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The classic arcade games have spawned whole generations of clones - but how good are they? We take a look at some hits and near misses starting on page 22.

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**APRIL 1993**

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**ON THIS MONTH’S COVERDISK**

**THREE EXCLUSIVE PROGRAMS FROM THE USA!**

**PC1QUENCE**
A superb, easy-to-use video titler. With a total of 32 effects including fades, dissolves, wipes, scrolls, merges and lots of special effects, PC1QUENCE is an absolute gem to use. All you need are some compressed Degas Elite files (PC1) to build a sequence of up to 100 frames - we've even included 10 action-packed pics and a couple of instant demos to get you started...

**KID KONG & BUGS UK**
Excellent versions of the classic arcade games all the way from the other side of the Atlantic. In conjunction with the Screen Gems special in this issue, KID KONG and BUGS UK show just how well the spirit of the arcade game can be transferred to the ST.

**ALSO ON THIS MONTH’S DISK**

**SCRIBE** - A full, shareware text editor for reformatting and modifying files created in a word processor.

**LINE_ART.FNT** - Ever wanted to create a decent, large headline in Timeworks? Well you can now with our exclusive line art characters and when you see how it's done you're bound to create a font of your own.
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Soft files this month! First there's John The Composer, a rather novel music creation program followed by TONY, a freebie editor for Yamaha's TG101 sound module. Then there's a look at a couple of serious MIDI song files from Heavenly Music and finally some advice on buying a multi-track recorder.

When is a word processor not a word processor? When it's Wordflair: find out more on page 17.
NEWS

Stop Press... Atari ST Review has been taken over by Europress Publishing, the owners of Atari ST User. The magazine will continue with the same editorial team and be on sale at the usual date next month.

PAGES COME CHEAP AS PRICES FALL

Two of the best-selling word processing and desktop publishing packages have been bundled together and reduced in price.

Until the end of April, Timeworks Publisher 2.0 and the latest First Word Plus are available from Electric Distribution for just £99 including VAT, a saving of over £110 on the individual selling price.

These packages make a comprehensive addition to any one Megabyte ST and are an ideal start in the world of serious computing. First Word Plus is an easy-to-use word processor with a GEM interface and 40,000 word UK dictionary. Timeworks Publisher 2.0 has all of the features that you need from a DTP package including text wrap round irregular objects, automatic text flow and custom page sizes.

Also from Electric Distribution is the latest update for Neodesk. Version 3.03 works with MultiTOS and has improved file copying routines and other enhancements, including high-density disk drive support. Neodesk 3.03 is available as a stand-alone package for £40.81 or as an upgrade for Neodesk 3 for £4.95.

Neodesk 3.03 and the new double pack are available from Electric Distribution, Meadow Lane, St Ives, Cambs PE17 4LG, Tel: 0480 496686.

ATARI ON THE CASE

The new Falcon 030 will have a two-part design when the machine is released in its finished form.

The case is expected to be a 'pizza box' design, similar to the original Mega STs. This means that the machine will have a small footprint and a separate PC-style keyboard. The entry-level machine will have two Megabytes of RAM, and an IDE controller for an internal hard drive and the VME bus will be available as options.

The biggest news is the absence of a cartridge port, but, we are told, music software publishers have been informed of ways of using the DMA or the DSP ports for anti-piracy protection.

The projected price is £399, although with the falling pound, we'll have to wait and see. The first shipment is expected to arrive in the UK in April.

WIZARD P.D.

Wizard P.D. would like to assure our readers that it has no connection whatsoever with Wizard Games or Excalibur Software.

The P.D. company has been trading full-time since 1989 and has built up a name as a reputable dealer in public domain and shareware. Unfortunately, the latest on the other two companies is not so good. We recently received a letter from a reader who ordered games from them, paid them a visit and found the shop empty. We understand that the police and Trading Standards Office are looking into the situation.

Wizard P.D. can be contacted at 178 Waverley Road, Reading, Berks, RG3 2PZ, Tel: 0734 574685.
ENTRY-LEVEL LASERS FROM XEROX

Rank Xerox has launched two new entry-level laser printers. The Xerox 4010 II and III are designed for the small business and would suit the home user too.

Both machines are capable of printing at a speed of four pages per minute, with a resolution of 300 dots per inch and they are designed to handle up to 5,000 pages per month. They have a 100-sheet paper tray and can also take envelopes, transparencies and other non-standard paper stock.

The 4010 II has 512k RAM, HP Laserjet II emulation, 11 resident fonts and a one-year on-site warranty. The retail price for this is £899 excluding VAT.

A little higher in price, but boasting 2.5 Megabytes of RAM, HP Laserjet III emulation, 16 resident fonts and a three-year warranty, the 4010 III sells for £1095.

Both printers can be upgraded to 4.5 Megabytes of RAM and an optional multi-emulation kit is also available.

For further details, contact Rank Xerox (UK) Ltd, Bridge House, Oxford Road, Uxbridge, Middlesex UB8 1HS. Tel: 0895 251133.

IDEAL GAMES AT IDEAL HOME

Are you planning to visit the Ideal Home Exhibition this year? If so, then a visit to the Ideal Electronic Games Show is called for.

The games show takes place in Earls Court 2 between 25-28th March and admission is included in the cost of the main Daily Mail show. Although the emphasis is on games, with the consoles being well covered, there should be plenty to keep the floppy disk user occupied.

The Daily Mail Ideal Home Exhibition runs from 18th March to 12th April from 10am to 8pm each day. Combined entry is £7 for adults and £4 for children and senior citizens.

MIDI BY EXAMPLE?

If you ever buy some music equipment for the ST, the chances are that you'll get home and sit there wondering how to put it all together. Well, now your worries are over: MIDI Survival Guide, published by PC Publishing, takes the hassle out of MIDI with practical advice from starting out to ending up with a correctly working system.

More than 40 diagrams show practically every conceivable way of connecting up synths, sound modules, sequencers, drum machines and multi-track recorders using MIDI Thru, Switch and Merge boxes. There are also chapters with advice on buying, budgeting and positioning equipment. All in all, this is an invaluable guide for all current and prospective MIDI users. The author is none other than our own Associate Editor, Vic Lennard, who also happens to be director of the United Kingdom MIDI Association. For more information contact PC Publishing on 0732 770893.

CLUB FOR CUBASE USERS

Now all you musicians can get together and discuss Take That's latest! An officially approved user group for Cubase has been launched in the UK.

Club Cubase UK is run by ST Review's Associate Editor, Vic Lennard, together with Ofir Gal and Brian Heywood and it offers a large range of benefits to members. These include discounts on many Steinberg products and special deals on promotional products and licensed disks.

A bi-monthly magazine for members covers advance product information and basic, advanced and technical articles on all aspects of Cubase across all three computer platforms.

There is even a technical answers section which has been written by Naji Simaan from Harman Audio, the official UK distributor of Cubase for Steinberg Research. And if all this isn't enough to tempt you into parting with the membership fee straight away, there are also hints and tips, letters, advice and a general forum for all Cubase users.

If you've registered your copy of Cubase with Harman Audio, you will automatically receive the four-page glossy brochure (the front page of which is shown below), detailing all of the benefits of being a Club Cubase UK member.

"This is the first time that anyone has launched an official club for Cubase users," says Vic Lennard, "and we intend to offer members the kind of benefits which will more than justify the cost of their annual subscription. How far the club goes depends on the level of membership that it achieves."

Membership costs just £14 per year. For more information, contact Club Cubase UK on 081 358 2245 or write to 26 Brunswick Park Gardens, New Southgate, London N11 1EJ.

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THE MANY FACES OF CUBASE
What should you expect to pay for a 16-bit sampler, advanced sample editing software, and a powerful 64 track sequencer?

New from Gajits and Audio Visual Research, a low cost 16-bit hardware and software combination for the Atari ST range. It could transform the way you make music...

**Breakthru** is a 64 track professional quality MIDI sequencer with a difference. At the same time as it plays your MIDI instruments, Breakthru will play back 16-bit samples through a Replay 16 sampler plugged into your Atari computer. **If you don't have Replay 16, Breakthru can play samples through your monitor or TV speaker, through the computers' DMA sound output sockets where available, or through the Microdeal range of 8-bit sample cartridges.**

In fact, Breakthru is a MIDI sequencer, a sample sequencer, or both at the same time! Add to that a host of highly graphical and user friendly editing screens, unique and innovative features like Gajits' Diamond Drag note editing system, and an ease of use which might surprise you if you've never used Gajits' software before, and you'll see why we called it Breakthru!

For Atari ST4/ST5/MegaST/MegaSTE/TT

- Computers  — Mono and Colour Screen Modes
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- Step Time Recording of Music Over MIDI or Using Mouse Entry • Track & Cue Sheet Screen (64 Tracks & MIDI Pattern Interface (loads AVR, IFF & Other File Formats) • Step Edit Screen with Diamond Drag Note Editing
- ("...by far the easiest grid edit screen I've seen...") Ian Waugh, Music Technology review of Gajits' Sequencer One Plus • Insert Program/Volume/Tempo/Control Changes
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**Breakthru Plus** has all the features or Breakthru, but supports 32 MIDI channels instead of 16. Very handy if you have more than one MIDI instrument! A hardware interface is included with the package to provide an extra MIDI output socket. This simply plugs into the serial port of your computer.

If you are a registered user of Sequencer One Plus, you can obtain a substantial discount off the price of Breakthru or Breakthru Plus (see the order coupon).

**Replay 16** from Audio Visual Research and Microdeal represents a giant step forward in sampling technology. It plugs into the cartridge port of your Atari, turning your computer into a 16-bit sampler and sample replay unit. Unlike dedicated samplers, Replay 16 makes use of your computer's built in RAM, so it costs considerably less than its nearest rival. Replay 16 comes with all the sampling and editing software you will need to record samples at rates of up to 48 kHz (higher than CDI). You can record samples direct from a CD player or other sound source and then edit them with the most versatile software you can buy. A phono output socket provides a standard connection to a wide range of sound systems.

"If MIDI and sampling's your thing, this is a must." Clive Parker, ST Format.
NO MORE OUT OF MEMORY HEADACHES

Remember when you upgraded to one Megabyte of memory? You may even have taken your ST to a massive four Megabytes. Now it is possible to add another eight Megs to your STE or Mega ST/E.

Marpet Developments have announced a new upgrade to give a total of 12Mb RAM. The new board is a solderless upgrade in the majority of STEs and all Mega STEs. A small AUTO program addresses the extra memory.

The STE version comes fully populated at less than £400: the unpopulated Mega version is £99.99 and the Mega STE version costs £109.99. Fully populated versions of these two are £349.99. The unit takes one Meg SIMMS.

For more details, contact Marpet Developments at Meadowfield Farm, Fellbeck, Peterlee, County Durham, telephone 0423 712600.

FALCON GETS FIRST PUBLIC SHOWING

The Falcon030 was shown to the public for the first time at the Seventh International Computer Show at Wembley.

A separate area was set up to show off the machine with question and answer sessions held by Atari’s Darryl Still and Alistair Bodin. The main question asked was “When can I have one?”

Software developed by Compo and HiSoft for the Falcon were on display including Musicom, a high-quality sound processing program and True Paint, an art package. Hardware from Compo and Atari Workshop includes a PC emulator and an overscan enhancement giving a screen resolution of over 800x600 dpi.

Music and graphics demos were in abundance, including an amusing rolling demo of Humans from Mirage. Worldwide, there are currently over 150 software projects with many nearing completion.

The latest news from Atari is that the Falcon will be available in the ST case within the next few weeks with the new consumer case reaching us around June. Darryl Still commented: “Anyone wanting to buy Falcon is advised to wait for the consumer casing. The ST case was originally designed as a developer’s machine.”

BEYOND CYBER STUDIO

Now you can take Cyber Studio a stage further with a new range of 3D animation programs.

16/32 Systems have secured the distribution rights to the Lexicom Software programs including Chronos 3D, Prism Paint, Prism Render 24, CyberSculpt, Chronos Lite, Xenomorph, Cyber Colour and Genesis.

Each program is individually priced, or alternatively you can buy Chronos 3D, Prism Paint, Render 24 and CyberSculpt as a package called Phase 4 for £280.

For more details, contact 16/32 Systems, 173 High Street, Strood, Kent ME2 4TH, Tel: 0634 710788.

GAMES CHARTS

The surprising leader of the pack this month is Renegade’s Fire and Ice, while Streetfighter II has slipped a couple of places. Here’s the complete chart...

<table>
<thead>
<tr>
<th>Chart Position</th>
<th>Game</th>
<th>Publisher</th>
<th>Price (£)</th>
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<tbody>
<tr>
<td>1</td>
<td>Fire and Ice</td>
<td>Renegade</td>
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<tr>
<td>2</td>
<td>F19 Stealth Fighter</td>
<td>Microprose</td>
<td>30.64</td>
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<tr>
<td>3</td>
<td>Streetfighter II</td>
<td>US Gold</td>
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<td>5</td>
<td>Populous II</td>
<td>Electronic Arts</td>
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<td>6</td>
<td>Dizzy’s Excellent Adventure</td>
<td>Codemasters</td>
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<tr>
<td>7</td>
<td>Microprose Golf</td>
<td>Microprose</td>
<td>34.99</td>
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<tr>
<td>8</td>
<td>Dungeon Master/Chaos Pack</td>
<td>Psynosis</td>
<td>29.99</td>
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<td>9</td>
<td>WWF European Rampage</td>
<td>Ocean</td>
<td>25.99</td>
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<td>Gods</td>
<td>Mindscape</td>
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<td>A320 Airbus</td>
<td>Thalion</td>
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[Names and addresses of members]
Make video sequences, improve your art work and just have fun with the games on the cover disk this month...

ON DISK:

VIDEO TITLER

PC1QUENCE • EXCLUSIVE UTILITY BY DAVE MUNSIE • LOW RES ONLY • 0.5 MB (1 MB RECOMMENDED)

Create your own picture sequences with this unique package from the USA

This great package takes Degas compressed files (with the extension .PC1) and turns them into a video sequence. You can vary the way that each frame changes to the next to create some superb results.

The program runs in low resolution only. Double click on PC1QUENC.PRG and a title screen will appear. Click the left mouse button to get to the main Video Sequence screen. Although the program will run with any memory configuration, the more you have, the more pictures you can load. If you have a 520 ST, you will only be able to load one picture, but you can still create a sequence of up to 100 frames. There are some examples of half Meg sequences on the cover disk. For example, when the tutorial asks you to load SPACE.PCS, look for SPACE512.PRG and you are provided with examples of what you can do. To load, simply click the left mouse button on the right-hand buffer screen. The file selector will appear and you can now choose one of the four pictures that we have placed on the disk for you. Using the right mouse button, drag the picture to one of the empty screens in the sequence area.

The effect that you use can be chosen from the 32 on the right of the screen. Just scroll through these and select the one that you want before moving the picture, then add more pictures and start building up your sequence - you can play it at any stage and save the completed sequence to disk.

We have provided you with four sequences on the disk. Two are for half Meg systems and two for one Meg and above. To see them, simply start the program and click in the LOAD box, open the folder called SEQUENCE.PCS and choose a file. The two half Meg sequences are identified by the 512 in the title.

WHAT TO DO IF YOU HAVE PROBLEMS WITH YOUR COVER DISKS

DON'T PANIC!

In the unlikely event that your cover disk won't load or gives you any other problems at all, remove all cartridges and peripherals and try again. Please note that to restart the computer, you must SWITCH IT OFF for at least five to ten seconds to clear all traces of resident programs before continuing.

If this doesn't solve your problem, return your disk, with a brief note of the problem and a stamped addressed envelope to P.C. Wise Ltd., Dowlais Top Business Park, Dowlais, Merthyr Tydfil, Mid Glamorgan, CF48 2YY. PC Wise will test the disk and send a replacement as soon as possible. You can contact the PC Wise Helpline with any urgent problems. Please note that PC Wise will deal with faulty disks only and not general enquiries. PC Wise can be contacted by telephone on 0686 350505 between 10.30 and 12.30 on weekdays.

STEP BY STEP

Here's a complete guide to creating a video sequence using the pictures on the disk

1. Click on buffer screen number two with the left mouse button and the file selector appears. Open the folder WESTERN.PIC and choose the file INDISHOT.PC1.

2. You now have a representation of the picture in the buffer. If you have a one Meg machine, you can scroll the buffer along with the arrows and add more pictures.

3. Scroll through the 30 effects until you come to FALLING. Use the right mouse button to grab the frame and move it to the first empty frame in the sequence line.

BUGS UK

BUGS UK • EXCLUSIVE GAME BY DAVE MUNSIE • LOW RES • JOYSTICK • 0.5 MB

Prepare to destroy the environment in this version of the classic Centipede

Spray those bugs before they get you!

You need to be quick to avoid the fleas and spiders.
Another classic game gets the Kid Kong character as the Kid from the fair maiden from the Dave Munsie treatment. Many of you droid shooter. Destroyed. Try to hit as many bonuses on your sent you with a seven. Poisoned mushrooms cannot be they can do any damage. but they can.

**Kid Kong**

**Kid Kong** • **Exclusive Game by Dave Munsie** • **Low Res** • **Joystick** • **1 MB**

Another classic game gets the Dave Munsie treatment.

Kid Kong is the definitive Donkey Kong. Many of you will recognise the main character as the Kid from Kid GP on issue nine’s cover disk. His task is to rescue the fair maiden from the evil Kong—he’s the one at the top throwing barrels at you. Avoid the barrels and the fire monsters and get to the top of the screen to progress to the second level.

This game requires one Megabyte or more of RAM to run. You must make sure that you have no AUTO folder programs or accessories in memory or you will get a crash or a ‘TOS ERROR 008’ dialogue box.

**Line Art Font**

**Line Art Font** • **Exclusive Add-On by K Selby** • **For Use with Timeworks DTP**

An alternative large font for use with your Timeworks documents.

The result—a new line art letters imported into Timeworks.

Here is a complete font for you to use when creating your Timeworks documents. Simply select Import Picture and then choose the ‘Easy Draw’ .GEM option for the file type.

The characters are easily identified by the first letter of the file name. Once it is saved in memory, you will be able to resize the letter by simply changing the box size.

**Scribe**

Scribe • Shareware Utility • Any Resolution

This text editor is almost a full-blown word processor.

Scribe is a fully-functioning text editor that is ideal for preparing text for DTP, creating program source code or modifying auxiliary files like ASSIGN.SYS or DESKTOP.INF.

There is a 56K manual provided on the disk and also full on-line help as you go along. More experienced users can start the program and load the file QUICKST.ART for a rundown of the basic functions.

**BASIC Tutorial**

**HiSoft BASIC * Tutorial * All Resolutions**

The HiSoft BASIC tutorial concludes on page 81.

Turn to page 81 for the final installment of the HiSoft BASIC series. This last piece completes the jigsaw and will now give you all of the necessary files to help you continue your progress. Who knows? Soon you may be having your own programs published.

---

**VIDEO SEQUENCE**

4 Select ‘Frame Del’ from the effect menu and drag it to frame 02. Change the effect back to ‘Falling’ and drag a clear screen to frame 03.

5 Continue to build up a sequence. Move the buffer screen and repeat the loading procedure, then add a new effect and picture to frame 04.

6 Carry on adding different pictures and effects until you’ve built up a sequence. When you have finished, click on ‘Play’ and watch your creation.

---

Thanks to Mike Goodman of Goodmans International for supplying the pictures included on the disk.
Joe Connor investigates a new art package that offers that little bit more

Art packages on the ST have come along way since Degas and NeoChrome and it takes an exceptional package to hold the spotlight for more than a brief moment. A few are remembered for unusual features - Flair Paint ran as a desktop accessory and Quantum Paint displayed 4,096 colours on a standard ST. The increasing popularity of desktop publishing spawned a range of mono applications, some bitmap-based, like STAD, Mepaint and Retouche, and others for creating vector images such as EasyDraw, Didot Line Art and Avant Vector. Arabesque Professional, however, performs the neat trick of combining both vector and bitmap modules in a single application.

**LATE CROSSING**

Arabesque has been around in Germany since 1989 and has finally managed to hop the Channel, thanks to a marketing arrangement between Gribrif Software, a leading North American publisher, and Compod Software in the UK.

