, or the software they cite as the best buy is in fact unavailable in the country except in pirate copies. So before putting any faith in what they write you have to wait three weeks for someone to find out their error and write in contradicting the first letter. They, in turn, will have missed out some vital fact, meaning you have to wait another three weeks, and so on.

## RULE 4
## NEVER BELIEVE ANYTHING UNTIL IT'S APOLOGISED FOR

Allegations are often made by news writers about individuals or companies. These allegations are often true, in which case they're what everyone knows anyway but dare not put in writing. On the other hand, if they are wide of the mark, then the industry and the customers will ignore the allegation, because the company's reputation will be secure anyway and making a fuss would just draw unwarranted attention.

If the allegations are true the effect of the printed word will be to confirm what everyone knows anyway. The company concerned can't deny it, or everyone would know the allegations were true (see Rule 1). So they threaten libel, knowing that just because something is well-known doesn't mean it's sound enough to stand up by itself in court (as could be said for most judges). It would be up to the magazine to prove that the gossip was true, which will be impossible, and the magazine would have to pay huge damages. Therefore the magazine will print an apology under the threat of a libel action, and when this happens you know what they originally wrote was true.

When, for example, you see "APOLOGY: Last week there were some unintentional errors in our item about Xsoft. This company is a respectable software house and has provided its customers with an excellent service for many years," you know it means "XSoft is well known as a get-rich-quick outfit run from a garage in Woolwich since May last year and the dompany peddles tawdry pirated software from Taiwan, cashing cheques before sending anything out."

## RULE 5
## NEVER BELIEVE ANYTHING WRITTEN UNDER A PSEUDONYM

It must be rubbish or they'd use their own name.

# EXPRESS MAiL

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**Sorry, no personal replies, even with an sae.**
**This week's replies by Keith Pomfret.**

## Tas words

I've only recently found *Express* on our shelves for $1.85. I own an Amiga 500, a A590, 3Mb RAM and a Lucas 68020/6888. I would also like to tell you of my delight with another product, F-BASIC from Delphi Noetic. A number cruncher that doesn't neglect graphics.

In Australia the 500 costs $A899 (about £380), the Atari is almost extinct and a basic Archie costs over $3,000 (£1,300) – no contest here I'm afraid.

PS. What time can an Archie do the 'savage' benchmark in, and what result can it give? Mine gives 0.83s (F-BASIC) or 0.30s (assembler) – now where's that 68040, at 40MHz. I wonder how Spectrum, PC etc. stand up? Maybe you could print readers' results?

*Perrie Iles, Berriedale, Tasmania*

There's this week's Tas-k for all you processor heads out there. Run the 'savage' benchmark test through your kit and send the results in for our Tasmanian friend. Before you ring, I haven't got a clue what a 'savage' benchmark is so don't ask. I think its one of those 'need to know basis' things that only Tech Tip's tribe understand.

## Green with Envy

I am writing to tell you about a company that I feel cannot go without recognition. This company is Compunet, the telecommunications network for the Amiga, C64/128, ST and, the PC. I have been a subscriber now (on and off) for about four years. I have had no problems, have always been treated with courtesy and they have helped me to the best of their ability.

The service they provide is friendly and very useful, and I have made countless new friends and contacts within the computer world.. There is always someone to talk to or help you out and there is normally someone from the office on-line during the evenings, to answer any queries.

I would like to thank the managing director, Nick Green, for providing such an excellent service, Compunet has been a great help to me over the years and I hope it will continue to be so.

*William Chapman, Yeovil, Somerset*

I hope Nick Green's paying you good money to be his PR man, as your letter is the sort of testimony that lesser mortals can only dream of. It's good to hear of a company that provides a good service. Too many businesses shave off the traditional values in the name of efficiency. Well done Boss Green and Co. Keep up the standards.

## Conscious Pilot

Picture this. Middle-aged man returns from hospital (accidental overdose of valium) with instructions to take things easy and stay quiet.

Wife goes shopping. Man creeps upstairs to back bedroom and there it is! An Amiga 500. Plug in, and put in small blue disk labelled *Interceptor*; almost casually the machine invites a selection of missions.

After a short session of button pushing a small fighter aircraft is hurtling down the runway of a carrier – a couple of laps and then land, it instructs. Man feels slightly queasy. Speed down to 200 knots, arrester hook down, gear down, hold steadily, suddenly red lights "Enemy in vicinity" (Perhaps the wife has returned!).

Pulse rate is up, sweat on upper lip and forehead, hands shake slightly, man leans forward to scan monitor, elbows on keyboard. "Missiles Armed" small squares and diamonds are racing across the screen together.

Man grips joystick in fear; glasses are steamed up, heart pounding, sweat running freely off his nose. A missile screams away and locks on. Quick look at the altimeter, 200 feet! Carrier coming up fast, runway in line. Fumble madly with keyboard, hit F1, everything stops...

`Congratulations, your mission is successful, this will be shown on your log.`

Man is gently crying (perhaps a small Scotch and maybe just one valium will help).

*J Laskey, Tilbury, Essex.*

Dear, dear. What are you complaining about? Can't you take the success? Don't you know how many people out there have never seen

## Mac attack on prices

Your article on the Macintosh (The Price is Right – *Express* 71) got me re-thinking my plans. I am setting up a very small specialist teacher-training centre and need a computer for word-processing, simple budgets and accounts, simple database of potential students, and preparing course material. This would need DTP facilities for such things as: one page flyers, multi-column brochures and newsletters and training booklets/manuals up to 100 pages long.

I fancied a Mac for its fun, easy to learn interface, but got put off by the price and the impression from Mac magazines that the hardware and software is increasingly aimed at corporate power users and big publishers, not the small fry like me. So I was gritting my teeth in preparation for a plunge into the rigours of the MS-DOS world, with an occasional flirtatious glance towards the ST or Archimedes, when your usually-realistic, down-to-earth reviewer comes along saying: "Yes, the price is right, and it is the best you can buy."

So, as you've set me thinking again about purchasing a Mac, perhaps you could answer some of the questions this raises for me:

There are rumours that the Plus and perhaps even the SE will soon be dropped. Are they still worth investing in now? (I couldn't afford anything more, even with an educational discount.)

Is working with a 9-inch black and white screen much of a disadvantage compared with, say, 12-inch colour on other machines?

We read in the same issue of *Express* that Bob Gleadow [Atari's UK managing director] sees the ST as a real alternative to the Mac in DTP. Why isn't it (or the Archimedes with, say, *Impression*)?

Is that hip collection of *HyperCard* PD software you refer to, actually available in the UK?

Is the recently-announced, revamped Lisa, from MacSolutions UK, worth a look?

*• Macintosh: expensive, but the best.*

A lot of questions, but I hope your letters page can help me out. Thanks in anticipation.

*John Nicholls, Leighton Gardens, London*

Andy Storer replies...

As far as we know Apple has no plans to drop either the Plus or the SE – in fact the rumours are that it intends to bring out colour versions in the near future. As for 9-inch monitors, I've been using one for *Express* since issue 0 and it's fine.

Professional DTP on the ST and Archimedes suffers from a lack of High Street outlets for high-resolution output to film at 1200DPI. If you just(!) want laser quality then they're both more than adequate.

*HyperCard* software is mostly public domain or shareware and is available from most Mac bulletin boards.

Sorry though, we can't pass judgement on the re-vamped Lisa

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a mission successful screen? No? Personally I've no sympathy at all but I can't even land the jet in *Driller*. Go back to your computer, grip the joystick and bravely go where no hand has set foot. Keep your filthy mits away from the F1 button and send the valium and Scotch to us poor demented hacks at *Express*. Our need is far far greater.

## 2,4,6,8, Animate

**I would like to place an ad in your magazine. I like graphics and am interested in communicating with other people who have an interest in graphics, graphics programming and animation on the Amiga. What about an international user group for animators where we could swap ideas, PD software, hints and tips?**
***Scott Howison, 6 Hazeldene Street, Mildura, Victoria, Australia 3500.***

To save you the huge expense of a free reader ad, we've printed your name and address so that any like-minded antipodeans and others can get in touch.

## Just a Whisper

**May I add my small voice to D Robinson of Brampton? I, too, have a Commodore 64 which, with *Easyscript*, I find sufficient for my present needs. I really don't see the point of spending a thousand or so on a professional system when an 8-bit will still beat my rate of composition, let alone my typing speed.**

**It is a great pity that the makers don't seem to see it as other than a games machine: I would like to get at least *Easycalc* and Simon's BASIC (cartridge).**

**I would also like to learn how to program in assembly code – all the books dive off into an explanation of hex, and don't come back. All I ever get is Syntax Error or, occasionally, Out of Memory.**
***EAR Coustick, Hall Green, Birmingham***

You can only add your small voice to D.Robinson of Brampton if he's not satisfied with his own and will let you.