Arabesque abandons the GEM interface of windows and drop-down menus in favour of a custom interface consisting entirely of pop-up icon menus. Extensive use is made of both the right and left mouse buttons, although most commands can also be selected using keyboard shortcuts.

The vector module performs the neat trick of combining both vector and bitmap modules. The vector module is made to work in a similar way, so it takes the user less time to get to grips with. Add to that the advantage of being able to combine bitmap and vector graphics on a single screen and Arabesque's power soon becomes apparent.

The program comes on a single floppy disk and doesn't copy-protected. Installation is easy and even allows you to create a working disk. Using on-screen prompts, you can choose whether to install printer drivers, sample fonts and example artwork.

The number and size of the bitmap and vector screens available in Arabesque can be configured to make best use of available memory. A maximum of 20 bitmap screens and six vector screens are possible. The use of pop-up menus leaves the drawing area free from clutter, and a display of co-ordinates across the top of the screen replaces the GEM menu bar. Both the vector and bitmap pop-up menus are divided into four areas - painting and drawing tools, special commands, black handling and general utilities.

Icons are selected with a single click of the left mouse button and any parameters associated with the icon are accessed by clicking on the same icon with the right mouse button.

**ZOOMING ALONG**

All the usual tools are provided, along with some for generating pseudo 3D triangles, parallelograms and polygons. In most packages, a Zoom tool simply provides various levels of magnification to enable pixel editing. In Arabesque, it offers up to x18 magnification, while keeping all the drawing tools available.

Flipping over to vector mode by selecting the vector icon, most of the drawing tools remain the same and function in a similar manner to the bitmap equivalents. The Bezier polygon tool aids construction of complex paths, joining Bezier curves, straight lines and jump points, and allowing you to draw polygons inside polygons. Bezier polygons remain fully editable by double right mouse clicking on the vector module block operations.

**Bitmap Images**

Bitmap images are made up from individual pixels which can be individually placed or removed. Bitmaps are particularly suitable for handling scanned images, using dither patterns, and other special effects which require fine detail. Vector images are defined in mathematical terms. An outline description of each part of the image is stored in an object list; this is used to calculate the image every time it is drawn to the screen or sent to the printer. Consequently, vector images will always be displayed or printed at the highest resolution available on the output device, giving smoother images without the jagged edges associated with bitmap images.
any point. An extensive range of block options enables objects to be selectively grouped, ungrouped, placed in the foreground or background, mirrored, rotated, rescaled, sheared, protected from further edits and given a new pattern or linestyle.

One of the major advantages of Arabesque is its ability to exchange and combine vector and bitmap images. A special bitmap object is created to handle bitmaps in vector mode and bitmap images are made available using the bitmap-to-vector icon. Moving over to vector mode and selecting the same icon places the bitmap on the screen; it can then be manipulated, to a limited extent, like any other vector object. The bitmap remains dynamically linked to its alter ego so that any changes made in bitmap mode immediately take effect in the vector copy.

Bitmap objects can be used as a tracing aid for manual vectorisation. Convector Professional is an external module, available separately, which enables full auto-tracing. Vector objects can also be converted for use in the bitmap module but, once converted, they become true bitmaps and are not dynamically linked to the vector original.

**TEXT HANDLING**

Text handling in Arabesque doesn't currently support vector fonts and instead uses bitmapped fonts in both bitmap and vector modules. Standard GDS .FNT format fonts can be fully utilised in bitmap mode. In vector mode, fonts can also be fully utilised if the associated printer font is available. Using a separate utility, 'FONTMAKE.HRG', Signum fonts can be converted to GEM format and used with Arabesque and any GDS application. Arabesque does not need GDOS but, if it is loaded, the fonts listed in the GDS configuration file, ASSIGN.SYS, are automatically loaded.

Nearly every package insists on providing its own file formats but, in contrast to the myriad of other pointless formats washing around the Atari scene, these two are actually useful. The Arabesque .AOB vector format can store combined vector and bitmap images and the .ABM bit-image format is capable of better compression than any other format. Most popular bitmap formats can be loaded and Degas, .JPG, .STAD and .IFF formats can also be exported. Vector image files can be loaded and exported in either Calamus .CVG or GEM/3 Metafile format. Imported colour files can be either dithered or converted to grey scales.

Arabesque comes with a 174-page, ring-bound manual, with a useful, quick tour around the main functions and a logical run through each icon command.

**CONSISTENT USER INTERFACE**

Excellent output Bitmap objects

**PROS AND CONS**

Quirky font handling No on-line help

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**NAME:** ARABESQUE PROFESSIONAL

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This is where we make a difference in the Atari market place. We believe that in the long run it is cheaper to buy quality products with after-sales support. After all, how good is the warranty if the supplier has disappeared?

For the first time we will give a price on the Falcon 030. Although we cannot guarantee it will be available when you read this, we want to make absolutely sure you know we are going to sell it when it becomes available.

If you use your Atari for music or DTP, for leisure or work, we have the expertise and give you the best advice available. Incidentally, did you realise that your ST fitted with the Turbo 25 accelerator and NVDI would be 2.5 times faster than the Falcon 030? Amazing, isn't it!

Come to our new showroom in London for a demonstration of the Turbo 030 Accelerator which is 10 times faster than the ST and about three times faster than the TT. Add NVDI and you have the fastest possible solution for Calamus and Pagestream. Whatever you're looking for, you'll be surprised just how much we can do for you.

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<thead>
<tr>
<th>Product</th>
<th>Our Price</th>
<th>RRP</th>
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<tr>
<td>Falcon 030 - 1Mb Ram, No hard disk</td>
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<td>This monitor gives up to 752x480 pixel with OverScan ST</td>
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<td><strong>Custom Tower Systems</strong></td>
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**ATARI WORKSHOP**

Mail Order & Windsor Service Centre: Windsor Business Centre, Vansittart Estate, off Duke Street, Windsor SL4 1SE. Fax 0753-830344.
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HiSoft's new document processor - Jack of all trades, or the latest in multitasking wizardry? Ofir Gal investigates.

**Installation**

Wordflair 2 comes with a manual, three program installation disks and three FSM and FontGDOs installation disks. Installing Wordflair is simply a case of copying the contents of the three program disks onto your hard disk. You can also run it from a floppy-based system, but this is not recommended.

This may be unusual for an ST package, but it is pretty standard practice on the PC and Macintosh, and in future more ST programs are likely to require a hard disk for full functionality. FSMGDOs installation is made easy thanks to the install program supplied by Atari, which simply takes you through a sequence of dialogue boxes from which you can select the fonts, drive, printer driver, whether to install bit-mapped fonts as well as scalable fonts and other options. A user's guide to FSMGDOs is included in the manual and a help file can be found on the disk.

Wordflair enables quick access to its main functions by displaying 10 icons at the top of the main window in addition to the standard menu items. This is a very handy feature when mastering the program but, once you are familiar with it, there is no option of removing the icons to give your document more space.

**Document Preparation**

When preparing a document in Wordflair you have a choice of two approaches. If all you want is to produce a simple letter without any graphics, you can simply use the default background write region. If, however, you need to produce a more complex document, the package enables you to create an unlimited number of regions. Each can be one of three types: write, graph or region.

Below: click on an icon to create a new region, draw with the pen, delete regions with the vacuum cleaner, preview a page or call up the help window.

Wordflair is a unique program in the ST world - it tries to provide solutions to all the needs of the small business with one package. The concept is not a new one - PC users have had it with Lotus 1-2-3 for a long time - but on the ST, the lack of such a program was probably one of the reasons the ST failed to establish itself as a 'business' computer.

The main window. Wordflair enables you to access its main features quickly via the icons at the top of the screen.

**Word Processing**

The main page in Wordflair displays the menu bar, icons and background write region. To write a standard document, you simply type directly into the background write region. Most standard word processing features are available, including cut, copy and paste, spell checking and a thesaurus.

Wordflair can also import and export ASCII files. The horizontal ruler allows you to set indents and tabs, while the vertical ruler serves as a guide when designing the document. There is also a find and replace facility. As with all good document processors, it is possible to select text for further editing by clicking and dragging the mouse over the text.

The spreadsheet features of Wordflair are simple but useful.

The clipboard can be used to cut, copy and paste sections of text or whole regions.
**Altered Images**

You can change the appearance of selected text through the character menu. This presents you with a dialogue box from which you can select the font, point size and style attributes such as italic, bold, and underlined. If you choose to run FSMGDOS, there is no limit on font size; if a size you require isn’t in the list, you can simply type it in.

The main drawback of using FSMGDOS is its speed. FSM creates the fonts characters in real time. When you start a new document, every character has to be built and this can be a bit slow. However, once a character has been used, it is automatically placed in the character cache and Wordflair will not need to build it again.

It is possible to create additional viewing regions by clicking on the appropriate icon. This enables you to use different ruler and text alignment settings. While Wordflair allows you to set line spacing, there is no provision for additional paragraph spacing. Some features that are lacking are the ability to put a character into upper- or lower-case automatically and, although you can access the extended character set by holding down the Alt and Ctrl keys, a character set map of some description would certainly have been handy.

**Graphics**

Wordflair sports a wide variety of graphics facilities. Graphics are always held in a graph region which is created by clicking the graph icon. A graph region may contain an imported graphics file which can be moved and re-sized as necessary. Unfortunately, only IMFs and GEM metafiles are supported, but there are plenty of PD programs that can convert any other file format to IMG. A useful option is preserve aspect ratio which does just that.

Unlike any other ST document processors, the use of the graph region does not stop here. Wordflair can generate graphs and pie-charts based on user input. Additionally, a graph may be linked to several calc regions to display their contents graphically. You can also enter labels into the graph and, again, you can choose font and character size from the character menu. The pen icon invokes a pen-like tool which can be used to draw freely onto the document. You are given the choice of straight lines or arrows in varying thicknesses. Anything you draw with the pen is printed utilising your printer’s maximum resolution.

**Calculations**

The calc region is created by clicking on the calc icon at the top of the screen. Like other regions, you can freely position it on the page, and it’s an ideal tool for creating invoices, order forms and other documents which require mathematical calculations. It works by entering values or item names into the formula editor; Wordflair then calculates the result and outputs it to the calc region. As with other regions, you can select a font and character size from the menu. A user-defined formula may include the standard arithmetic operations (+,-,/) and you may also select one or more of the pre-defined functions available. Output text can be formatted for currency purposes, but only the dollar symbol is supported – no UK pound!

Among the available functions are average calculations, investment and loan interest, rounding of figures and standard variance. A calc region may be linked to a graph region, enabling you to generate graphs from the calculation results automatically.

**More Choices**

Most word processors and DTP packages opt for one of two options when handling regions. A region is either fixed in its position and text flows around it, or as is the case with Calligrapher, the region is pushed by the text.

With Wordflair you have the choice of both options and you can float and unfloat a region at any time. Graph regions are always fixed, but can be moved manually if needed.

**Preview**

The preview mode is very fast and lets you judge the arrangement and look of your document prior to printing. There is a grid option to help you position the different regions as well as a snap-to-grid facility. You may also place a region within another region as long as their edges do not overlap.

---

**SPEEDO**

FSMGDOS is rather disappointing; it is slow and requires too much memory for what it does. It’s no surprise that Atari has now dropped it in favour of Speedo, which will be released shortly. This is much faster, more compatible and is not memory hungry, and when it is finally released should make Wordflair and other GDOS programs like TimeWorks Publisher more attractive. Currently at test stage, Speedo sounds promising. Let’s just hope we don’t have to wait too long.

---

Using the pen you can draw freely on screen to bring certain items to the attention of the reader. You have a choice of straight lines or arrows with three degrees of thickness.
On-line help is accessed via the help icon and is displayed in a scrollable window.

THE MANUAL

The manual is divided into three main sections. The first of these is a quick introduction to the package, the icons and the concept of regions. The second part is a three-stage tutorial which takes you from the very basics to setting up calc and graph regions and linking regions, while the third is a function reference, covering each menu item and function with a detailed explanation. The manual also includes three appendices covering keyboard shortcuts, templates and the FSMGDOS manual. An index is also provided.

IN USE

Wordflair is bundled with features which extend beyond the standard document processor. It aims to be an all-purpose tool for the home or small business and, in most respects, it does what it sets out to do. Its main problem is FSMGDOS, which is very slow and requires too large a chunk of your computer's memory. Wordflair can work with FontGDOS, which is included in the package, and performance is greatly improved with it. The drawback is that you lose the scalable fonts and you are restricted, yet again, to those fixed size GDOS fonts.

Wordflair is rather slow to scroll and update the screen and this may also be attributed to FSMGDOS.

PRINTING

Surprisingly, printing with Wordflair is speedy in contrast to its slow screen display. The print quality is excellent and rivals, if not surpasses, that of Calligrapher or Calamus. You are, however, limited to the set of FSM fonts that is provided. Print time with a Mega STE and a DeskJet is under two minutes for a one-page document containing several fonts and graphics. FSMGDOS does not handle large documents too well and the more pages you print, the longer it takes to print a page. Memory also becomes a problem with large documents and even two Megabytes are not enough.

Wordflair can display and print using GDOS bit-mapped fonts or FSMGDOS scalable fonts. The character window is where you select the font, point size and text attribute. When using FSM, any font size can be created by typing in the new size.

Wordflair can create graphs and pie-charts based on direct input or data from a calc region. Data can be edited at any time and reflected in the resulting graph.
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Courier Pickup £11.00
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AT Speed C16 STFM £189.00
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(0772) 203166
Old they may be, but early 80s classics are the place to be for playability. Nial Grimes dusts off his disk box and steps back in time with five games that shaped the 80s.

Look back at the graphics and sound of an early-80s coin-op and you’ll find it hard to contain your laughter. Monotone sound effects and colour created with stick-on film were all too common and, with 10 plays costing almost a week’s pocket money, the thrills didn’t come cheap! So what was the attraction of games like Asteroids, Defender and Pacman? Why did we shovel them full of two-bob bits? The answer is, quite simply, playability by the bucket load. With no custom hardware or flash graphics to grab attention, games had to be playable enough to attract players and addictive enough to make people come back for more, time and time again. Of course, today it’s all too easy to dismiss classic concepts as old hat but, when you think about it, how many of even the half pocket money, the of concepts class•c addictive oids .

Doing the rounds if you need any more

110ntalysts to combine the two-bob tone sound effects With memory pixel-perfect revival. So

And for the old

me 8/asterolds

are now given a choice of three different ships with varying levels of defence andspeed. These can be changed at will during the game by wrenching the joystick backwards and are named Speeder, Fighter and Warrior (and you wondered where the Gladiators got their names eh?). The red asteroids leave power crystals in their wake, and these restore your ever-plummeting energy - constant messages are displayed on screen to aid your progress. Clearing a sector of all nasties will open a portal to the next level, or ‘warp’.

Blasteroids is fun for a few tries and the backdrops look delicious, but somehow the simplicity of the Blasteroids concept has been lost in the conversion process. If every piece of software you buy must feature state-of-the-art graphics, then give Blasteroids a try; otherwise go for Megaroids – it’s tons cheaper and just as much fun to play in the long run.

Authenticity: Overall: 4

MegaRoids

Solent Software • 53 Rufus Gardens, Totton, Hants, SO4 7TA • Disk No: GAME.22 • £2.00 • Memory: 0.5MB • Public Domain

As far as authentic conversions go, Megaroids is one of the very best. It soups up Asteroids’ basic graphics, but...
Arkanoid is even more addictive than joystick and all control is via
high res. have been as engrossing as Jeff Minter productions
Overall:

ST's

The game is happy to run in
medium and high resolutions
are just a bit too hectic in
the colour-shaded asteroids
is the slower, and more
playable, of the two - things
are just a bit too hectic in
high res.
The gameplay is identical to
1976 original, with only the
colour-shaded asteroids
giving the game away. Sound
effects are practically non-
existent - apart from a weedy
shot noise as you fire the
cannon - but what's new
(Jeff Minter productions
exempted)!

Asteroids may not
have been as engrossing as
the likes of Pacman or Defender,
but if you're looking for a
good version, look no further
than MegaRoids - it's fast,
smooth and thoroughly
addictive. 

Authenticity: ★★★★★
Overall: ★★★★★

Cute graphics often hide pe
detrian playability, but not here -
Arkanoid is even more addictive
than its 1976 parent!

If mono graphics don't deter you, try Super Breakout for size. It's
incredibly addictive and comes complete with its own level editor,
but with the sound effects above average, although certainly not
world-class. Very few sequels can claim to improve on the
original, but that's just what Arkanoid does. It's unbelievably
smooth and you really wouldn't be able to distinguish
the arcade version from that on
your ST's screen. Also
worth looking out for is Revenge of Doh,
which isn't quite as slick as
Arkanoid, but is compatible
and well worth a spin. 

Super Breakout

Floppyshop • PO Box 273,
Aberdeen, AB9 8SJ • Disk No:
GAM.159M • £2.50 • Memory:
0.5MB • High Resolution Moni
tor Required • Public Domain
ST owners without a colour
monitor lead a sad life
don't they? There's not a
lot to recommend the old
SM124 in the entertainment
market - at least, that was
until Super Breakout hit the
shelves.

This game is, quite simply,
brilliant - the number of
power-ups beats even the
hallowed Arkanoid and some of
the ideas are truly inspired.
Particularly good are the pods
that add vertical movement to
your bat and another which
adds computer control - just
sit back and watch your ST
complete the level! Yet more
thought can be witnessed in
the game's ability to save
your progress to disk, allow-
ing you to restart the game
on the level where you died
by typing your name.

In most respects, the graphics
are as good as you can
expect them to be, given the
mono limitation, although
improvements could have
been made in the aliens
department. Sound consists
of a few chippy bleeps, but
it's unlikely that the SM124's
tinny speaker would have
done samples any justice. A
mouse-driven level editor is
also thrown in for good mea-
sure, making the game
infinitely expandable.

Super Breakout is every bit
as playable as Arkanoid and a
good deal cheaper into the
bargain! Atari's SM124 was
made for this game.

Authenticity: ★★★★★
Overall: ★★★★★

SUPER BREAKOUT

BUDGET BUY

ESSENTIAL BUY

Gems
Defender

Defender II

ARC Software • £19.99 • Memory: 0.5MB • Tel: 0753 533344

Defender hit the market in 1980 and has probably had more impact on modern games than any other arcade classic - after all, where would we be without the horizontally-scrolling shoot-'em-up? The game was written by the masters themselves, Williams, and is best known in its BBC guise which appeared in the mid-80s.

Defender II is Jeff Minter's homage to the original and, fortunately, the plot has escaped unscathed, simply guide your spaceship over the horizontally-scrolling landscape, blasting everything that moves and protecting the humanoids on the planet surface. It's a lot trickier than it sounds, because some of the nasties even spawn off-spring as they're destroyed, making Defender II as much a game of strategy as it is one of action!

In addition to the standard game, you get two extras - Defender, which is a pixel-perfect copy of the 80s original for die-hard traditionalists, and the no-holds-barred Stargate, which unleashes the true power of your ST, without straying too far from the original concept. In play, all three are an audio-visual treat.

from the psychedelic lasers to the explosions of pixels as your ship rams into an enemy craft, this is sheer class. The speed is blistering, with no hint of a slow-down even when the screen is crammed with baddies. Thunderous, arcade-style sampled sound is used throughout. The graphics vary, depending on which version you are playing, but you don't have time to notice them as the pace hots up!

If one criticism has to be made, it's the control system. Defender was built to be played on a keyboard and wiggling the ST's mouse can't compete with the feeling you get bashing away at a BBC Micro's keyboard. Having said that, once you get used to it, Defender II plays like a dream. Add a little grease to your monitor, fill the room with stale smoke and defence. Each level

Apologies for the poor quality of the image, but it's the best I could find. The game is presented Not only is this a great Defender variant, it's one of the best shareware games available!

Authenticity: ❌❌❌❌

Overall: ❌❌❌❌

Cybernetix

Goodman Enterprises • 16 Conrad Close, Meir Hay Estate, Longton, Stoke-on-Trent, ST3 1SW • Disk No: GD.1645 • £2.75 • Memory: 0.5MB

Starcade

Cybernetix has a strong Defender theme, but it also contains many of the best elements from Asteroids, Space Invaders and Xenon. Control is by joystick and the screen is similar to the original, minus the landscape and humanoids (admit it, the game's appeal wasn't in saving them anyway).

You start out with a fairly basic ship, then as more and more attack waves are destroyed, power-ups can be collected for extra artillery and defence. Each level

A round-up like this only scratches the surface of the huge amount of immensely playable, but often forgotten, classic games that there are available on the market. When you find out just how addictive a good Defender or Pacman clone can be, you are going to be left wanting more - the following should certainly be high on your list of priorities.

For Defender fans, Jeff Minter comes up trumps again with Revenge of The Mutant Camels - a one- or two-player game, complete

AND THE REST...

Defender

Decisions, decisions. Which will it be? The alarmingly traditional Defender mode or all-cut thermodynamic mayhem in Stargate?

ST REVIEW INVASERS

ST Review Cover Disk No 11 • £3.95 • Memory: 1MB

As anybody to name a classic arcade game and the chances are they will come up with Space Invaders. Could it be the fear-inspiring cabin, or maybe the colour screen, tastefully created with stick on film, that made

SPACE INVADERS

it so popular? Who knows?

Still, its mass appeal is undoubted. Released in 1978, you can thank it for every single shoot-'em-up ever released!

ST REVIEW Invaders is Dave Munsie's tribute to the game and was yours, completely free, on cover disc number 11. Graphically, it's very similar to the original, with single-colour aliens and suitably 1980s sound effects from beginning to end. The objective also remains the same - Earth is in danger, you're the only hope, you must destroy the attack waves and save the planet. One major difference is the planet surface which has been given a roller-coaster, hilly appearance. It doesn't seem to serve any particular purpose - save, perhaps, helping you escape that last rogue alien - but at least it spices up the screen.

In play, the action is true to form, with only some trendy sine-distorted attack waves, information you're in the 1990s. The fast pace, combined with the lack of barriers, makes this a game worthy of even the toughest Space Invaders freaks. At 50fps, ST Review Invaders is good but, if your monitor can
take it, switch up to 69, it improves the game no end! It's a lot smoother and generally more akin to the arcade game we all know and love. And that's about it - the waves get faster, the aliens get meaner and the graphics and sound fade away as you desperately try to make it to the next level. ST Review Invaders is the best Space Invaders clone for the ST. Others may look a little more authentic, but the speed, collision detection and fluidity of this version give it a definite edge.

**Authenticity:** 4/5

**Overall:** 4.5/5

**QUEST FOR GALAXIA**

** Floppysnap • PO Box 273, Aberdeen, AB9 8S7 • Disk No: BU.30 • £2.95 • Memory: 0.5MB • Licennceware**

Following the huge success of Ace Invaders, Gary Wheaton went on to write this infinitely better offering. In fact, it's not a clone of Space Invaders, but of a variant known as Galaxian.

The style of play is very reminiscent of the original, complete with a band of marauding aliens and your ship positioned at the bottom of the screen. At regular intervals, the nasties will swoop out of formation.

**Not quite as popular as Invaders, Galaxians was just as addictive. Buidge's version is a little on the easy side, though.**

**PACMAN**

** Grandslam • £19.99 • Memory: 0.5MB • Tel: 071 247 6434**

What classic arcade games round-up could possibly be complete without our yellow, pill-popping friend, Pacman? The game was written by Atari in 1981 and is reckoned to be the best-selling coin-op ever. Much of this success must be down to its instant appeal and playability - few games are as easy to pick up or as hard to put down.

**Pacman** is a conversion of an arcade game released by Namco in 1987. Our friend's standard, two-dimensional haunt, is dumped in favour of an isometric maze and he is also given the power of flight, but only briefly. Still, the gameplay remains true to the 1981 original and is almost as playable.

The graphics have been revamped and enlarged and, as you move, the screen scrolls to reveal more of the 3D maze. This adds a whole new 'unknown' perspective to the game and requires quite a different style of play to the original. Unfortunately, a huge score panel occupies almost half of the screen, which spoils the effect a bit.

As the levels progress, the ghosts become more intelligent, trapping you in corners or protecting the last few pills, and this is where the jump button comes in handy. Time it right and you can hop over the baddies; but watch out - on later levels the ghosts can also spring into the air at will!

Sonically, as with many 80s ST games, Pacmania is a total let-down. But despite its limitations, Pacmania is an enjoyable romp and the re-worked concept makes a refreshing change. The half-screen play area detracts from the atmosphere, but not so much as to spoil the game completely. Better than the original? No, but how can you improve on perfection?

**Authenticity:** 3/5

**Overall:** 3/5

**MRS. MUNCHIE**

** Goodman Enterprises • 16 Conrad Close, Meir Hay Estate, Longton, Stoke-on-Trent, ST3 4SW • Disk No: GD.1667 • £2.75 • Memory: 0.5MB • Shareware**

As Pacman is such an addictive game, you can only imagine the sales of Mrs. Munchie! But it's not a clone. Mrs. Munchie, unlike Pacman, does not feature many of the pitfalls that can totally destroy the atmosphere. A serious, full-blooded female version of the world's most famous game is a revelation.

The graphics on this month's cover disk. Jeff Minter's Llamatron captures the atmosphere of the most action-packed out-of-your-own-level game ever found, Roboball. Summer 1981 saw the introduction of Centipede and you'll find that Bugs UK - also on this month's cover disk - does a great, if slow, job of capturing the magic of this often overlooked masterpiece. Atari itself is a profligate gold-mine when it comes to arcade classics. Battle Zone, the definitive 3D combat game; Moon Patrol, Joust, weird and wacky one- or two-player action; and Crystal Castles, a personal favourite, are all available on Atari's own software label.

**Classic Games**

As far as redesigns go, they don't come much more radical than Pacmania. But despite its graphical differences, the gameplay remains unaffected.

and adds quite a few extra tricks of its own.

The pick-up-and-play aspect of the original hasn't been affected by additions, and once you get used to the slightly awkward control system, it's fun all the way! The main changes are in the power-pill department. No longer are they solely used for making the ghosts vulnerable: instead, they can add or remove ghosts, bring lightning bolts from the sky, and generally make your life a misery unless you know which colour has what effect.

If all this sounds a bit too hectic, you can always opt for a traditional game by pressing '0', but only in the registered version.

The graphics are quite authentic, with a couple of nice touches, such as the bouncing score, added for good measure. As for our hero (or should that be heroine?), the only difference appears to be a flower in the hair - well, each to their own! Sound effects consist of some atmospheric, arcadey sound samples.

Mrs. Munchie fans look no further! Mrs. Munchie is super by playable, sounds great, and is true to the original without turning your ST into a Spectrum clone. If you think you can make it through all 200 levels, get it - you won't be disappointed!

**Authenticity:** 3/5

**Overall:** 3/5

Severed heads, anabolic power-pills and ghosts.
Kodak is best known for little yellow boxes but, rather surprisingly, it was one of the first companies to produce a compact, portable inkjet printer. The most recent model, the 300dpi thermal inkjet Diconix 701, has been developed with Mannesmann Telly which markets a very similar machine, the MT98/99.

The Diconix is a small, neat printer which measures 2.4 by 11.7 by 7.7 inches and weighs 2.5kg. Power is from an external transformer or from an internal camcorder battery, which should print 100 pages after a four-and-a-half hour charge.

Printer operation is nice and simple. The control panel has an on/off switch, four clearly-labelled buttons and eight indicator lights. Ink cartridges (which incorporate the print head) are very easy to replace; the ink itself isn't water-proof, so will smudge when wet.

You use a printed-out menu system to arrange the usual defaults - page length, character set etc. This is also used for dictating whether the printer should work with HP DeskJet or IBM Proprinter commands. The DeskJet emulation makes it readily compatible with most software.

A rather odd collection of fonts is supplied with this machine: Courier, which prints in 10 and 20 point sizes, Hevta (Helvetica), in

10 point and Gothic in seven point (for printing spreadsheets). You can use these in draft mode or letter-quality, in landscape as well as portrait orientation, proportionally spaced or monospaced. This font selection is fine for a portable, but not for a desktop machine.

Text-printing speed lies between the rather slow Canon BJ10ex and the quick HP DeskJet Portable. In our tests, the printing in graphics mode was pretty snail-like - about 6.6 minutes per page from a DTP program. Print quality was not quite up to the high standard found in the best of the current generation of inkjets - compared to some, the print was less black and character outlines less regular and well-defined.

The 701 is distinguished by having one of the least fussy sheet-feeding arrangements of any printer. You simply lift the lid, flip up a wire paper support, and drop 30 sheets of paper behind the platen (print roller). As they are printed, the pages stack up in front of the paper waiting to be fed in. This is a novel simplicity compared to the complex mechanisms of the Canon BJ10ex or the HP DeskJet Portable, and it seems to work reliably.

This is a very likeable printer - both as a portable and as a compact machine for home use - and it is the smallest printer with sheet feeder built in. But there are two 'buts'. First is the print quality, which is not as good as, say, that of the Canon BJ10ex. Second is the price: the Canon BJ10ex is a lot cheaper, even after buying a sheet feeder. As a portable for printing text, the Diconix can be recommended, but for overall value, it can't compete with other, cheaper inkjets.

John Mallinson puts the new Diconix 701 portable printer through its paces

Kodak Diconix 701
Draft mode abcdedf
Courier abcdedf
Letter Gothic abcdedf
Hevta abcdedf
Italics, bold, underlined

The three fonts - suitable for most purposes.

THE OPPOSITION
CITIZEN PN48
Thermal printer with 360dpi resolution, small and very portable, slow, good print quality, about £189.
TOSHIBA EXPRESSWRITER 201
Thermal printer with 180dpi resolution, similar box to Citizen PN48, slow, fair print quality, about £200.
SEIKOSHA LT20
Unusual 360dpi dot matrix printer with built-in sheet feeder, quite big and heavy, fair print quality, about £240.
BROTHER HJ1001, CANON BJ10EX, STAR SJ48
Similar machines (the Canon is the original), 360dpi inkjet, excellent print quality, optional sheet feeder, about £170.

CANON BJ20
Like the BJ10ex but with sheet feeder included, more fonts and better controls, about £245.

HP DESKJET PORTABLE
Quality portable/desktop printer, this is quite fast, but expensive at £425.

MANNESMANN TALLY
MT98/99
Similar to the Diconix 701 apart from the case, can be found for rather less (about £269).
SPEEDY GONZA

Want to increase the speed of your ST? Tony Kaye shows you how to do it without paying a fortune

YOUR ST

There are several different motherboards in the STFM. The one used here is an early machine (1987). The most common type is the one featured below.

The first picture shows the socket in place after the main processor chip has been removed. All that remains is to plug the accelerator in place and reassemble the machine.

The 68000 CPU has been removed using the technique shown in the main Step-By-Step guide, and a socket soldered in its place.

The Plus Cache board in place. The board must be set at an angle if it is to fit comfortably under the keyboard.

HOW MUCH FASTER?

The new CPU effectively doubles the speed of the ST. However, because the rest of the system runs at the slower speed, it is not as simple as that. When used with NVDI, screen functions are greatly accelerated. For example, in our machine which has no Blitter chip but does have NVDI installed, moving text is now 14 times faster than with a standard machine. The difference is noticeable when using Timeworks, for example. Screen re-draws are faster and even disk access times are reduced. The whole system just becomes easier to use.

68000 CPU

The upgrade consists of a new CPU (Central Processing Unit) which is the heart of the computer. The new CPU "beats" twice as fast. The rest of the machine is designed to run at the slower speed, so extra circuitry is required. This keeps the internal clock running at the correct speed and stops the rest of the system from getting too confused.

soldering skills are a necessity. We recommend that you have the upgrade fitted by a professional unless you are very confident of your own abilities.

We bought an STFM to the Atari Workshop and watched the module being fitted. The model being upgraded was an older machine, with the 68000 placed near the disk drive. The majority of STFMs have the processor at the front and are easier to fit, although you do need to angle the new board to keep it out of the way of the keyboard. These are the kinds of problems you could face when you do it yourself.

THANKS

We would like to express our thanks to Karl Brandt at the Atari Workshop for his help in compiling this feature. Atari Workshop offers the Plus Cache upgrade for £129.99 plus fitting (£35), and a full range of upgrades, system enhancements and software for the more serious user of the Atari range of computers.

The address is Atari Workshop, 17-19 Blackwater Street, East Dulwich, London SE2 8RS. Telephone: 081 693 1919.

COMPATIBILITY

Plus Cache is fully compatible with all ST software. Because you can switch it on or off, there is nothing that will not run. E-Magic's Notator package can be tricked, for example, by loading it in 6MHz mode and switching the accelerator on once the program is running, giving you the advantage of the extra speed.

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Installing An Accelerator

Five steps to heaven. The Step-by-Step guide to fitting the Plus Cache.

**STEP BY STEP**

1. **Locate the 68000 CPU chip**, which on this model is on the right of the board near the mouse port and disk drive. The two white leads are from a TOS 2.0 upgrade and will be relocated.

2. **Using side cutters, cut the legs of the chip and remove it. The pins are now removed using a soldering iron and tweezers. The holes then have to be cleared using a solder sucker.**

3. **Once the holes are clear, a socket is placed in the position of the chip, ready for the new circuit board. Two of the disk drive support holes will be covered, so new supports will be required.**

4. **The Plus Cache board is now plugged in to the socket. The tricky part now is to reassemble the computer and find an alternative mount for the disk drive.**

5. **The two rear legs are utilised to screw the drive in place. The front leg is now internal as there’s no hole in the case. A washer is used to hold the front of the drive, and rubber feet are glued on to provide support. The machine will now be sturdy when it is all put back together.**

**DISCLAIMER**

Plus Cache is a plug-in upgrade for the ST, but you’ll need a steady hand and good soldering skills when fitting it into the STFM. It is, therefore, our recommendation that you have the board fitted by a professional who has experience, rather than attempt it yourself. If, however, you do decide to fit it yourself, *Atari ST Review* cannot be held responsible for any problems that may arise.
XTRA-RAM +8

Marpet Developments are pleased to announce their latest new product, the XTRA-RAM +8. Available mid March/early April, this 8Mb board upgrades an Atari ST\textsuperscript{e}; Mega ST\textsuperscript{e} or Mega ST to 12Mb! Specially designed and manufactured here in England, the XTRA-RAM +8 represents a considerable investment in the Atari marketplace. Each unit carries a full 12 months warranty and, with participating dealers only, is supplied under a ten day money back offer. For further information contact Marpet Developments today!

**Unpopulated (0Mb)**
- Mega ST £ 99.99
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  - P&P £5 extra.

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- ST\textsuperscript{e} £399.99
- Mega ST £379.99
- Mega ST\textsuperscript{e} £379.99
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  - Free Courier Delivery

- Upgrade your 4Mb ST\textsuperscript{e}; Mega ST\textsuperscript{e} or Mega ST to 12Mb!
- Supports use of Atari TT style memory allocation.
- Supports extended memory allocation in most professional applications.
- Supplied with auto-booting configuration utility.
- Installs beneath shielding on all machine types.
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- Mega ST and Mega ST\textsuperscript{e} versions available unpopulated (use SIMMs).
- Requires TOS 2.06 ROMs (available on special offer).
- No payment processed until day of dispatch!

Meadowfield Farm, Fellbeck, Pateley Bridge HG3 5ET
Tel: 44 (0) 423 712600  Fax: 44 (0) 423 712601
All prices subject to change with or without notice. E&OE. All goods subject to availability.
DOS, or to give it its full name, the Graphical Device Operating System, enables the use of bit-mapped fonts on the computer screen and the printer via software drivers. In a typical setup, you would have screen fonts to match your screen-resolution and printer fonts for your printer’s resolution.

You also need to make sure that you have device drivers for the screen and printer and while the first one is already installed in ROM, the printer driver must reside on disk with your fonts.

PROBLEMS

The main problem with GDOS is its speed; although Atari has been recommending its use by software developers, most programmers have opted to write their own systems to provide faster printing times and in some cases scalable fonts which remove the restriction of fixed-size fonts.

ALTERNATIVES

Other companies offer alternatives to GDOS, most notably G-Plus from Codehead and NV/GDOS (included with NVDi) which remove some of its bugs and don’t slow your computer down as much as GDOS does. Neither of these supports scalable fonts, but they do offer faster screen display and print times.

FONTGDOS

One of the problems with GDOS is that all fonts are loaded by the application when it starts and you must make sure that you have enough memory for both screen and printer fonts as well as the program itself. FontGDOS provides a simple solution — a font cache.

FontGDOS maintains a memory buffer where only fonts that are currently in use reside. When a font is needed it is loaded from disk and kept in the cache; when the cache is full unused fonts are discarded from memory to give space for other fonts. This allows you to have a large collection of fonts listed in your ASSIGN.SYS without having to worry about memory as long as you specify a font cache just large enough to hold the biggest font.

RELIABILITY

Additionally, FontGDOS offers faster printing and greater reliability than GDOS, so that a typical document may take 30 per cent less time to print.

The FontGDOS disk includes printer drivers for many printers that were previously unsupported, such as the Canon BJ series and HP DeskJet and LaserJet. Users of packages such as Timeworks Publisher who could not previously use it with the Bubble Jet can now install FontGDOS and the corresponding printer driver. This also applies to the DeskJet, although there are some problems with printing a multi-page document. Most other GDOS programs are compatible with FontGDOS.

The FontGDOS disk includes three disk accessories/cpx modules that enable you to set various GDOS parameters, add or remove fonts from your setup, select printer and set printer resolution as well as setting the font cache size. Drivers are included for the Canon BJ10, DeskJet, Epson FX80, LaserJet, NEC N815 and P8, NX1000, PaintJet and the Atari laser printer.

The original Atari manual is also included, as well as additional text files giving you tips on how to set up FontGDOS for optimal operation. Since fonts are loaded from disk ‘on the fly’ you must have your font disk in the floppy drive so a second drive or a hard disk are strongly recommended but not essential.

FSMGDOS

FSMGDOS has been the subject of much talk and speculation and was originally reported as a possible solution to speed problems with GDOS. The screen shots on the left clearly demonstrate the difference between scalable fonts (FSMGDOS) and fixed-size fonts (FontGDOS).

GDOS is an extension to TOS and should have been installed in ROM. Luckily for us it wasn’t—luckily because it slows the system and is not needed. People often forget to produce professional looking documents with a DTP application.

TOS provides three systems fonts and a combination of two of these is used in any one resolution. Printing is possible but is limited to using the built-in fonts of your printer which is rather boring in most cases. When GDOS is installed many tricks are possible including graphics printing and screen display printing of as many fonts as will fit on your disk and RAM.

Fonts in fact a collection of tiny images made of single pixels. On a high-resolution monitor fonts are normally displayed in a resolution of 72 dots per inch (dpi) so a character that is a quarter of an inch tall will be 18 pixels high (72 divided by four). A printer on the other hand is much more accurate, modern printers such as the LaserJet 4 can print at 600 dpi and most printers currently support a resolution of 300 dpi. To print the same font on a 300 dpi printer, another set of images is required because 75 pixels can now be used to produce the same sized character utilizing the higher resolution. This guarantees high-quality printouts but the drawback is that for each font size you need a screen font and printer font that matches your printer resolution.
When GDOS or the new FontGDOS and FSMGDOS start from your AUTO folder they look for a file called Assign.Sys in the root directory of your boot disk, outside any folder. This file tells GDOS where your fonts are and which fonts and printer driver to load. GDOS does not load the fonts but simply sits there until your DTP program or word processor asks for them.

The Assign.Sys file is a standard ASCII file which you can view by double-clicking on it and selecting Show. You will see that the first line looks something like:

```
PATH= C:\GEMSYS.
```

This tells GDOS that the fonts and drivers are found on disk A inside a folder named GEMSYS. Next follows a list of fonts which is divided by lines like 01p SCREEN.SYS or similar. This tells GDOS which resolution the fonts below the line are for, devices two to four cover low, medium and high resolution respectively.

The last section normally covers the printer driver which is device 21. Sometimes you will find additional text preceded with a semi-colon (;), this tells GDOS to ignore the text following the semi-colon enabling you to enter comments into the file without confusing GDOS. Fortunately, the accessories bundled with FontGDOS enable you to select fonts and printers via dialogue boxes and menus, so editing the Assign.Sys by hand can normally be avoided. An additional file, Extend.Sys, is also created which tells FontGDOS and FSMGDOS how large the various font caches should be.