You make a very relevant point that even the corporate buyers miss. If the system will do the job, why upgrade or change? Too many people race off to grab the latest widget without a second thought about its necessity.

If you can't find *Easycalc* or Simon's BASIC, use our reader ads. Out there are thousands upon thousands of happy smiling faces, scanning Express every week. You might even find someone prepared to help you with the black art of assembler and hex.

## Spoilt Rotten

**I would like to thank you for a most lively and interesting read. However, there are two things which I find spoil an otherwise good magazine.**

**Firstly, the "my computer is better than your computer" letters. I would like to say to the people who write these letters that the best computer to use is the one that the user is happy with.**

## You don't fool us so easily...

**Seeing how interested you are in Amstrad's relaunch for the CPC, I thought you may like more some details...**

**It has 512K RAM, one cartridge slot which can use one megabyte, one 'three and a half' drive, and aport for printer and expansions. The graphic chip can use two megabytes of RAM, palettes of 4,096 colours, 256 on-screen in low resolution (320 x 200), 32 in medium resolution (640 x 200) and 16 in high resolution (640 x 400).**

**There will be an a mouse with special card to convert the machine to use a WIMP system. I also know that the console will have stereo speakers and the others will have 3.5mm socket for sound.**

**Sorry I don't know much more than this, the photo does not show the true machine as it is only for testing.**
***Dierdo Polaf (C811 Grafix chip author)***

You will have to get up a little bit earlier than that if you want to pull an April nasty on *Express*.

*• The casing of the new CPC console, claims Mr Polaf, and (below) the WIMP screen.*

We enjoyed looking at the picture of a disemboweled 6128 welded to your mum's kitchen appliance and the *Stop Press*-ish screen dump was almost believable, but you gave it away with your anagram name. Funny how it spells April Fodder isn't it Dierdo?

Try again next year.

**Secondly, I would like to raise a more serious point. Most of the advertisements you print have small letters somewhere saying excluding VAT at 15 per cent. I would like to point out that this is now against the law.**

**In April 1989, the Consumer Protection Act defining Misleading Price Indications came into force. This created a general offence of making misleading price indications. VAT must be stated in full in advertisements for goods, unless the goods are sold exclusively to the trade.**
***Colin Anthony Stone, New Moston, Manchester***

Contrary to popular belief, we don't write the readers letters in *Express*. If we did, there would be no 'My ZX81 is better than your Cray' debate as we accept that each and every micro has its good and bad points. If it does the job that it's intended for, it's good. If it doesn't then its as much use as a bicycle to a dolphin. Thanks for the comments on the

## Pied Piper for broken mice

**In October of last year I bought an Amiga 500, 1084S monitor and Star LC-10 printer from Nova Supermicros, Cardiff. It was intended as a games and business machine.**

**I have found the combination very successful with one exception. The Commodore mouse appears to have a very short life expectancy. I am currently on my *fourth* replacement, all the others having developed faults.**

**Nova have been extremely good and apologetic about the problems, replacing dead mice immediately and courteously. My current mouse is now showing signs of the same problem. Can you recommend a more reliable replacement?**

**Incidentally, having temporarily moved my system I found that I had left the console-to-monitor lead behind. On visiting Nova in order to purchase a replacement to enable me to continue with my work immediately, they refused to sell me one! They insisted that they loan me the lead until such time as I could arrange to recover my own from the college.**

**The age of good service suppliers is not dead (unlike the Commodore mouse).**

**PS. I have just been given a year's subscription to your magazine as a birthday present, to reduce the amount of time I spend trying to find a reliable source of supply. Keep up the good work.**
***A D Martin, St Athan, South Glamorgan***

*• Mice problems to the fifth degree.*

Five mice in as many months is a bit OTT. I can only assume that one of these is true:

1. You are a heavy handed elephant
2. You are very unlucky
3. Someone at Commodore has got it in for you.
4. You are using 75 grade sandpaper as a mouse mat.

Keep on complaining and keep on taking the ailing squeakers back. A screaming letter to Commodore might not be a bad idea too. We're sending a boquet of wild drogmullers to Nova for services above and beyond the call of duty.

Don't forget to save the 58ps so this time next year you can buy your own subscription.