### The Assign.Sys File

- **PATH=** C:\GEMSYS. 
- **1P SCREEN.SYS** ; resolution independent screen driver and fonts
- **ATTR10.FNT**
- **ATTR12.FNT**
- **ATTR18.FNT**
- **ATTR24.FNT**
- **2P SCREEN.SYS** ; low-res driver and fonts
- **ATTR10.FNT**
- **ATTR12.FNT**
- **ATTR18.FNT**
- **ATTR24.FNT**
- **3P SCREEN.SYS** ; medium-res driver and fonts
- **ATTR10CG.FNT**
- **ATTR12CG.FNT**
- **ATTR18CG.FNT**
- **ATTR24CG.FNT**
- **4P SCREEN.SYS** ; hires driver and fonts
- **ATTR10.FNT**
- **ATTR12.FNT**
- **ATTR18.FNT**
- **ATTR24.FNT**
- **6P SCREEN.SYS** ; reserved
- **7P SCREEN.SYS**
- **8P SCREEN.SYS**
- **9P SCREEN.SYS**
- **21 BJ10.SYS** ; printer driver and fonts
- **ATTR10NP.FNT**
- **ATTR12NP.FNT**
- **ATTR18NP.FNT**
- **ATTR24NP.FNT**

While it does work, it is slow and requires huge amounts of memory to do so.

What the ST, TT and Falcon need is a stable, fast and efficient font scaling system that will be so good that every program will use it. This will mean an end to having to keep several font formats and versions of GDOS and provide consistency of output regardless of the program. The PC world has it, the Mac has it, it's about time we had it too. Meanwhile, if you are using GDOS, you should give FontGDOS a try.

FontGDOS is available from the ST Club at £2.85. For more information, contact them on 0602 410241.
Venerable warlord Sun Tzu wrote The Ancient Art of War 2,500 years ago. Now it provides the theme for a thrilling action packed game to test your ingenuity and skill in equal measures.

You can choose historical characters and match wits with them. Take on enemy bombers and air aces in dogfights. Even change the very course of history. And enjoy more entertainment than you would think possible!

Let your imagination decide the tactics and strategy. The Ancient Art of War in the Skies is combat with a sense of fun. Don't miss it!

MICROPROSE
Seriously Fun Software
For IBM PC Compatibles, Commodore Amiga and Atari ST
Set the level and go directly to a particular game from the Main Options screen. Alternatively, you can drive around Toy Town or go to the Paint Pot.

**IT'S BIG EARS!**

Designed for children between the ages of three and seven, *Noddy's Playtime* consists of eight games, each with three skill levels (easy, harder and hardest), along with a junior art package. On-screen instructions are kept to a minimum - most commands are icon-driven and the program comes complete with a keyboard overlay to facilitate this. Help is offered when an incorrect answer is given or can be requested at any time by a swift click on the picture of Big Ears.

The Main Options screen allows you to select the level at which the games are played and whether to drive Noddy around Toy Town or go directly to a chosen game. The driving session gives children the opportunity to master the control of Noddy's car, and when they too the horn of his friends react in a different way - Milkie even drops his bottles! An A3-sized colour map of Toy Town is included in the package and is well worth having laminated.

The manual is a work of art in itself. It contains a complete story of the trip around Toy Town, which you can read to your children. On-screen guide children through the letter boxes. but they're asked who was sitting at a specific window.

Moving on to the N&B (Noddy and Big Ears) Works, you'll find an observation game where you have to assist Noddy in locating and rejecting 'odd-ones-out' on a factory conveyor belt. Accompanied by squelching noises as the rejected items are pulped by the disintegrator, this game calls for some keen observation. At the highest level, you battle against the clock as you race to reject the odd ones out. As with the rest of the program, sounds are a convincing mixture of digitised recordings and the ST's internal sound chip.

**PLAYING THE GAMES**

Simply drive Noddy's car around the map of Toy Town and stop at a taxi parking space to enter one of the eight games.

At the railway station there's a memory game in which a train enters the station with characters sitting at each of the carriage windows. On both the easy and harder levels, the blinds go down and the children must remember where a particular character was sitting. At the hardest level, they're asked who was sitting at a specific window.

Moving on to the Noah's Ark secton, there's a jigsaw puzzle where the number of pieces vary according to the level - four, nine and 16, respectively. As each puzzle is completed, the animal appears at the port hole of the ark. If the puzzle is not finished correctly, the pieces in the wrong places are automatically removed for a second try.

A similar method of learning is used in the Post Office secton, which is a lesson in counting. The easy level may only involve feeding the letters into the letter boxes, but it does provide good practice in moving and working with a mouse or joystick. The higher levels require the child to match the numbers on the letters to those on the letter boxes.

Entering the Toy Town Market secton, you have to select items by their initials. The difficulty of the levele varies from simply having to select items by their initials...
having to find three items on the stall with the same initial letter.
As with all of the games, the graphics are excellent and it's
good fun, too. Mr Plod is suspended above a water barrel by
a number of balloons as a naughty
goblin with a pea-shooter pops
them as a reward for each correct
answer. This leads, rather
satisfactorily, to a rather watery end
for our favourite member of the
constabulary!

Down on the farm there seem to be
some problems - the animals
look rather strange because their
fronts and backs don't match! To
correct this, the appropriate
halves have to be found and
matched up in the first two levels.
At the hardest level, you have to
sort through a set of heads and
tails to find the correct parts for
your particular animal.

The Police Station game finds
Noddy locked up - for tooting his
horn at Mr Plod no doubt! Your
task is to help him escape
through the underground pas-
sages, with routes becoming progressively harder depending
on the level. With a choice of 160
mazes, the child is unlikely to get
bored quickly.

Finally, there's Noddy's Paint
Pot, an art package which can be
loaded from the main screen or
entered from any of the eight
game locations. This is simple to
use and yet complex enough to
allow even the very young to
produce colourful and detailed
drawings, with routes becoming progressively harder depending
on the level. With a choice of 160
mazes, the child is unlikely to get
bored quickly.

How Good is It?
There's little doubt that Noddy's
Playtime can provide hours of
everlasting enjoyment for children
between the ages of three and
seven. Younger children with a
short attention span can go back
to driving Noddy around Toy
Town again and again, especially
as the positions of onlookers and
pedestrians do change - for the
under fives, spotting the changes
is a game in itself. While some
older children may not gain any
new skills from the program, it
will do much to enhance, in a fun
way, many of the skills they are
learning at school.

Parental involvement is impor-
tant in Noddy's Playtime. The
program comes on two disks, and
while following the on-screen
prompts is simple enough, it is
not something that a young child
can be expected to do. Although
some of the games can be played
without supervision, younger
children, in particular, will gain far
more if an attentive adult is on
hand to point out details that
would otherwise be missed.

"Noddy's Playtime is a welcome
treatment to any family disk
collection"

Based on an appealing character
Bright, clear graphics
Good use of sound effects
Educationally supportive and stimulating

PROS AND CONS
Disk swapping can be tricky for young kids

NAME: NODDY'S PLAYTIME
COMPANY: THE JUMPING BEAN COMPANY
CONTACT: 0602 7928381
PRICE: £24.99
RELEASE DATE: OUT NOW
MIN MEMORY: 0.5 MB
EASE OF USE: ★★★★★
DOCUMENTATION: ★★★★★
EFFECTIVENESS: ★★★★★
VALUE FOR MONEY: ★★★★★
OVERALL: 93%
**TASK SETTING**

Calligrapher, Everest and the desktop all running together quite happily. The Desk menu enables access to all programs, desk accessories and the desktop.

**Ofir Gal takes a sneak look at Atari's latest, and perhaps greatest, operating system...**

The Tramiel Operating System, or TOs, has gone through a great many changes since its arrival in 1988. In its latest guise, it looks set to revolutionise the way you use your ST.

The story begins a few years back when Eric Smith, a Canadian mathematician and ST user, devised a TOs add-on which enabled him to run several non-GEM programs at the same time. He called it MIN T and released it into the public domain, where it won the support of a small group of enthusiasts. It didn't go unnoticed by Atari either, who consequently employed Eric to write a full multi-tasking operating system for the ST. The result is MultiTOS.

MultiTOS will be very similar to TOs as we know it. There will still be AUTO programs and desk accessories, but there will also be a new TOs 2 desktop, which will be similar to the original but with few cosmetic changes. The main difference will become apparent when you load a program. The desk menu now lists the program and the desktop in addition to the desk accessories and you can go back to the desktop without clicking on it. It works by drawing the desktop over the current program, leaving you free to perform operations such as copying files, creating folders and even starting another program, which will be added to the desk menu. You can use the desk menu to go back to the first program, the second or to the desktop where you can start another program.

**MULTI-TASKING**

Simply being able to switch from one application to another does not constitute a true multi-tasking system, so MultiTOS takes this a few steps further. When you have several programs, or processes as they are now called, running together, you can realise windows to display two applications on screen, or cut text from a text editor and paste it to a DTP package. You can also switch to the desktop, copy some files from a hard disk to a floppy and return immediately to your word processor. You do not have to sit there and wait until the files are copied as this process is happening in the background. Many more advantages will become apparent once programmers start to develop software specifically with MultiTOS in mind.

We tried to push MultiTOS to its limits by running Calligrapher, ST Zip and WERCS together. ST Zip was set to compress a long list of files while the contents of drive C were being copied to drive F on the desktop.

To top this, Calligrapher was printing out a multi-page document at the same time. All of this worked well, although selecting a program from the menu became more difficult as more tasks were being performed, and it sometimes took a second or two for the menu to appear.

Another useful feature of MultiTOS is its ability to load accessories at any time and even remove them if you need the extra memory. Programs can be aborted in the normal way or by clicking on their menu entry while holding down the Control key.

**COMPATIBILITY**

Most programs should run under MultiTOS but only a few will work perfectly. There are several reasons why a program misbehaves in a multi-tasking environment. Some programs grab all the available memory when loaded, as is the case with First Word Plus, so no other program can be loaded. To get around this, you must load FWP last. Other problems are to do with what programmers call screen ownership, where a program assumes it is the only one to access the screen. Only properly written GEM applications which run inside a window are likely to work correctly under MultiTOS. Many ST programmers are busy modifying their programs so they can be used with MultiTOS.

To provide compatibility with TOs and TTP programs, Atari supplies a program called Mint Windows which enables non-GEM applications to run inside a window. It can open several windows at once, so you can run several TOS/TTP programs at any time and it works extremely well.

**THE FUTURE**

If the Falcon becomes a popular machine, MultiTOS is bound to catch on. It's a huge advantage not having to quit a program just because you forgot to copy a file before you started. MultiTOS provides extremely flexible pipeline facilities which programs could use to send and receive data. It is possible for DTP, text editing and paint applications to send picture and text files back and forth without needing to access the disk or the desktop. Almost every user will benefit from at least some of the features of MultiTOS so long as Atari manages to get it running fast and reliably.

**MULTITOS AND THE ST**

MultiTOS and the Falcon are two separate projects. You can run MultiTOS on any ST or TT, although there are several drawbacks to running MultiTOS on an ST - for a start it slows down the system considerably, so it's not recommended for an 8MHz computer.

The new Falcon features the Motorola 68030 which, among other things, provides memory protection. In layman's terms, this means that if one program crashes it doesn't mean the whole system will. The minimum memory requirement is 2MB and the more the better. STs are of course limited to 4MB of memory while the Falcon can have up to 16MB of RAM.
On the cover disks of issues eight, nine and ten we gave away the Cyber Series, the ultimate graphical tool for the ST. In this month's step-by-step tutorials we look at how you can use all three Cyber packages to create professional quality animations...

One of the first things that you should do before you make a start with your animation on your computer is to create a storyboard. This entails putting your design ideas down on paper and placing them in logical order and it will be helpful to you later on. It's a good way of organizing your thoughts and ideas so you don't waste too much time or memory once you actually get started.

**DIMENSIONS**

One of your first decisions should be whether your animation is going to be two dimensional, three dimensional or a combination of both - this will determine what Cyber packages you need to use. You will need all three packages for our example animation shown on these pages.

After planning your movie you'll need to create the objects and backgrounds to go in it.

**MAKING COLOURS SMOOTH**

Remember that the backgrounds and objects should use similar colour palettes. If they don't then you will find that the colour will not be very smooth.

The tutorial on these pages looks at an example movie from post production to final screen and it also gives you some helpful advice on how to create your own homemade animations.

We've used some digitised pictures as backgrounds, although it's just as easy to create your own in Cyber Paint.
MOVIES

13 Create a background scene for the hall. The brown, orange, yellow colour range makes it look more dynamic than just greys.

14 Create a small knight in zoom mode. It's a bit on the small side at the moment, but we'll rectify that.

15 Enlarge the knight by selecting 'clip' from the clip menu, and then 'stretch'. Pull on the bottom right corner to extend him proportionally.

16 Use the enlarged image as a template and redraw it in detail using Cyber Paint's zoom mode. Cut and paste in the spikes and chain-mail.

17 Use 'Edge In' from 'Pixel Fix' under 'Menu' and select a dark colour. Cut and paste the knight over the hall background to test its colour integration.

18 Add more animation frames to your object by copying each one and altering it slightly. Redraw and stretch certain parts of his body to make it look like he's moving.

19 Quit Cyber Paint and re-load Cyber Control. Click on watch and overlay buffer then load CAD3D2.

20 Click on 'Spin' and draw a symmetrical arrow head. Select 'Do Spin' to execute the template. Reduce its size to make it easier to position the other objects.

21 Draw the arrow shaft in the same way but with different colours. Position it so that it cuts neatly into the arrowhead.

22 Draw a tail piece using CAD3D2's 'Extrude' tool! Start from the top-right and draw all the points in a clockwise direction. Use the 'De Extrude' command to execute the design.

23 At the moment the tail is too wide. Select it and the 'top' window, then reduce the tail's vertical scale 'V' to shrink it.

24 Make three copies of the tail and individually select and rotate them. Use the selected frame movement feature (Icon 4) to make it easier to position them.

25 Reducing the 'Zoom' level to fit all of the arrow in the camera window, double-click on 'Superview' and check the integration of the design in 'final view'.

26 Switch on 'background' from the superview dialogue box and load the frame which you want your animation to be lined up with. Use a background as a guide to save on guesswork.

27 Load up Cyber Paint to work on your final screen. Create the carnation separately from the tombstone, and x-ray it on top.

28 Use the edge in command around the text and the stonework to give it a polished marble effect.
When you've got your basic design, the next step is putting it all together...

It's now time to put your work together to form your finished animated movie. This can be a lengthy process, but it's still an extremely rewarding one for the would-be movie director.

Before you get going, make sure that you have learned the following two golden rules by heart: you should remember to keep a few spare formatted disks handy and always save your work before making any major changes to it.

MEMORY MATTERS

Obviously, the more memory that you have available in your machine, the more complex and smoother your animations are likely to be.

A hard drive is a particularly useful device if you're using a two or four Megabyte machine as it can be used to load large files much faster. It can also be used to chain files together using the 'Animator4' program which comes with Cyber Paint.

PUTTING IT ON FILM

A video recorder is another piece of equipment which will come in very handy. You could, for instance, save long sequences or give a friend a copy.

If your final production is going to be played through a composite colour device such as a video, for example, you will most certainly be better off creating your animation on a TV and not an RGB monitor, as this will guarantee more accurate colouring.

OTHER USES OF THE CYBER SERIES

The Cyber range provides you with a wide variety of possibilities. All you really need is a fertile imagination and a bit of practice.

You might like to try out some of the following ideas:

- Producing a public domain demo
- A cartoon sequence
- An animated logo
- A story book
- Animated adverts
- A corporate video

For other suggestions and some practical tips, see our Practical Advice section on page 42.

THE FINAL COUNT

STEP BY STEP

1. Load your woodland background and x-ray your title text over it. X-ray always uses the first colour in the selected palette.

2. Copy this frame 24 times and set the frame mode to sequence. Set it to run from 25 to one.

3. Open the colour palette edit box and move the cycle bar to encompass all colours, with black being the chosen colour for the next stage.

4. From 'colour fx' under the 'colour' menu select 'fade' and change 'Tint' to 100%. Next you need to render the sequence.

5. If it fades too fast add 24 blank frames at the start and 48 normal ones at the end.

6. Insert 26 blank frames and add the 'black knight' text. From the 'Ado Fx' menu set 'tums' to 180 degrees and the x-axis to -100.

7. Copy the wood scene background the rotated frames using the segment frame mode. You will need to add an additional 130 background frames to complete the opening scene.

8. Clip the butterfly picture and enter the 'Ado Fx' editor. Set the part turns to -90, Axis Z, Centre default, size 1, and draw a sampled path.

9. Place the butterfly with the folded wings over the same amount of frames with the same 'Ado Fx' settings. Use some of these frames for wing movement.

10. Select fade from the 'colour' menu under 'palette'. Use fade in the same way as before to create a lightning effect.

11. Fade into the next frame in a similar way. Apart from a smooth-looking effect, fade also takes less memory than some of the other Cyber Paint commands.

12. Erase the background and clip one seagull. Move it with the 'Ado Fx' menu and render it over the background picture sequence.
Remember, the larger the area you clip the more memory it takes up. Large clips will also slow your machine down.

For best results with the fade feature keep the sequence to a very short number of frames. Eight is usually the optimum as there are only eight contrast levels.

Large clips will also slow your machine down.

For the death sequence create a mask of him and fade this, leaving the background intact. X-ray the mask on top of the knight.

By loading in any background with the 'superview' you obtain that picture's colour palette.

Use a fine black edge around the arrow to help keep the colours separate and their edges distinct.

Draw another three frames for the knight. The same leg graphics were used for each of these.

Watch your sequence in 'wire' and 'draft' modes to see how the final animation will proceed. This lets you fine-tune the arrow movement with the knight.

Select 'segment frame mode' and enter 'Pixel fix' from the menu. Use 'Edge in' and the darkest colour for this but not the first black, which is used for x-raying.

The final frame is the Credits page and any number of other effects can be utilised from the 'Pixel Fx' and 'Ado Fx' menus.

Cyber Paint takes about 140K so if you have a one Megabyte machine or less you will find that by using the 'Animate 4 PRG' you can fit more frames in any animation display.
On this page we take a look at how to create professional looking animations and give you some ideas for using the Cyber range.

The key to creating a good animation is planning. To get yourself on the right path you need to look at your requirements. Having first decided on your storyboard, then built both your foreground and background objects, you need to work out how to cram it all into your ST.

Obviously the larger the memory of your computer, the more frames you will be able to use for your animation. If you find yourself running out of memory, try splitting your animation over several disks.

TIMING
Remember to use the 'time' function to help speed up your animations. An STE does seem a lot quicker on fastest movement rate compared to an STFM with no blitter chip. Keep in mind that the faster your animation speed the more frames you will need per second for smooth movement.

GLOSSARY

ANTI-ALIASING
A method of making jaggies less prominent by the insertion of one or more intermediate colours between the edges of your boundary and object.

COLOUR CYCLING
This is used to create the illusion of movement or flow without the need for moving the actual flow in question but by changing the colours contained in your palette instead. This palette normally being shifted over a number of frames to create this effective illusion.

JAGGIES
The visible stepping in any line which occurs when a line or edge of your drawing is other than a vertical or horizontal line.

1. Red stands out more than any other colour, while blue provides a good contrast to it. Together they make a good 3D effect.
2. Experiment with lighting or shades of two distinct colours. This gives the impression that you're using more colours than you actually are.
3. Jaggies can be a problem when using a high-contrast object with your background.
4. The solution is to use Cyber Paint. Select 'Antialias' on a single frame or whole sequence.
5. The cycle bar can be used to reverse a frame sequence by simply switching the cross and diamond positions. Use frame mode and set the segment from the time menu.
6. 'CYCLE', which is under the 'Colour' menu, can be used for anything you wish to make flow. It was used above to show the flow direction of a central heating system.
7. With the Cyber range you could use your ST for advertising at trade shows. Your computer could become an electronic notice board.
8. Business graphs are handy, but with the Cyber range you can animate them and make them look even more interesting in full colour.
When you buy your new Amiga 500 or 1040ST-E computer from Silica Systems, we will give you an additional £24.30 worth of software FREE OF CHARGE, including great games and productivity programs. Plus, every ST and TT, we will give you 7 nights fully holiday accommodation for you and your family in our own 4 star hotel.

**NEW! ATARI ST MORE THAN JUST GREAT GAMES!**

**NEW! ATARI FALCON 1040ST-E**

The new Falcon 1040ST-E is expected to be a hit. It is a powerful, feature-rich, versatile home computer, offering unmatched performance for its price. Included in its feature-packed specification are multiple on-board processors for graphics and sound, special effects, and networking capabilities. The Falcon 1040ST-E offers a range of advanced features, including a powerful 32-bit CPU, and expanded memory options. These all combine to provide a new computer capable of running unimpaired graphics and multimedia applications. The Falcon is an ideal upgrade for Atari ST owners who are looking for a more powerful model, as it is compatible with the majority of ST application software.

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The new 12” Green-Scalated Monitor is designed to offer high-quality monitor output at an affordable price. It is ideal for use with various computers, including the Atari ST, and offers excellent graphics and text viewing. The monitor features adjustable color settings, allowing users to fine-tune the display for optimal viewing. Its compact design makes it easy to fit into most computer setups, and the included speakers provide a complete audio experience.

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Dino Dini has nearly finished the unofficial successor to Anco's Kick Off 2. Tony Dillon finds out if three into one really does go...

Dino Dini is undoubtedly a very successful man. After a slow start in the programming field, he created the ultimate in computer football, Kick Off. Panned by the critics and loved by the public, Kick Off was the most realistic and arguably the most entertaining football game ever to grace our screens. Then came Kick Off 2, Player Manager (a management variation) and a myriad of spin-off disks. Over two years passed, and everyone held their breath. Then it came - news of the inevitable Kick Off 3. It was going to be bigger. It was going to be better.

It wasn't going to happen. Trouble flared and Dino quietly split from Anco, leaving the Kick Off name and an army of fans. But all was not lost, for no sooner had he gone than he returned under Virgin's wing with Goal, containing all the code and plans from Kick Off 3.

You might be thinking that Dino must be struggling by now to think of something different to put into a football game. If you were one of the countless millions who thought that, then shame on you - he's come up with loads of great ideas.

REALISM

The Kick Off Goal series of games are based primarily on realism. To play Goal, you need to really know how to heft a ball around. For example, didn't it always gallop through the bunch of players, even when the computer was only running at 100miles an hour? A crime, even Mr Dini is guilty of. In Goal, players will have a 'turning circle' - they turn in a small arc, which grows in relation to their speed.

Hang on, did I say speed? Yes, also gone from those previous games are the '30 miles an hour from a standing start' team mates, and instead you have a more realistic acceleration and deacceleration factor. As you push and hold the joystick in a particular direction, the player runs faster and faster. The benefits of running faster are, of course, getting from one end of the pitch to the other in shorter time. The downside is that the ball is far harder to control at speed, just as it is in real life.

Also gone is the ability to tackle someone from behind. If you were one of the many who found it infuriating that the computer players would walk up behind you and steal the ball through your legs, then your prayers have been answered. Now, if you want to take the ball, you have to take it from in front of the players. By way of demonstration, Dino took possession of the ball, and was tackled by someone from behind. Dino turned in a circle, leaving the computer player running rings. In the end, he gave up and fouled. Apparently, this is what the more temperamental players will do.

Set pieces will be improved too. No more of the nine-direction selection box that Kick Off players are used to. Instead you have a series of four dots which show direction, strength (depending on how far apart they are) and height. This will be a far better way of taking a corner than the original system, or at least that's the way it looks so far.

THE HUMAN TOUCH

The goalkeeper will be given more of a human touch. Instead of making a bee-line for the ball the second it enters the box, the keeper stays on his line a lot more of the time. He will also side-step between the posts and, what's more, he's fallible.

One of the biggest complaints about Kick Off was the size of the sprites. Of course, the smaller the sprites were, the more of the pitch you could see. Needless to say, these complaints didn't stop Sensible Software coming up with Sensible Soccer with even smaller sprites, but that's a different story. One novel idea that Dino has come up with is the Screen Switcher. With a tap of the space bar you can switch between the original size Kick Off sprites, or change to ones twice the size, for a close-up view. This works fine if you stay in one mode or the other, but the computer can be set
...and it's past the keeper! The keepers now have a series of statistics that affect their overall performance.

A free kick, and the blues line up with hands in protective positions. Just one of the many set pieces included.

The game viewed in the smallest scale. You can see a lot more of the pitch, but less detail.

The new advanced way to take a throw-in. The series of dots show the direction along with the force of your throw.

Dino Dini – the man with no name

Or at least, the man with two very similar sounding names. We all know who Dino, 27, is, and what he's done, but if you are one of those people who want to know more, then read on.

It all started, believe it or not, in his head. I started programming in theory, because I didn't have a computer at the time. I was thinking in 6502 machine code when I was 13, so I guess you could say that's when I started. I read a lot of books, and would write by looking up mnemonics and the numbers in the back of books. I got an Acorn System 1 when I was 15, which was like a sandwich. You had a board underneath and a board on top, with a calculator keypad and a calculator display. I wrote some games there, but there wasn't much of a market.

I went to the Acorn Atom after that, and wrote a couple of games which did get published, but through a very small company. The first important thing I did was for the BBC Micro – it was called Astrotacker and it was published by a company named Beebug. But really, the first thing I got serious with was Kick Off.

Strangely enough, Kick Off wasn't his idea at all. "I was looking for a publisher, and I found a company named Beebug. We wanted to do a football game, so I wrote a football game."

So the plans were laid for the first burst. Was it hard to come up with ideas?

"I designed it to be realistic – that was the philosophy behind it. I had seen some other games, and what stuck me about them was the fact that the pitch was so small. The first thing that I programmed was the ball routine. I wanted it to be as realistic as possible, and the arc the ball follows is mathematically accurate."

Sensible Software has made no secret of the fact that Sensible Soccer has taken its inspiration from the Kick Off games. Dino certainly doesn't have a problem with that:

"Imitation is the sincerest form of flattery."

At the time it was released, Kick Off was two years old, so they've copied a two-year-old game. By the time Goal is released, Kick Off will be a three-year-old game, so I don't see a problem there."

So how does Dino think Goal will match up against Kick Off 2?

"Kick Off 2 was great for its time, but this is the new model."

GOING SIDEWAYS

If all that isn't quite enough to whet your appetite, the game also features a horizontally-scrolling pitch. Using the same scale as the vertical pitches, this shows a lot more information about the pitch. For example, from the goal mouth you can see the edge of the centre circle.

Dino is a man who listens to his public, and at its demand, he has also subtly altered the control method.

Along with the acceleration controls, the method of shooting and passing has been changed for the better. Before, all you needed to do to shoot was to release the fire button while selecting a direction. Now, a quick tap is needed. This stops accidental shooting and passing, and aims to make the game just bit more playable (as if it needed it!).

OUT SOON!

At the time of writing, the gameplay is all there and the rest of the game is fairly close to completion, so the release date of late March looks quite realistic. With all its new features, it can claim to be the most realistic football game around. But whether it will be the best is quite another matter. It might not actually be called Kick Off, but it is undeniably Kick Off 3. Now all that remains to be seen is if Dino has finally managed to create the standard for computer football.
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Our intrepid space cadet, Tony Dillon, goes in search of the new Frontier...

It's been almost five years since the release of the ST version of Elite, one of the most ground-breaking computer games ever, and a sequel. Frontier, is finally on its way. The game has been in production for over four years, and has been written solely by David Braben, as Ian Bell, Elite's co-programmer, has long since left the fold. Frontier's game style will have a lot in common with Elite, but Braben stresses that there will be a lot more to it than that.

As part of a military operation, or doing all sorts of tasks for people, such as ferrying and taxiing. This should add a lot of depth to the game, giving it a far more varied feel.

One of the biggest steps forward in terms of gameplay has to be the ultimate purchase - a new ship. One major criticism of Elite was that not being able to upgrade your ship limited the gameplay. In Frontier you can, so if you like the look of a lumbering Python, why not save up and get one?

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**TASK FORCE**

You are once again thrust into the cockpit of a spacecraft in the far-flung future and given the opportunity to do whatever you want and go wherever you like.

In the original this meant that you could start trading wherever you liked, or shoot as many pirates as you wanted, but Frontier goes a lot further. For example, you might find yourself fighting as part of a military operation, or doing all sorts of tasks for people, such as ferrying and taxiing. This should add a lot of depth to the game, giving it a far more varied feel.

One of the biggest steps forward in terms of gameplay has to be the ultimate purchase - a new ship. One major criticism of Elite was that not being able to upgrade your ship limited the gameplay. In Frontier you can, so if you like the look of a lumbering Python, why not save up and get one?

The code is a technical miracle. Informed guesses and scientific thinking have allowed Braben to set the game in our galaxy rather than the small, imaginary ones of Elite. The difference? Well, instead of having just 2,000 planets, Frontier has over 100,000 million.

**TASK FORCE**

You are once again thrust into the cockpit of a spacecraft in the far-flung future and given the opportunity to do whatever you want and go wherever you like.

In the original this meant that you could start trading wherever you liked, or shoot as many pirates as you wanted, but Frontier goes a lot further. For example, you might find yourself fighting as part of a military operation, or doing all sorts of tasks for people, such as ferrying and taxiing. This should add a lot of depth to the game, giving it a far more varied feel.

One of the biggest steps forward in terms of gameplay has to be the ultimate purchase - a new ship. One major criticism of Elite was that not being able to upgrade your ship limited the gameplay. In Frontier you can, so if you like the look of a lumbering Python, why not save up and get one?

The code is a technical miracle. Informed guesses and scientific thinking have allowed Braben to set the game in our galaxy rather than the small, imaginary ones of Elite. The difference? Well, instead of having just 2,000 planets, Frontier has over 100,000 million.

Frontier will be on the shelves towards the end of April and should be the biggest space opera this side of Star Wars.

**VISUAL BRILLIANCE**

One of the most exciting aspects of this game has to be the graphics. A lot of effort has gone into making it look right. It features very detailed starbases and planets and the starmaps are astronomically correct, complete with full light-source shading taken from the nearest star!

With all these calculations, you might worry that it will be a little slow. To get around this, Frontier uses a new graphic system that tests the distance between you and an object and then shows the minimum amount of polygons necessary. Take the back of the Cobra, for example. If you were tailing it in space, you might see a small red dot between the two engines, if you came in a little closer, you might see that it's a sign, if you came in close enough to burn your hair, you'd see that the sign reads: 'Engine Radiation - Please Wear Protective Clothing'.

Docking at one of Earth's starbases. Looks a lot better than the dodecahedron from the first game, doesn't it?

The game's phenomenal detail is seen here in our solar system.

The list of improvements outdoes the Homebase catalogue.

Flying at over 6,000 kilometres per hour causes a trail effect.

The Moon is carefully detailed with craters and bumps.
Unlike Elite, the original Amberstar didn't set the games-playing world alight. Although a solid RPG, it lacked that certain something, and the German programmers immediately relaunched their search for it. Ambermoon takes over where the first game left off. Rather than restrict you to one country, it will be set on a series of different worlds, although the exact number has yet to be determined. The title inventory screen has been given a massive overhaul, and is now a matter of point and click.

The biggest difference between this and Amberstar is the use of texture mapping. Just look at these walls!

The inventory screen has been given a massive overhaul, and is now a matter of point and click.

Naturally, there is stacks of treasure to be found, but watch out for the traps!

The top view is more or less the same as the original, with a few refinements to the graphics.

Unlike Elite, the original Amberstar didn't set the games-playing world alight. Although a solid RPG, it lacked that certain something, and the German programmers immediately relaunched their search for it. Ambermoon takes over where the first game left off. Rather than restrict you to one country, it will be set on a series of different worlds, although the exact number has yet to be determined. The title inventory screen has been given a massive overhaul, and is now a matter of point and click.

There are a large variety of worlds for you to travel through, like this very alien and very pink desert scape.

Sequel mania appears to have set in this month—we look at Thalion's precipitous follow-up to Amberstar...

The control system has also been given a complete overhaul. The original, with all its icon-clicking and menus, was a little unwieldy for modern games, although it would have been fine a couple of years back. Now all object manipulation and movement is done directly with the mouse. If you want to pick up an object, you just click on it and then drag it to the inventory window. Much nicer.

It looks like a lot of work has gone into Ambermoon, and Thalion's programmers have obviously taken in a fair bit of the advice given to them, but will it be as good as it promises to be? Judge for yourself when Ambermoon hits the shelves in May.
**COMPUTERS • PRINTERS • MONITORS REPAIRS WITHOUT DIAGNOSTIC FEES**

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- Protar Hard Drives with Disk Cache have 2 year replacement warranty.
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- Autoboot.
- DMA Throughput.
- Device Number Switching.
- Disk Management Software.

**DISK DRIVES**

- High Density 3.5" Internal Drive: £44.95
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- 1 Meg 3.5" External Drive with its own PSU: £59.95

**POWER SUPPLIES**

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- EW/STF/STFM Power Supplies with ONE YEAR GUARANTEE: £44.95

**PRINTER**

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- Citizen 1240: £189.95
- Citizen 245: £289.95

**PRINTERS**

- Please ring for Canon, Panasonic, and HP range.

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- Disk Management Software.

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- 1 Meg 3.5" External Drive with its own PSU: £59.95

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**GAME TIPS**

**DUNGEON MASTER**
Monster killing can be easier with the right weapons. Look on level 3 for the Sling, level 7 for the Sceptre Of Light, level 10 for the Speedbow and level 11 for the Bolt Blade.

**TERMINATOR 2**
Even Arnie needs a little help now and again. Skipping levels is as easy as pressing F1 to F10 in order. Then press Escape to advance.

**MICROPROSE GOLF**
Fed up with the ball slicing every time you hit it? Try moving the cursor to the left of the screen, hit the ball as hard as possible and let the snap guide fall all the way to the bottom. The slice should then work to your advantage.

**RODLAND**
For infinite lives, pause the game and press the Help key five times. Your lives will still decrease, but when you reach zero, you can carry on playing. Press the space bar to go to the next level.

**SHADOW OF THE BEAST**
Don't you always run out of life points when you need them? Press Enter on the numeric keypad followed by F5, then repeat the sequence any time during the game and you'll get 30 extra life points each time you do it.

**BLUEBROS BROTHERS**
Jake and Elwood die a lot in this game. For infinite lives, type HOULQ on the character screen and press 1 to 6 to skip levels.

**SUPERCARS**
Great little racing game this, but very frustrating if you can't win enough money to upgrade your car. To start the game with £50,000, type your name in as POOR and you can start with a better one and progress further.

**OH NO! MORE LEMMINGS**
Here are the level codes for the same section:

1. No code
2. 1HRTDLCCAR
3. LRTDLCADAO
4. 4RTDLCLEAH
5. 5TDLCHVFAQ
6. 6DLCHVTDAJ
7. 7LCAVVTDAH
8. 8CILVTDLIA
9. CAIPUDLIC
10. 10IHRUCLLCAK
11. 1LRUDLCALAH
12. 14RUDLCILMAQ
13. 13UDLCNHAJ
14. 14DLHCYUOAS
15. 15LCAVUDPAP
16. 16CILVUDLQAI
17. 17CAHRTFLBL
18. 18IHRFFLCGB
19. 19LRTFLCABBR
20. 20RTFLCILEBK

**ROBOCOD**
A fishy little tip for you. Collect the bonus items in this order: CAKE, HAMMER, EARTH, APPLE, TAP. This 'cod' help you as you become invincible. The initial letters of the objects spell CHEAT.

**PUSHOVER**
The domino effect hits the ST! Here's every level code for the entire game.

1. 00512
2. 01536
3. 01024
4. 03072
5. 03584
6. 02550
7. 02048
8. 06144
9. 08698
10. 07898
11. 07534
12. 05122
13. 05634
14. 04610
15. 04098
16. 05134
17. 01220
18. 02200
19. 01534
20. 01587
21. 01458
22. 01432
23. 01424
24. 01024
25. 010758
26. 11782
27. 11270
28. 09222
29. 09734
30. 08718
31. 08206
32. 02458
33. 25102
34. 26128
35. 26614
36. 27662
37. 28174
38. 27150
39. 26638
40. 30734
41. 31246
42. 32270
43. 32682
44. 29726
45. 30238
46. 29214
47. 28702
48. 29504
49. 21022
50. 22046
51. 21534
52. 23682
53. 24004
54. 23070
55. 22688
56. 16494
57. 19067
58. 20030
59. 19518
60. 17470
61. 17962
62. 16958
63. 15610
64. 16511
65. 15702
66. 16879
67. 15947
68. 16079
69. 16036
70. 15701
71. 18559
72. 22655
73. 23167
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83. 29951
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85. 32511
86. 31487
87. 30975
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89. 27647
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91. 28159
92. 26111
93. 26623
94. 26589
95. 25067
96. 28073
97. 29215
98. 28529
99. 28073
100. 44543

**Game Tips**

There's been an absence of tips and cheats in your favourite magazine lately, so we've collected some to keep you going...

Fish around without fear of becoming battered!
# Gasteiner

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IN BRIEF: Lotus Esprit Turbo Challenge is best remembered for its innovative two-player mode, incorporating a superb split-screen system which allowed simultaneous yet independent racing for both competitors. It was a classic and, as we all know, classic games demand sequels — which often turn out to be poor re-hashes of the original. Gremlin’s Lotus Turbo Challenge 2 was the exception that proved the rule. All the essential areas were improved — graphics, speed, realism and, of course, the multi-player mode. The biggest innovation was the ability to link up two machines, giving the option of a four-player competition. The range of cars also increased, with the addition of the Elan and, with eight levels across America providing the added difficulties (or bonuses depending on how you look at it) of ice, fog, rain and dust, Challenge 2 proved unbeatable.

ST REVIEW COMMENT: “Sequels can often be a disappointment, but the Lotus series of games from Gremlin was (and still is) a genre leader. Incredibly, when everyone thought Gremlin had got it just right with the first one, the company brought out this sequel and blew the earlier model, and the competition, off the road. The stunningly fast, multi-player action has to be seen to be believed, as do the graphics and general gameplay.”

The Terminator takes on Lotus and the Videokid in the battle of the budget games...

HEROQUEST

GBH • £9.99 • 0742 768 581

IN BRIEF: Based on the Dungeons And Dragons concept, Heroquest involves up to five players taking part in large-scale adventures through mazes, dungeons and caverns in search of fame and fortune. The five main characters are a Barbarian, an Elf, a Dwarf, a Wizard and the Dungeon Master equivalent, the evil Morcar. The computer plays the part of Morcar and you and your friends take on the roles of the good guys.

Each character has special strengths and skills and these can all be improved upon as the game progresses through its 14 different levels. You can buy spells and weapons with your gold and get extra life points, saving your improved character after each level then re-loading him into the next - all shiny and new, with extra powers. The dungeons are full of enemies, traps and puzzles, so there's plenty to keep you busy. Each player takes a turn in which they can move once, fire once, cast spells and so on. Then, finally, Morcar makes his move and the next round begins.

ST REVIEW COMMENT: “The forerunner to Space Crusade, Heroquest is the second best board game conversion on the ST. It sticks firmly to the spirit and rules of the original board bash - everything is decided by the roll of the die, each player moves in turn, etc. And, because of its superb graphics, the feel of the game is enhanced as you actually watch your characters moving and fighting (almost in 3D). Heroquest is not an all-action game, but even if you’re not an adventurer you should enjoy this one - especially if you like playing with a few friends.”

Search each and every room but watch out for traps and enemies. Check out the goodies on that table!
**VIDEOKID**

**GBH GOLD • £9.99 • 0742 768581**

**IN BRIEF:** Have you ever fancied going completely mad in a cartoon world where all sorts of monsters and madmen are out to stop you getting back to your nice, comfortable living-room in which, only a few moments earlier, you were watching the video? Such are the problems faced by Videokid, a child sucked into a sinister cartoon world with five different time zones and 20 levels of action. Even more incredible, this child is now a wizard who can summon up (and collect) a wide variety of weapons, including arrows, flame balls and lasers to see him through his difficult task.

A platform shoot-'em-up through and though, Videokid has colourful graphics and plenty of fast action. Sprite movement is smooth and the game has plenty of different scenarios including medieval, western, gangster and space.