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| PCW9512 Colours | 2746C | C |
| PCW9512 Multistrike Films | 2746MS | B |
| DMP2000/2160/3000/3160 | 2482 | A |
| DMP 4000 | 2426 | D |
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| Citizen MSP-20/40/50 | 2477 | C |
| Citizen HQP-45 | 2478 | E |
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1989 Act. I'm sure the relevant people will take heed.

## Captain Sensible

I don't think that ST and Amiga owners should fight, they should be glad of each other.

Although there is no excuse for it now, in its fledgling days if the Amiga hadn't been supported by ported-over ST games it is unlikely that it would have escaped the 'no sales no software, no software no sales' Catch 22.

Looking at Atari and Commodore's 8-bit records, both the ST and the Amiga would be in the doldrums if it wasn't for the competition between them.

The machines are different, so one will be better for one thing, for one person, at one time, but do the rest of us want to know?

Since this is a vaguely sensible letter you'll have guessed that I own neither. However, if anyone's giving them away.....
*S MacGlarhan, Orrell Park, Liverpool*

Anyone feeling the urge to get out of the ST/Amiga debate should send their ST or Amiga to S MacGlarhan who promises to use it without sniping at the competition.

## Big Brother?

I have worked in social work for over 11 years and believed that computers would eventually see their way into public service. Within the last year information gathered on people on manual files can now be accessed by their written request .

The next steps will be to compile computer databases, as is the case for the Child Abuse Register.

Social workers, need information on individuals, to enable them to assess their needs.

More often than not, the people referred or calling for help are usually already known to the social services department, therefore a file will exist. The problem, as is obvious with manual files, is locating them, and accessibility in an emergency.

My hope is that the SSD do computerise these files, and have computer databases managed for social workers. Also, that when the systems are set up, they pay special attention to the security and data protection needs of these very confidential files.

I would be very interested in people's views on this subject.
*Philip Thain, Darwen, Lancs*

Should social workers have an on-line information service available 24 hours a day?.

## Gizza Job

Unemployed? Lots of computer related jobs? Well, I never. I agree totally with a Mr N Foster, *Express* 69. ≈

I just know how hard it is to break into the 'computer field'. I've applied for many vacancies with either a non-existent reply or a 'no-thanks' letter. On the times I have reached the interview stage, I have been rejected owing to my 'lack of experience.'

I'm no Einstein or computer whizz-kid, but I'm 18, have 8 O-levels and an IQ of 146 – well, above the average person. I've used Nimbus PCs, Lynx 380s/480s and STs.

I am looking to break into the programming field. One large, local company advertised for trainee programmers. I responded and they replied that I was not educated enough or didn't have sufficient intelligence. However, they arranged for an interview as an operator and I tried for it, hoping to progress through and use operating as a stepping-stone to programmer. At the interview the attitude of the company was that the job may be tedious and repetitious, with mostly manual tasks, and I would probably get bored.

What do they want? Am I so unsuitable or unemployable? Who does train all the programmers? I do not have the substantial resources for a Computeach Course.

If there's anyone out there who requires a trainee programmer, will move anywhere – preferably Florida or Hawaii?
*Darren Edwards, Cannock, Staffs.*

With an IQ of 140 plus, surely you must realise that the way to impress people is with results. You can drone on for decades telling everyone what a clever little chap you are but you'll gain a lot more respect, and possibly even a job if you sit down and produce some results.

A would-be graphic artist carries a folio of work to an interview, a musician takes a demo, so if you want to be a programmer, you'll have to write some programs. No one ever said it was easy to get a computing job, so keep trying. ■

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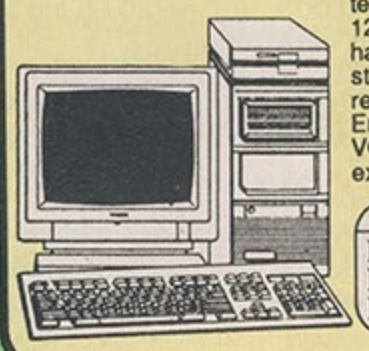

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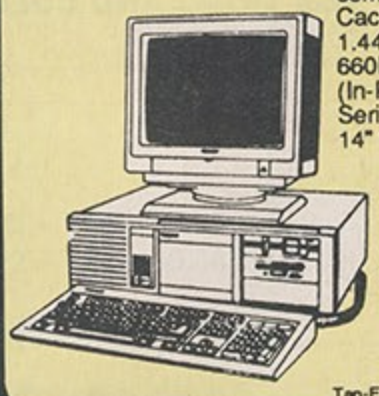

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