**ST REVIEW COMMENT:** "This is a very enjoyable title and you're bound to laugh at some of the characters and situations, but I can't help feeling less and less enthusiastic every time I play this sort of game. If you're a true platform addict, however, it'll be money well spent as you bounce around shooting dragons, gangsters and snakes."

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**TERMINATOR 2**

**HIT SQUAD • £7.99 • 061 832 6633**

**IN BRIEF:** This game roughly follows the plot of the film - unlike most platform licences. The first level finds the T101 (you) battling against the T1000 in a shoot- and beat-'em-up bout. You then continue in an obstacle-beating race against time in a stormy gully, riding your Harley Davidson. A few puzzles, more boxing action, van racing antics and a shoot-'em-up level, round off an extremely unusual eight-level game. The graphics and animation are very well executed and there are some lovely digitised Terminator images in the intro sequences.

**ST REVIEW COMMENT:** "The problem with T2 lies in the complete lack of playability on certain levels. The puzzles are OK, the chase scenes are good enough fun, but the one-on-one fighting scenes (of which there are three) are diabolically boring and slow. This is a good-looking curiosity game, but not one for the serious player."

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**RBI 2 BASEBALL**

**HIT SQUAD • £7.99 • 061 832 6633**

**IN BRIEF:** Originally released by Domark two years ago, RBI is graphically the best baseball sim available. Baseball can be a trifle confusing to people this side of the Pond, so luckily the manual is more in-depth in its explanations than the usual Hit Squad scrap of paper. You can select any baseball team from across the USA and compete in single games, or in a world series, against the computer or a human opponent. Two-player mode is actually great fun. Once you've chosen your team, you must then select your pitchers and the line-up of your team. The game is simple enough - someone pitches the ball and another guy hits it - but as you scramble about the out-field balls, and try to knock out the batsmen with expert throws, it becomes extremely absorbing.

**ST REVIEW COMMENT:** "Excellent graphics and realism make this game both educational and good fun - you'll learn a lot about baseball. Against the computer or a friend, it's easy to get completely sucked by RBI 2 Baseball as you battle through the leagues. Wall worth pitching for."

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FREE Fuse packs and start to explore the "Silica Systems Service."
IN BRIEF: Every once in a while, a game comes along that has such astounding addic-
tiveness that you have to drop everything and play it until you
can take no more. Swap Tiles is one of these games and it
should be approached only if you have several days spare in
your schedule!

Simple gameplay is the order of the day and the idea is to
guide a little yellow 'pacman' over a grid, changing the colour
of every single tile. This is far more difficult than it sounds: it's
all too easy to get yourself trapped, at which point your blob
will do a death spin and sink through the floor. To make mat­
ters worse, the tiles can only support your weight for a short
length of time. Music is standard demo issue material— annoy­
ing, but thankfully it changes with each level.

ST REVIEW COMMENT: "How can such a simple game be so
thoroughly engrossing? Somebody, please format the disk so
I can get some work done!"

IN BRIEF: Penguins is yet another commercial-quality game that's
thrown off its £20 price tag and dived into the public domain. The
concept is very similar to Lemmings

ST REVIEW COMMENT: "Once you've managed to work out
how to play it, Penguins is extremely addictive. The control
method is uncomplicated and the digitised sound superb.
Worth a fiver of anyone's money!"

IN BRIEF: As demo programmers run out of ideas on the
technical front, it's reached the stage where more and more
plays are needed to tempt people into buying their efforts.
The Swiss Megademo's claim to fame is a fully-playable game
for a main menu and fans of the old Commodore 64 titles
Head Over Heels and Batman are going to love this! In common
with those classics, the graphics are isometric and the game
is made up of 10, or so, connecting rooms. Each one contains
a puzzle made up from moveable objects and several obsta­
cles. The idea is to reach the strategically-placed
'golden-pool' and be rewarded with a demo screen.

The game is as smooth as silk, and although the demos
themselves are nothing to write home about, having to work
for them makes all the difference. Should you get fed up, you
can always view the demos by pressing the function keys,
but that would rather spoil the object, wouldn't it?

ST REVIEW COMMENT: "This is a superb game which is
slightly limited by its demo roots. The graphics are excellent,
as is the soundtrack, but you are left wanting more!"
SCOTT KING GAMES
COMPILATION 1
GOODMAN INTERNATIONAL • DISK NO: GD.1836 • £2.75
MEMORY: 0.5MB • SHAREWARE

IN BRIEF: The Scott King Games Compilation is a collection of three games, penned by the man himself over the last year. They have been written in STOS BASIC and are all based on very familiar game concepts. The compilation kicks off with Dotman which is, you guessed it, a Pacman clone. The game is very faithful to the original, right down to the ghost’s eyes, and ghosts float back to the centre of the screen for regeneration. Next up is Mr. Marble, which sees you leaping from platform to platform, collecting marbles. It’s a game of skill and timing, and is probably the best of the bunch. Last, but not least, is Dam Town, the aim of which is to stop a band of marauding aliens who just happen to be in the neighbourhood from destroying the dam which protects your city and home. All classic games at an affordable price.

ST REVIEW COMMENT: “All three games are well executed, but originality is severely lacking. Having said that, three games for under three quid is great value for money.”

BUBBLE TROUBLE
NEW AGE PDL • DISK NO: GAME.100 • £1.50 • MEMORY: 0.5MB • PUBLIC DOMAIN

Yes, this really is an ST game! The graphics may be a little on the dull side, but Bubble Trouble’s sound is spot-on.

IN BRIEF: Take Pacman, replace the ghosts and the guy himself with a few blobs, shake well and you have Bubble Trouble. The aim of the game is to clear a maze of anabolic ‘power-pills’ without being nibbled by a ghost. Manage that lot, and you’ll be transported to the next, incredibly similar, level. It’s old and hackneyed, but somehow it’s still strangely addictive. Quite how blobs are an improvement over the original sprites is a mystery, but the game plays very well and it’s very fast. The sound is also good, consisting of a smart, digitised intro tune and the odd crisp spot-effect. As Pacman clones go, Bubble Trouble isn’t bad at all.

ST REVIEW COMMENT: “Bubble Trouble is an interesting variation on the Pacman theme, but doesn’t have enough originality to cut it. A bit more colour would also improve matters – still, at least it has playability on its side.”

PORK 1 & 2
GOODMAN INTERNATIONAL • DISK NO: GD.1718 • £2.75
MEMORY: 0.5MB • PUBLIC DOMAIN

Don’t let the text-only interface put you off – Pork 1 & 2 have a good deal more atmosphere and humour than many graphical offerings!

IN BRIEF: The computing pensioners among you may remember the Zork series of text adventures, released on the unsuspecting world in the early 1980s. Pork 1 & 2 parody these games, combining the cunning puzzle element of the original Infocom productions with a far-out sense of humour. Both games are text-only – graphical niceties were not available in the early 80s and the new games carry on the tradition. Don’t think for a minute that this limits the appeal of the games, though – once you get used to a text-based interface again, your imagination goes into overdrive and the games just ooze atmosphere. The difficulty level isn’t too high and the programmer offers a complete solution should you get stuck.

ST REVIEW COMMENT: “The atmosphere is amazing and the game’s warped sense of humour more than makes up for the lack of graphics. Two of the best adventures in the public domain.”

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**BODY SHOP**

**MERLIN PD** • DISK NO: MPD.1167 • 99P • MEMORY: 0.5MB • PUBLIC DOMAIN

Body Shop is fun to play, even if you're not a biology student.

Learn your bones and build your own body.

**MINI MAGIC STORYBOOK**

**GOODMAN INTERNATIONAL** • DISK NO: GD.1772 • £2.75 • MEMORY: 0.5MB • SHAREWARE

Just position the characters where you need them and click the button to animate - there is life after Fuzzy Felt!

**ST REVIEW COMMENT:** “A very polished piece of software. Building a body from the bones is very entertaining. Just what the doctor ordered!”

---

**EARLY LEARNING MATHS 2**

**NEW AGE PDL** • DISK NO: BUPRD.27 • £3.95 • MEMORY: 0.5MB • LICENCEWARE

Be prepared to scrape Dizzy up with a spatula if your maths isn't up to scratch!

Answer wrong results in the screen switching to a classroom, where Dizzy runs through the solution. An Operation Wolf-style bonus game makes sure that little minds don't get too bored.

The starting level is completely flexible and answers are entered via a calculator-style keypad, using the mouse. The graphics, as with all Dizzy Lizzy games, are superb, although more could be done in the way of rewards for correct answers.

**ST REVIEW COMMENT:** “A sickeningly cute main character, incredibly corny music and plenty of meanies to despise - what more could you want? Neat graphics and a good range of ability levels make Early Learning Maths 2 one to watch out for.”

---

**CIA WORLD FACT BOOK 1991**

**TUMBLEVANE PDL** • DISK NO: EAC.21 (FOUR DISKS) • £4.50 ALL IN • MEMORY: 1MB • PUBLIC DOMAIN

**IN BRIEF:** Every year, the American Central Intelligence Agency (CIA) produces a book of world facts. Thanks to the freedom of information act, this book is now available in ASCII format through public domain channels for anybody to use. Two hundred and forty seven countries are listed with almost all the statistics you could ever hope to find, including military expenditure, literacy, agriculture and so on. Each entry is broken down into several sections and all can be easily located by using the 'search' facilities of your word processor. A unique reference system ensures you get the heading you need when searching. Unfortunately, the Revenge display program supplied with the book seems to fall over on the larger text files, so you may be better off using a word processor.

**ST REVIEW COMMENT:** “The CIA World Fact Book is packed with information and is ideally suited to school projects, lectures or any other research.”

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**TUMBLEVANE PDL** • DISK NO: BUPR0.27 • 0.5MB • LICENCEWARE

A good education needn't cost an arm and a leg. Just take a look at what's on offer in the public domain

**ST REVIEW COMMENT:** “It makes a real change to find some educational software that takes advantage of the huge potential of the home micro. The on-disk manual is a little flaky, but registration brings a vastly improved printed version.”
SHOESTRING

COMPILATION 1

SHOESTRING SOFTWARE • DISK NO: COMPILATION 1 • £3.95 • MEMORY: 0.5MB • NOT TOS 2.0+ • LICENCEWARE

In Brief: Two games for the price of one can mean one of two things - twice the value, or twice the pain. Fortunately, Shoestring's first compilation falls firmly into the first category. First up is Moon Letters, which is an educational shoot-em-up. The aim is to blast the letters that form a word - hit any by mistake and an alien fires back, depleting your energy!

ST REVIEW COMMENT: "Robot Words and Moon Letters may lack Magic Storybook's professional graphics, but both are great fun to play and, when you consider the word editor, very good value for money."

The second game, Robot Words, is an out-and-out Hangman clone with a robot who, if built, will destroy the earth! As each game ends, the screen switches to a newsroom which gives an animation based on your success or failure. Finally, you get an editor capable of changing or expanding the words used by both programs.

LET'S SPELL 500 • GOODMAN INTERNATIONAL • DISK NO: GD.1771 • £2.75 • MEMORY: 1MB • LICENCEWARE

This program is based around common scenes - such as at the greengrocer or in the bathroom - where the child must spell common words.

FUN WITH WORDS • THE ST CLUB • DISK NO: GAM.163 • £1.45 • MEMORY: 0.5MB • HIGH RESOLUTION MONITOR REQUIRED • PUBLIC DOMAIN

A collection of mono programs written by David Becker of DB Writer fame. Included are: "ABC Jumble", a program designed to help young children learn the alphabet, three puzzle-generation programs and a name generator.

EARLY LEARNING MATHS 2 • NEW AGE PDL • DISK NO: BUPRO.27 • £3.95 • MEMORY: 0.5MB • LICENCEWARE

The forces of good and evil clash in Dizzy lizzy's second educational outing. Using your mathematical skills, it's up to you to take on the 'meanies' in a nine-level confrontation. Cute animation and an all-action meanie-buster bonus game make "EML 2" stand out from the crowd.

DIZZY FUNTIME • NEW AGE PDL • DISK NO: BUPRO.18 • £3.95 • MEMORY: 0.5MB • LICENCEWARE

One of the few programs the public domain has an offer for very young children. Eight mini-games and animations are included and, once again, most feature our fluffy friend, Dizzy.

BODY SHOP • MERLIN PDL • DISK NO: MPD.1167 • 99P • MEMORY: 0.5MB • PUBLIC DOMAIN

Get to know your way around the bone structure of the human body with this unusual package. Medical and common names can be learned and the program includes a 'build the body' option to make sure all of the names and positions have sunk in.

MINI JUMBLE • SHOESTRING SOFTWARE • DISK NO: BY NAME • £2.95 • MEMORY: 0.5MB • LICENCEWARE

A digital version of the word square puzzle to be found in most newspapers. Look at the square, type some words and try desperately to get your name in the high score table. Granted, it may sound boring, but start playing and you'll find it hard to put down!

CIA WORLD FACT BOOK • TUMBLE-VANE PDL • DISK NO: EAC.21 (FOUR DISKS) • £4.50 ALL IN • MEM: 1MB • PUBLIC DOMAIN

All of the information and statistics you could ever hope to find on the world's 247 major nations. An excellent reference system is used which makes finding the information you need as simple as possible.

MATCH MAKER • CALEDONIA PDL • DISK NO: GM.138 • £2.50 • MEMORY: 0.5MB • SHAREWARE

A variation on the classic 'match-the-tiles' theme. This version puts you up against a tight time limit and is much more enjoyable than the pedestrian-paced original.

STATES AND COUNTIES 1.3 • NEW AGE PDL • DISK NO: BUPAM.98 • £2.95 • MEMORY: 0.5MB • LICENCEWARE

An upgrade to this popular package, designed to help you learn place names. It now includes the United Kingdom, Ireland, USA and Africa and takes the form of a 'type the name of the highlighted county' test. Featuring superb graphics, this is one of the best-looking educational programs around.

TOP TEN EDUCATIONAL PACKAGES
Misty
FLOPPYP GHO. DISK NO: DEM.3474 • £2.50 • MEMORY: 0.5MB • SHAREWARE

IN BRIEF: Nobody can deny the power of STOS BASIC for creating demos and games, but push it hard and your program can end up running slower than a tortoise with a broken leg! Misty aims to solve this problem by replacing some of STOS' slower commands with suicidally fast routines that also have the advantage of being more flexible!

A total of 21 extra commands are included and most are designed to speed up screen operations. Some are direct replacements for existing STOS commands while others are completely new. To give you an idea of the power of these new commands, 'SKOPY' is a loose replacement for the SCREEN COPY command, but is twice as fast and also enables you to copy individual bit-planes!

The extension is distributed as part of the Misty Demos which really show off the power of the new commands. Registering for a measly £5 buys you extra extensions for border-busting and raster interrupts!

ST REVIEW COMMENT: "Misty is hugely powerful, but you do have to understand the structure on the screen to make the most of it."

Installation is housed in the Misty Demos, all of which show the true power of the extension. If you think you can cope with the complexity, don't miss Misty!

ST Zip 2.0
THE ST CLUB • DISK NO: DMG.32 • £1.45 • MEMORY: 0.5MB • POSTCARDWARE

IN BRIEF: Archivers are traditionally hell to use, but that's all set to change. Thanks to ST Zip's clever use of GEM, you can forget PC-esque command lines and switches forever!

On loading, you're presented with a dialogue box containing two windows. The first represents the 'ZIP' file and shows a list of the files it contains, while the second is a directory of the disk. Two large buttons control extraction and compression and it's just a case of selecting the files you need and clicking the corresponding button. The speed of the program is blistering and a constant progress report is given on screen. You even get a separate utility capable of creating self-extracting archives! ST Zip 2.0 comes compressed on the ST Club's Disk Mag 32 along with over 1.4 Megabytes of other top quality utilities.

ST REVIEW COMMENT: "ST Zip 2.0 is one utility you just have to have. The compression rate is superb, frequently up to 60 per cent, and the program is fully compatible with the PC version."

Get Misty-eyed and check out the latest inexpensive, handy utilities in our monthly round-up

PSS UTILITIES
TUMBLEVANE PDL • DISK NO: MW/M.046 • £1.50 • MEMORY: 0.5MB • PUBLIC DOMAIN

IN BRIEF: For entry-level MIDI, the Yamaha PSS range is extremely hard to beat. Around £180 buys you a 16-part multi-timbral, 28-key polyphonic synth, but at the expense of some flexibility. Editing patches from the synth is a no-no and the non-standard instrument arrangement also makes most sequencer demo tunes sound awful unless you know what you're doing.

This disk solves the problem nicely: firstly, by the inclusion of a basic patch editor. It certainly isn't award-winning material, but it does get the job done in a relatively painless way. A selection of demo tunes, written specifically with the PSS instruments in mind, also help you to test out your newly created sounds. A system-exclusive librarian (to save your PSS's memory bank to disk) is also to be found on the disk along with a drum machine.

ST REVIEW COMMENT: "The demo tunes are quite nice, but the text-based interface used by the editors falls a little short of today's standards. On the other hand, at only £1.50 to try who's complaining?"

Not only is ST Zip's superb GEM interface streets ahead of the competition, the compression rates put ARC to shame!

Powerful and easy to use: No. but faced with the choice between this and nothing, I'll take the PSS Patch Editor every time!


DATASTORE
CALEDONIA PDL • DISK NO: AU-105 • £2.50 • MEMORY: 0.5MB • SHAREWARE

Setting up a database is just a case of filling out this dialogue. Make a mistake and Datastore will helpfully clear the lot!

IN BRIEF: From the firm that brought you The Guru comes Datastore – an application that will allegedly do for databases what First Word did for word processors!

The First Word influence is immediately apparent when you boot up with the standard buttons along the bottom of the screen and a standard GEM menu and window in the centre. Creating a file is straightforward, as long as you’ve used a database before. The limitations come in the form of restricted search facilities and the fact that you can only have one file open at any one time. Some problems were encountered while setting up, but deleting the ‘SYSTEM’ files and setting the program generate new ones seemed to solve these.

ST REVIEW COMMENT: "Datastore is not terribly powerful, but it does have its interface on its side. The documentation is fairly good and the simple approach might be just what you need."  


SMOOTH DRAW
THE ST CLUB • DISK NO: ORG.56 • £1.45 • MEMORY: 0.5MB • SHAREWARE

In brief: Yet another art package hits the already bulging market. Smooth Draw is very similar to Degas in many ways, although it uses a custom interface as opposed to GEM.

Feature-wise, there’s nothing stunning on offer. You get a selection of all the standard drawing tools and not a lot else. Non-standard screen sizes are not supported, but the program is quite happy to run in ST low, medium and high resolution modes. GDOS fonts can be used in your drawings if you have any loaded and the mouse pointer can also be redesigned thanks to the built-in editor.

There are no major complaints. The program is stable and works well, although the fact that the picture colours are used on the menu screen is a little annoying. The documentation is good and the registration fee of £15 is reasonable.

ST REVIEW COMMENT: "Smooth Draw is not a world-class package, but at least it runs in all three ST resolution modes. If you don’t hanker after the many effects offered by Crack Art and the like, then this is worth a look.”


TOP TEN UTILITIES

1. ST ZIP 2.0 • THE ST CLUB • DISK NO: DMG.32 • £1.45 • MEMORY: 0.5MB • POSTCARDWARE

Archiving is now painless thanks to ST Zip’s superb GEM interface. The compression rates are amongst the best of any ST archiver and the files are fully compatible with PK-Zip on the PC.

2. MISTY • FLOPPYPYSHOP • DISK NO: DEM.3474 • £2.50 • MEMORY: 0.5MB • SHAREWARE

STOS makes it to the big time at last with the release of the Misty Extension. Some stunning effects can be achieved with a little knowledge of the ST’s video architecture, as the built-in demos are only too pleased to demonstrate!

3. DB WRITER & SUPPORT DISK • DISK NO: GD.1672 & GD.1673 • £5.50 • MEMORY: 1MB • HIGH RESOLUTION MONITOR REQUIRED • SHAREWARE

It may be old, but DB Writer is still one of the best word processors in the public domain. Now it comes complete with a support disk, containing supplementary dictionaries for the medical, computing and mathematical fields.

4. BJ-CHROME • CALEDONIA PDL • DISK NO: AU.202 • £2.50 • MEMORY: 0.5MB • SHAREWARE

Canon bubblejet owners can now see their artwork in full colour with the help of this, the BJ version of HP Chrome! Once again, the program is fully GEM-driven and pictures can be sized, cropped and tweaked before being separated and output in four passes.

5. STE STRETCH • CALEDONIA PDL • DISK NO: AU.205 • £2.50 • MEMORY: 1MB • STE ONLY • PD

This is an excellent virtual screen driver that allows you to specify the size of the screen you need at boot-up time. No instructions are included, but pop the program in your AUTO folder and it all becomes self-evident.

6. VDOS PROQUEUE • CALEDONIA PDL • DISK NO: AU.176 • £2.50 • MEMORY: 0.5MB • SHAREWARE

VDOS Proqueue is a nifty program launcher that makes searching through dozens of folders for a buried utility a thing of the past. The program falls short of the Superboot standard in terms of power, but the trendy user interface gives it an edge in the usability stakes.

7. DRUGS DATABASE • THE ST CLUB • DISK NO: UTL.243 • £1.45 • MEMORY: 0.5MB • SHAREWARE

Ever wondered exactly what the doc is giving you in those pills he prescribes? If so, you might find this database useful – just enter the drug concerned and up will pop a simple explanation of its use! SuperCard is included, so you can be up and running in seconds.

8. PAGESTREAM UTILITIES • FLOPPYPYSHOP • DISK NO: UTIL.3429 • £2.50 • MEMORY: 1MB • SHAREWARE

Down loading fonts, fonts, colour lists and many more utilities that will prove invaluable for any serious PageStream user. A tutorial by Atari itself on creating special effects with the use of macros also makes interesting reading. Use with PageStream 2 is recommended.

9. MOUSE TRICKS SUPPORT DISK • THE ST CLUB • DISK NO: UTL.204 • £1.45 • MEMORY: 0.5MB • PD

This collection of utilities will come in handy for Multiprint or Mouse Tricks users. It includes Big Screen, a virtual screen driver for pre-STE machines; the MaxiDisk reset survivable RAM disk; Chameleon, an on-the-fly accessory loader; TOS bug fixes, and much more.

10. FORMDOIT • NEW AGE PDL • DISK NO: UTIL.39 • £1.50 • MEMORY: 0.5MB • PD

This program replaces GEM’s ‘Formdo’ call with its own turbo-charged dialogue handling routines; all dialogue buttons have keyboard equivalents, special characters can be entered into text fields and moving from field to field is made easier by the use of the <RETURN> key. A very simple and effective program.
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<td>VDOS PROQUEUE £2.50</td>
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<td>BODY SHOP 99p</td>
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<tbody>
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<td>CIA WORLD FACT BOOK £4.50</td>
<td>New Age PDL, 30 Anderson Estate, Lower Road, Hockley, Essex SS5 5NG</td>
<td>NAME</td>
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<td>MISTY £2.50</td>
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<td>PAGestival UTILITIES £2.50</td>
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<td>CIA WORLD FACT BOOK £4.50</td>
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<td>MINI MAGIC STORY</td>
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<td>STATE'S SPELL 500 £2.75</td>
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<td>SCOTT KING GAMES COMPILATION 1 £2.75</td>
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<td>DB WRITETR &amp; SUPPORT DISK £5.50</td>
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Family Roots

Family Roots is an invaluable aid to both professional and amateur genealogists. It is designed around an integrated workbench which allows you to create your family tree electronically on the screen by linking directly between the individuals.

The powerful database can be viewed instantly at the click of a mouse button. The search function enables fast cross referencing and multiple screening.

What The Press are saying about Family Roots:

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"Certainly more than you'll ever need, unless you manage to trace your relatives back to Fred and Wilma Flintstone." - Atari ST User.

"All in all, the best genealogy program available for the ST and well worth the money if you are considering tracing your family" - ST Format.

To order your copy of Family Roots, send a cheque or postal order for £24.95 to the address below. A disk with unlisted demos of Family Roots, Around The World and Professional Virus Killer is available for £16.00.

Around The World

Floppishop are pleased to announce the release of their first commercial game. Around The World is an arcade adventure in which you navigate the roads of Phibsos as he navigates his way through 40 taxing levels of sheer enjoyment and adventure.

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Can you rise to the challenge and survive this epic journey by completing all 40 levels?

The game features a large playing area, dozen puzzles, creative graphics, rock falls, explosions, an original soundtrack, 30 early high score tables, 40 levels of increasing difficulty, over 40 colours on screen and much more.

Around The World was programmed over more than a year by The Flathead, better known for their many Homebrew UK titles under the name of The Happening Boys.

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Time for the Blues again – 32 pages filled with informative, useful facts to help you get the best from your ST.

Have you ever wondered whether you’re using your disks as efficiently as possible? This month, Problem Solved takes a careful look at how to get the very best out of disks – a little theory and lots of practical advice.

For the musicians amongst you, MIDI Monthly investigates John The Composer, the excellent TONY TG-100 editor and a couple of Heavenly Music’s superb MIDI song files. There’s also some advice on buying a multi-track recorder.

If you’ve been following our tutorials, there are the final parts of HiSoft BASIC on page 81 and Gajits’ Breakthru, starting on page 78. And if you want to know more about the software you’ll need to run your own business, have a look at the feature on page 86.

XBoot III, UIS, STeno and Cardfile 4 are all put through their paces this month; you can even win a copy of STalker, STeno and Cardfile 4 in our easy-to-enter competition on page 89.

Ask The Experts, Learn The Lingo, Letters and the Blitter End – all the regular features are here. So go on; turn over the page and be enlightened ...
If it wasn’t for floppy disks, we wouldn’t be able to get programs into our STs. Without programs, the machines would be totally useless. This might sound pretty obvious to you, but it’s really surprising how little most people know about one of the ST’s most vital working parts.

Regardless of type of ST you’ve got, you’ll find that knowing more about how floppies work will help you get more out of your machine. The original STs were equipped with single-sided disk drives, but there aren’t many around now. If you still have one and haven’t upgraded, extended formatting will give you a lot more disk space.

Newer models have double-sided 720K disk drives (also known as one Megabyte drives) while some models such as the Mega STE, TT and Falcon have 1.44 MB, high-density drives.

You can buy replacement high-density drives for your ST which involves a small hardware modification. There are two main advantages - an increase in storage capacity and faster data transfer rates.

**DISK STRUCTURE**

When you buy a new floppy disk, it has no structure on it. That is left for the computer’s operating system to sort out. GEMDOS, the part of the ST’s operating system that handles disks, formats a disk so that it has 80 tracks, each consisting of nine sectors. The tracks are arranged concentrically, with track 0 being on the outside and track 79 the inside.

A double-sided disk thus has 80 x 9 sectors on each side, which is a total of 1,440. As 512 bytes of information can be stored in each sector, this would seem to give us a storage capacity of 737,280 bytes. However, some of the disk is used for information about the layout of the disk itself. Track 0 on both sides is used for this, 18 sectors in all. The first sector is the boot sector and there are five sectors for each of the two File Allocation Tables (FATs) plus seven for the root directory. Subtracting these 18 sectors from 1,440 leaves us with 1,422 sectors or 728,064 bytes free for our data.

If we format a disk from the desktop, we get a message that 726,016 bytes are available. Where are the missing 2,048 bytes? Actually they’re still there, but a small bug in TOS hides them from view and prevents software from reporting them as free space.

Occasionally, you will notice that...
the number of bytes used and the bytes available don't seem to add up to the formatted capacity. This is because the operating system deals in clusters (two sectors) as the smallest available unit. Each file is allocated as many clusters as it needs for storage but any space left over will be ignored by the operating system. For example, if a file you know to be 3,500 bytes long will take up four 1,024-byte clusters leaving 596 bytes wasted (4,096 - 3,500 = 596 bytes). It doesn't amount to much but, statistically, you can expect each file you add to a disk to waste half a sector or 512 bytes. If you store around 50 files per disk, they will appear to take up 25K more than you would expect.

The directory area uses 16 bytes of information to store the details of each file on the disk. As there are seven sectors, this means that a standard disk can only contain 112 files or folders in the root directory (you can store many more in separate folders as the information on these is stored in the main data area). In practice, you are unlikely to store more than this on a single disk, but if you've had problems in the past with disks full of small files, this may well be the cause.

**EXTENDED FORMATS**

There are several ways of speeding up reading and writing operations on floppy disk drives. One way is to increase the number of tracks or sectors, or both. Some drives are reputedly able to format up to 86 tracks, each with 11 sectors, giving more than 970K of storage space. Repeated use of extended formats is not recommended - the disks are unreliable and should only be used for backups or archives. On the other hand, they are occasionally useful when transporting big files.

Another method is to cut down the size of the FATs or even the directory area. MS-DOS disks have only three sectors per FAT, saving 2K on each disk, so formatting disks in this way can gain a little. Intelligent formatters such as FastCopy Pro will let you reduce directory space (and hence the number of entries permitted) to save even more. The safest extended format is the standard 80 tracks, but with 10 sectors instead of nine. This gives a capacity of 812,032 bytes free for

**HINTS AND TIPS**

- If you need high-speed reading of data (for example to load overlay files from Timeworks or another disk-accessing program), stick to the standard format or consider a high-density drive.

- If you want to be able to write data quickly, a double-density disk formatted to one sector per cluster with FastCopy Pro is a good bet. High-density disk owners might want disks formatted by a real PC though reading is much slower.

- If you need to store lots of small files on a disk (clipping fonts for example) try breaking them up into groups and storing them in folders. This will avoid problems with the 112 entry limit. Better still, consider archiving them using ZIP, ARC or LZH and making two backups for good measure.

- To verify or not to verify? That is the question. Some formatting utilities let you switch off the verification so that data isn't checked once read from or written to a disk. It takes up twice as long to format or copy using verify. The time savings that you will achieve are well worth the odd problem, but it is purely a personal decision.

- High-density drive owners should be aware that PCs format HD disks with just one sector per cluster. The result is that some PC-formatted disks won't read properly by the ST but it does appear to make them faster at writing data.

- Don't use the more exotic extended formats as they will render your program unreadable and impossible to run. Up to 82 tracks and 10 sectors is fine, but try using more sectors and tracks weakens the disk structure. Every time you read and write to it, files are fragmented and the chances of an error creeping in can rise dramatically.

- It is a good idea to keep defragmenting all your floppy disks every now and again except your master disks of course. Do this by copying the contents of your disks into a RAM disk or a hard drive partition, reformating the disk and copying them back again. That way, the files written to adjacent clusters and data transfer is speeded up considerably - even a mildly fragmented disk proves to be 20 per cent slower in reading and writing.
GLOSSARY
In case you’re still having trouble understanding some of the technical terms that have been used in this article, here’s an explanation.

Boot sector - The first sector on every disk or partition is the boot sector. On a standard floppy it is side 1, track 0. It contains important information about the structure of the disk and may also be executable due to it being a commercial game disk or, sadly, a virus.

Cluster - A cluster is the smallest memory unit understood by the operating system. Even if a file is only one byte long, it will take up a whole cluster (1,024 bytes) on the disk. Standard TOS disks have two sectors to a cluster.

Density - The standard ST uses double-density (DD) floppy disks. Mega STEs and TTs (as well as STs that have had high-density drives fitted) can use high-density (HD) disks. The two are essentially the same but the HD disks are manufactured to higher tolerances and can support a greater density of magnetic data. HD disks have an extra hole with no write-protect flap.

FAT - The File Allocation Table is used by TOS to determine where files are actually stored on the disk. Each cluster on the disk is represented by a 12-bit long item in the FAT and there are two FAT tables on every disk for file security.

Fragmentation - When a file is deleted from a disk, the clusters that it occupies are then freed for the operating system to use again. If a larger file is subsequently written to disk, those clusters will be used but the remainder of the file will be written in free clusters elsewhere on the disk. The file is thus stored in two separate locations on the disk. With every subsequent deletion, the disk gets more and more fragmented, eventually causing ‘lost clusters’ as the OS loses track of where it stored the data. While some fragmentation is unavoidable, it should be kept to a minimum.

GEMDOS - The GEM Disk Operating System is part of the operating system that deals with reading and writing of files and disks.

Sector - Each track on a disk is divided into sectors, each of which stores up to 512 bytes of data. Standard formats use nine sectors but 10 and 11 sector disks are widely used too.

Track - A floppy disk is formatted in concentric rings called tracks. Normal disks have 80 tracks per side, numbered from 0 to 79 with 0 on the outside and 79 on the inside, but some floppy disk drives will support up to 88.

READ AND WRITE SPEEDS

<table>
<thead>
<tr>
<th>Disk type and format</th>
<th>Free space (in k)</th>
<th>Time to read</th>
<th>Time to write</th>
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<tbody>
<tr>
<td>Standard TOS disk (80 tracks/9 sectors)</td>
<td>726,016</td>
<td>57</td>
<td>144</td>
</tr>
<tr>
<td>Extended format disk (80 tracks/10 sectors)</td>
<td>812,032</td>
<td>66</td>
<td>172</td>
</tr>
<tr>
<td>Extended format disk (82 tracks/11 sectors)</td>
<td>915,968</td>
<td>73</td>
<td>186</td>
</tr>
<tr>
<td>One sector per cluster (80 tracks/9 sectors)</td>
<td>728,064</td>
<td>61</td>
<td>88</td>
</tr>
<tr>
<td>MS-DOS disk (ST formatted)</td>
<td>730,112</td>
<td>59</td>
<td>150</td>
</tr>
<tr>
<td>MS-DOS disk (PC formatted)</td>
<td>730,112</td>
<td>82</td>
<td>191</td>
</tr>
<tr>
<td>HD disk (80 tracks/18 sectors)</td>
<td>1,462,272</td>
<td>40</td>
<td>295</td>
</tr>
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<td>Extended format HD disk (82 tracks/20 sectors)</td>
<td>1,666,560</td>
<td>42</td>
<td>293</td>
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<td>One sector per cluster</td>
<td>1,461,248</td>
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The above tests were carried out three times (or more where the results were particularly puzzling) using the same floppy disk in each case (where possible). The figures show the time taken to read or write 28 files and a folder (just over 500K) to or from a RAM disk. The same high-density disk drive (courtesy of System Solutions) was used for all the tests though similar results were obtained when some tests were checked on a 720K drive.

One of the oddest results was the performance of HD disks formatted by a PC - they showed a marked superiority in writing speed which is rather hard to explain, especially as the PC-formatted DD disk is much slower.

The other noticeable result was the standard DD disk formatted with only one sector per cluster - it showed a significant improvement in writing speed for only a marginal decrease in reading speed.
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MIDI MONTHLY
HELLO JOHN,
GOT A NEW SONG?

Meet John The Composer, a friendly-faced virtual musician who creates music with you.

John The Composer’s main screen. Immediately below the menu bar, the Play button, John’s Inspiration Buttons and John himself. Underneath here is the Edit area where you can draw on the screen, and, below this, the INFO window. The nested boxes at the bottom of the screen show the song sections.

John makes up and plays new compositions in a flash. He helps you to design new styles of music and create your own songs. He does what you tell him and only helps you if you want him to. What a guy!

John The Composer resides in a very novel music package of the same name. He works in a totally unique fashion, enabling you to write music without ever having to specify particular notes or rhythms. All that’s required of you is to make a series of choices about what you’d like to hear. This involves choosing menu items, moving graphic sliders, clicking on icons and drawing wiggly lines on the screen. John takes care of all the fiddly bits, analysing all of your sections and turning them into actual musical notes.

Despite John’s obvious friendliness and eagerness to help, this program is no walkover and has a fairly steep learning curve. Although musical ability is not required, a little understanding of music is likely to go a long way. Getting results takes no time at all, but getting really good results takes a little longer. So, let’s get in at the shallow end.

CHOOSE STYLES

The first thing that John asks you after loading the program is whether you’d like him to examine a folder on your disk. He’s not being over-friendly here. One of the smartest things about John is that he can guess your taste in music by looking at all the saved files in a folder of your choice, so that the initial parameters won’t be too far from where you want to go. Save all your work corresponding to one style of music in one folder, and, if asked, John will take a peek before coming up with what he considers a typical range of settings for that style of music. After listening to John’s suggestion, you can either work on it straight away or you can select ‘Change Towards’ from a pull-down menu to get him to make it sound more like a particular file in the folder. All of this is optional - if you prefer, you can just let John set the musical mood according to his own taste.

The first thing you’re likely to want to do is to make some decisions about the overall structure of the music. Each composition can have up to four sections known as I, A, B and C. These may correspond to Intro, Verse, Chorus and Outro - or anything you like. After assigning a length and time signature to each section, you can decide whether to allow triplets to be generated and, if so, at which points. These sections can now be made to play in a particular order simply by typing it in - for instance, IABABC.

SCREEN LAYOUT

Your sections, and the bars they contain, are represented along the bottom of the main screen as a series of nested boxes. Above these are two large, black rectangles. The top one, labelled EDIT, is used for drawing information into the program with the mouse, and the bottom one is for displaying other information of your choice. Drawing with the mouse, you can specify the movement of melody lines, the different amounts of notes used by instruments, the levels of syncopation and various other things.

At the top left of the screen is the large Do It – Play button with its Repeatedly option and, to its right, several smaller buttons - some with icons, others with names. These are called John’s Inspiration Buttons. They are used to tell John to make something up in accordance with the instructions you have been giving him. Click on the snare drum icon and John will instantly re-write the snare for the whole song. The Chord Rhythm button changes the rhythm of the chordal accompaniment. A pair of buttons, one labelled Rhythm and the other Movement, are used for both the bass guitar and the melody. They enable you to instruct John to invent either a new rhythm or a new set of pitches for that part. You can have a lot of fun using just one button - John will think up something new every time you press it.

JOHN’S POWER AND YOU

Just how influential the Inspiration Buttons are on the music depends on how much power you have given John for that particular function. The more power John gets, the less closely he follows the lines which you draw on the screen. If John only has a little power, he will only affect the music slightly. Sometimes, he seems to make things more random - other times he behaves quite musically. He’s unpredictable.

Well that’s John. But what power do you have to influence proceedings? After defining your time

The idea of getting your computer to write music for you is not new. Greek composer Iannis Xenakis was doing it on a mainframe in the 1950s and, since MIDI, there have been numerous commercially-available programs. For the Atari ST, Dr. Ts’s M and Hybrid Arts’ Ludwig were early ones and Steinberg’s T Top very much more recent. Fractal Music and Fractal Music Composer are two packages which use fractals as a basis for generating musical variety. PG Music’s Band In A Box and JCD’s Feeling Partner generate automatic song accompaniments and you can create your own styles.

Creative Sounds’ Improvisor takes four-track accompaniments as input and generates instrumental solos over them.
signatures and part lengths, the next recommended step is to figure out some chords. Each part can be in a different key, and there’s a window that lets you pick these. The Chord Selection window enables you to pick the chords you’d like to hear - they will be automatically transposed if the key changes. You don’t need to specify an exact chord sequence - John will handle that - but you are required to give some indication of the relative levels of occurrence of each chord. For example, if you make C=1 and G=1 then there will be a 50 per cent likelihood of each chord being picked. C=2, G=2 and F=1 will give 40 per cent, 40 per cent and 20 per cent probabilities, respectively.

REPETIVITY
Now for an idea which can be difficult to grasp, whether you’re a musician or not. It’s a clever one, and is worth spending some time with. It’s called Repetitivity. Every instrument can have its own repetivity, which is controlled by its own bank of 12 repetivity sliders. The sliders are labelled in units of time which are progressively doubled up, from a sixteenth-note for the leftmost slider, then an eighth-note, quarter-note and so on to 64 bars and beyond. Each slider may be set to any percentage value. The position of each slider represents the amount of rhythmic repetition that will tend to occur within that time period. To take a simple example: if all sliders are in a low position for all the time units of up to one bar, but are at 100 per cent for all time units of two bars or more, then the rhythm will tend to repeat exactly every two bars, but within a single two-bar chunk there will be little noticeable repetition. Raising the half-bar slider will increase the tendency for repetition for that time period - in other words, the second half of each bar will sound more similar to the first half. You can create repetivity which is just right for the music - on the one hand, you can prevent things from repeating too precisely and, on the other, you can stop the repetition from becomingmeaninglessly random.

RHYTHM AND MELODY
Each instrument can have varying levels of syncopation and note amount. As mentioned earlier, these can be drawn onto the screen in graph form using the mouse. Take the case of the snare drum. Give it a high level of syncopation and a low amount of notes, and it will tend to play on the off-beat (beats two and four in a four-beat bar). Low syncopation and a low number of notes will create a tendency towards an on-beat (beats one and three). The program divides the bar into whole beats when the note amount is quite low, but divides it into smaller divisions when the note amount is high. So a high note amount may divide the bar into sixteenths. With low syncopation, this will cause the drum to play on the odd-numbered divisions, and high syncopation will force it onto the even-numbered ones. By drawing lines to change the note amount and syncopation levels gradually, you are controlling the rhythm to a high degree, without ever specifying individual notes.

The melody instrument can also have a line drawn for it which determines how the tune moves up and down in pitch. A separate Melody Movement window lets you specify other considerations of melody, such as the pitch range, average pitch, how closely the melody follows the chord underneath it and sticks to the notes of the scale that naturally occur in the song’s key. Again, specific notes never have to be given.

PROS AND CONS
Manual too brief on difficult concepts
Some patience required

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RELEASE DATE: OUT NOW
MIN MEMORY: 1MB

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89%
The Multi Edit page, with a sub-window displaying the multi parameters of a selected part.

but they're smarter and easier on the eye.

An on-line help facility flashes informative messages at the bottom of the screen every time the mouse pointer moves over a clickable object. This can be turned off, and it's also possible to save memory by renaming the help data file so that it doesn't get loaded.

IN THE BANK

The main screen, the Manager page, shows a bank of 64 sounds and a library area. Although you can only see one 64-voice bank at a time, Tony is actually able to manage four banks at once. A bank is equivalent to the 64-voice internal memory area of the TG100. Flipping between banks requires a single click on a numbered button. Other buttons on this screen invoke more bank options. The list of voices can be printed, erased, sorted alphabetically or copied in bulk to the library area or to another bank. On top of this, voices may be individually auditioned or renamed.

Among Tony's most useful attributes are its five buffers, which can be accessed from various windows by clicking in a specially shaded area of the title bar. A menu drops down with the names of the voices currently held in the buffers. Each buffer holds one voice, so it's possible to work on several voices at a time and to switch between them without leaving the page. This feature is also handy for quick transfer of voices between banks.

Copying single voices to other locations in the bank or to the library is achieved by clicking and dragging with the right mouse button. The Multi Editor page shows multi editor parameters. A series of buttons is provided to enable parts to be selected, a voice can be played from a MIDI keyboard or from Tony's own mouse keyboard. It is also ready to be edited.

The library enables attributes to be attached to any, or every, voice, so that they may be categorised in any way and then searched for by category. Printing and alphabetical sorting are available. There is also a function which deletes voices and the management of those sounds, via the big screen. The graphics are sophisticated.

The aim is to provide the best possible control over the sounds, and the management of those sounds, via the big screen. Judging by first impressions, Tony is a pretty smooth character. The graphics are sophisticated, with windows and dialogue boxes that perform gentle fade-outs when closed. Tony is mostly mouse-operated, with the feel of a kind of up-market GEM - all the familiar GEM-like objects are there.

One thing that could make the Yamaha TG100 Tone Generator more popular is patch editing software. Steve Wright makes music with a new friend.

When will it end? Tony the Yamaha TG100 patch editor called Sharon. Where will it end? What will happen to the Yamaha TG100 patch editor called Sharon?

Tony is public domain software, so it's likely to be a bargain, however good it is. As with all patch editing software, the aim is to provide the best possible control over the sounds, and the management of those sounds, via the big screen.

Tony was designed by Y-not Application Design, a breakaway group of Steinberg programmers. Y-not has produced a range of editors for various synths. Unlike Tony, these aren't PD, but can be bought from Newtronic Ltd.

Newtronic's current list includes editor/manager/librarians for TG100, GEM and Roland devices. The Yamaha SY99 editor is called System 99 and costs £260.00. The Kong 01/W synth and GSR/W rackmount are serviced by editors called Shapes and Aftershapes, retailing at £95 and £59 respectively. Roland JV80/80 owners need Live at EDF. Alexis in the £199 Alexis 4D down machine editor, while Edit is the £95 Yamaha SY55/155 editor. Newtronic can be contacted on 081 691 1087.
George Gershwin's Rhapsody In Blue and Bernard Herrmann's film score for Alfred Hitchcock's Psycho are two uniquely fascinating works, now available as Standard MIDI Files.

What's the point of having the MIDI File of a composition if you can just go out and buy the CD? One answer is that MIDI Files enable you to explore the music in a way that would otherwise be possible. Once you load it into a sequencer, it's possible to start playing around with the music - you can turn instruments up, down or off, change them to different instruments, change the tempo, create your own dynamics - even down the tiled wall.

All of Rhapsody In Blue's nuances are captured, including the opening clarinet solo. There is even a solo piano MIDI File.

The 43 MIDI Files for Psycho include the music for the Theme, as shown above in Cubase, and the dreaded bathroom scene.

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The 43 MIDI Files for Psycho include the music for the Theme, as shown above in Cubase, and the dreaded bathroom scene.
Adding multi-track tape to your existing MIDI setup opens up a whole new world of musical possibilities. It can be an expensive business, though, so it makes sense to consider your needs carefully before opening your wallet. As a computer-based musician who has yet to get hold of a multi-track tape recorder, you are part of an increasing target market for the manufacturers - a fact reflected in their ever-widening ranges of four- and eight-track recorders.

**MAKING TRACKS**

First you need to decide how many tracks you need. Can you make do with four? If you can, you'll save money, but first make sure that four will be enough. It's a huge advantage to have your tape machine synchronised to your ST, so that when you run it your sequencing software will start playing your MIDI equipment perfectly in time with it. This enables you, for example, to do some sequencing, record some vocals and then do more sequencing without ever having to put your sequenced instruments onto tape. It saves loads of tracks, but is only possible if you use one track for timecode (you'll normally need to buy a separate sync box to generate and read the code). In brief, timecode uses up one tape track, but provides you with numerous sequencer tracks synchronised to the movement of the tape.

Tape tracks can be made to go further by 'ping-ponging' or 'bouncing' tracks. After recording two or more tracks, they can be mixed onto a new one, making the originals available once more. There are disadvantages - each time you bounce you record more tape noise, and therefore lose some sound quality. Worse still, once you have mixed two or more tracks together and recorded over the originals, you can't change your mind about the relative levels of the bounced music - if one instrument is drowning out another, it's too late to do anything about it without starting again.

**INPUTS**

Regardless of the number of tracks you opt for, you'll still need to work out how many audio input channels you'll need. Most four-track recorders come with a built-in mixer with anything from four to 16 inputs. Think about the kind of recording situations that are likely: for example, if you expect to record a performance involving a stereo drum machine, an acoustic guitar, a voice, a bass guitar and a stereo synthesiser all playing at once, you'll need two inputs for the drums, two for the microphones (one for guitar, one for voice), one for the bass guitar and two for the synth, a total of six. This doesn't necessarily mean that you'll need as many tracks - a track may take more than one input and the recording levels set before recording begins.

**OPTIONS**

Having decided on the minimum number of tracks and channels, you can start comparing other features of the various models. Most four-track machines and some eight-tracks use ordinary cassette tape. Some record and play at higher than normal speed, which increases the sound quality but means you get through cassettes twice as quickly. Equalisation (EQ) is an important consideration but is limited on four-tracks - the ideal situation, if you can afford it, is to have multi-band EQ on each channel. Built-in synchronisation is a bonus, removing the need to buy a separate sync box.

**WHICH ONE?**

The leading manufacturers are Tascam, Fostex and Yamaha - all make machines aimed at home-recording. Tascam four-tracks start at £369 for the Porta 05 HS Ministudio, a high-speed recorder. Next come the Portastudios, ranging in price from £499 for the 424 (eight inputs, four tracks) to £1,299 for the 488 (12 inputs, eight tracks). Fostex produces some inexpensive machines, notably the X-18 and the X-28, at £299 and £330 respectively. Both are normal speed four-tracks, with the X-28 offering eight inputs, synchronisation and limited stereo EQ. The X-28B is a high-speed version of the X-28, and costs £399. At £699, the Model 280 Multitracker has eight inputs, four-band EQ and two auxiliary sends (for effects) on each channel, and good audio specifications. The Fostex R5 is a reel-to-reel eight-track which, in some setups enables you to operate its transport controls from your MIDI sequencer.

Yamaha's MT120 is a good value two-speed four-track with four inputs, five-band EQ and a sync option for £399. You can switch the EQ on and off and hear the difference between signals.

**FURTHER INFORMATION:**

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NEW TITLES ARRIVING REGULARLY
Last month we gave you Breakthru on the cover disk. This month, in the second part of the tutorial, we take a trip around some of its functions.

If you followed last month's tutorial, you should have been making some interesting rhythm tracks over the past month. With some MIDI equipment, you can take this further - even with the demo version from the cover disk.

All you need to use Breakthru with MIDI is a keyboard with sounds on-board or a master ('dummy') keyboard. This only sends MIDI information, and so has no sound module built-in. Figure 2 shows the connections for the latter. Don't worry about which MIDI channel your keyboard is sending MIDI information on, as Breakthru's 'soft thru' function handles this via the MIDI channel that you set per track.

THE SONG ARRANGER

Load up the MAPLERAG.BTD song from the Breakthru demo disk - you should see the Important Notes dialogue box appear (Figure 2). Go to the Song Arranger by pressing the FB function key. Here you should see the three tracks that make up the song, along with comments about the different parts of the song along the top of the screen. These come from the Cue List on the right-hand side of the Track Screen.

The Song Arranger shows you 29 consecutive bars across 15 of the sequencer tracks. Each of the bars is shown as a small box which either has some MIDI information recorded in it (solid black) or is empty (white). So, from this screen you get a complete view of which bars have been played in for each track (Figure 3). The current bar is shown as a vertical, black strip which moves from left to right along the screen until it reaches the middle when the bars then move towards the left. The bar numbers are shown along the bottom of the editor and the current track number is inverted in the column down the left side of the editor.

The vertical, black strip always shows the current bar as indicated in the Song Position box of the Transport Control. This means that you can use the tape deck controls as usual, but the horizontal bar number display gives you other facilities as well. Clicking on a bar number makes that the current bar. If the bar number is less than 15, it will automatically position itself in the centre of the window. If it's greater than 15, it will move itself to the position of the bar. This is the easiest way to change the current bar number.

WORKING WITH THE CLIPBOARD

With Breakthru you can grab part of a recorded track and either get rid of it, move it somewhere else in the song, or copy it and use that copy in other places. This is useful if, for instance, you have played in the drum part for a verse and want to use the

**STEP BY STEP**

1. Select the track you want to copy from and left click on where you want to start from.

2. The Copy Confirm dialogue box appears. Click on OK if you're happy with your selection.
same part for all the verses. Breakthru has a 'clipboard' which works by placing something onto it and then allows you to do with it what you want to do with it.

Once you have set the start and end points for a block, you can save it to the clipboard by using either Cut or Copy, both found in the Block menu. Cut removes the bars from the song, while Copy leaves them alone but saves a copy of them instead. You can then place them somewhere else in the song by using the Paste command, also found in the Block menu. This makes creating a song much faster and easier.

To work with a single track, go to the Block menu and make sure that the Select All option is unticked. Now decide which track you want to copy bars from and click on the first bar to be included. The top of the screen changes to the 'Select Area' message while the cursor becomes a hand. Move the cursor over to the left and watch the colour of the bars invert. When you get to the end of the block that you wish to use, click on the left mouse button again. If you make a mistake, cancel it by simply clicking on the right button. The start and end bars are transferred to the Start and End position boxes.

Press Control-G on the ST and the selected bars will be saved to the clipboard; a dialogue box appears on screen to show this.

**CUT, COPY AND PASTE**

To copy some bars to another point in your song, first of all decide whether you want to copy the MIDI info from one bar or from all bars and set the Select All option (in the Block menu) accordingly. Now click on the first bar (the 'Select Area' message appears at the top of the screen again), click on the last bar, and go to the Copy option in the Block menu. Click on this and you get the Confirm box which you can 'OK' or cancel.

This leaves the original intact on screen. If you want to move some bars, go through the same process but choose the Cut option from the Block menu. You can always go back to the Block info option to see what is currently saved to the clipboard.

Both Cut and Copy place the block in the clipboard. If you select Delete from the Block menu instead, it simply removes all MIDI info from that block. If you do this, all of the inverted block boxes in the Song Arranger subsequently change to white.

Once you have something saved to the clipboard, you can decide where you want to paste it. If it's a MIDI block for a single track, select the track that you want to place it in, and make the starting point the current bar by clicking on that bar in the bar number indicator. Now choose the Paste option - up comes the Confirm Paste box which tells you which track is going to be pasted to and at which bar, and you can then decide how many times. If you have a good, one-bar drum riff which you want to use throughout the song, simply set the number of copies to whatever your total number of bars is. You can even use the Save/Load Block options to save your favourite riff to disk and load it into another song at a later date.

If you have Select All ticked when you come to use the Paste function you don't need to say which track is being pasted to. The Confirm Paste box still asks you how many times you want to paste this in, so you use this to copy an entire section. For example, you might have all the instrumentation the way that you want it for the eight bars of the first verse and decide that you wish to duplicate this for the second verse as well. Simply copy the eight bars to the clipboard, click on the bar number which is going to be the starting point and select Paste. Another situation where pasting all of the tracks would be useful is where you have a number of identical outro bars over which you are going to fade out the music. Copy, click on the bar number for the first bar, and set, perhaps, five copies from this point.

Instead of always having to click on the first and last bars of a block, there is another method. If you have Limit selected, Cut, Copy or Delete will work on the bars between the Start and End markers. This is useful if you want to use the Paste facility on a section you have just recorded in Loop mode because the Start and End markers are already set.

**WHAT HAVE I RECORDED?**

Once you start recording a song, you often need to know more about what you have recorded - for example, you may want to find out whether you have used pitch bend or what was the last bar that you recorded on a particular track. Control-T brings up the Track Info box (Figure 4) which gives you details of the make-up of this track. The first things it notes you could see without this box: the track title, MIDI channel and Program Number. It also tells you various other things: to the left are the Volume and Pan values which act in a similar way to the Patch Number, a special MIDI message is sent out at the start of a song to set the volume and stereo position of the instrument recorded on the MIDI channel for this track - a bit like an automatic mixing desk. These messages are automatically sent out when you first load an existing song.

The main box shows the other recorded aspects of MIDI on this track, which include pitch bend, controller changes and MIDI controllers such as sustain pedal or the modulation wheel. If you have recorded such MIDI info, the words will be in solid black, otherwise they will still be shown in grey. Do check this; for instance, it is quite easy to accidentally record patch changes and to find that the wrong sounds are being selected in the middle of a song, which makes the song sound quite embarrassing.

Time to play ... good luck and have fun!
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WORKING WITH
HISOFT BASIC

WRITE YOUR OWN ADDRESS BOOK - PART FIVE

This is the last in our series of HISOFT BASIC tutorials and this month we will complete the address book program. Last month you saw how to load a resource file and use FNform_dial to access the address book program. Last month we examined its contents. Before we continue our voyage into the mysteries of the AES and GEM, there are a few things that need tidying up.

LEGALISING YOUR PROGRAMS
In technical terms, an illegal program is one that doesn't follow the GEM guidelines laid down by Digital Research (the developer of GEM) and Atari. While an illegal program may work, there's a good chance that it may turn out to be incompatible and crash. One example of an 'illegal' code already exists in our address book program. Whenever FNform_dial is called on to draw an object, it should call the AES sub form_dial twice - once before you draw the objects and again when you have exited FNform_dial and are about to redraw it or exit the program. In its full implementation, form_dial draws the grow and shrink boxes. These, however, are rather unnecessary and tend to slow the system down, so we've skipped past it. A stripped down version of the call is found in Listing 1, though don't forget, you need to include GHT.BAS and ADDRESS.BH. The purpose of these calls is rather complex, but, in a nutshell, they inform the AES about your program's activities, so that when it has finished, GEM can restore its internal variables. For instance, if your program opens a window over another window, the AES will inform the other program when it needs to redraw the 'stolen' portion of the screen.

Copy the files ADDRESS.RSC, ADDRESS.BH and HGT.BAS to your work disk before you run the program. These files have been modified to accommodate several new features. The resource free and system commands have moved out of sub-quit and into the main loop. It is not good practice to exit a program from a sub. Instead, you should use a flag which is a common programming technique. Instead of just quitting the program, sub-quit will assign a value of one to the variable "finished". The main loop will then exit as it constantly checks for this (LOOP UNTIL finished). The new sub-quit is in Listing 2.

FINDING TEXT
Instead of using the INPUT command, you can enter the search string directly into the dialogue box. Since the box may already be displaying text, clicking on the Clear will delete the previous text. Another HGT routine is sette_ptext, the counterpart of gette_ptext. The sub sets the text in each line in the box and is used in exactly the same way as gette_ptext, passing two parameters. The first parameter is the object name and the second is the text string you want to display (which is a null string in this case). Listing 3 shows how the clear routine works in conjunction with the new version of sub-find. Remember, sette_ptext does not actually draws the text on screen, this is done by FNobjc_draw.

Whenever you want to find a name, or enter a new one, you will need to use the Clear button to call the sub. When the box is clear you can enter the text and click on New to store the new cell or click on Find to search for the text in the book. Since the old sub, find, used INPUT to get the search string, it will also need to be changed. All you have to do is change one line and add it to the program. The sub, find, calls sub show_cell to display the contents of the cell it locates.

DISPLAYING A CELL
Our original display routine, sub

Listing 1

'a legal main loop for the address book
DO
form_dial 0,0,0,0,0,x,y,w,h; 'co-ordinates obtained with form_center
dam=FNobjc_draw(tree6,0,10,x,y,w,h)
but=FNform_dial(tree6,line1)
deselect but
SELECT CASE but
CASE=save_book CALL save_book
CASE=quit_set CALL quit
CASE=info_set CALL info
CASE=new_set CALL new_name
END SELECT
form_dial 0,0,0,0,0,x,y,w,h; 'second form_dial call
LOOP UNTIL finished
junk=FNrsrsc_free
SYSTEM

Listing 2

'new quit routine works by setting a flag
SUB quit
STATIC a$,but
SHARE finished
a$="[2]|Save address book | before quitting? |J|Save|Quit|Cancel"
but=FNform_alert(1,a$)
SELECT CASE but
CASE=3 'EXIT SUB
CASE=1 'CALL save_book
END SELECT
finished=1
END SUB
Clicking on the Speed button turns off all error checks and reduces the memory requirements of your programs as well as making them run faster. The trade-off is that any programming mistakes will result in a system crash.

The HiSoft BASIC compiler attempts to locate your mistakes and prevent system crashes.

When the program first runs, the variable cur_item is already set to zero. If we insert a call to show_cell just before the beginning of the loop, the program will automatically display the first cell (starting with item 0) when it starts. If we want to show the next cell, all we need to do is increment cur_item by six—which is the number of items in each cell—then call show_cell to set the text in the box. Similarly, to view the previous cell we do the opposite.

There is the possibility that the user will try to select the previous button while the first cell is displayed. This will cause the program to crash because an array cannot have negative elements. To solve this, we need to trap this possible error as well as the possibility of the user trying to scroll beyond the last cell which will result in an empty cell or a crash. The new sub—which calls prev_cell—is shown in Listing 7 along with the new main loop.

**LISTING 3**

```
LISTING 3
SUB clear_box
STATIC a$ = ""
sleep text line1,a$
sleep text line2,a$
sleep text line3,a$
sleep text line4,a$
sleep text line5,a$
sleep text line6,a$
END SUB

SUB find
SHARED items,book$()
STATIC i,rch$,a$,b$,m$,dum
get_sleep text line1,rch$
bs=Ucases$(rch$)
FOR i=0 TO items:STEP cell_size
a$=ucases$(book$(i))
IF instr$(a$,bs) THEN
    show_cell i
END IF
NEXT i
EXIT SUB

CASE=clear_text CALL clear_box
CASE=find_text CALL find
```

**LISTING 4**

```
LISTING 4
SUB show_cell(start)
SHARED book$(),items
set_sleep text line1,book$(start)
set_sleep text line2,book$(start+1)
set_sleep text line3,book$(start+2)
set_sleep text line4,book$(start+3)
set_sleep text line5,book$(start+4)
set_sleep text line6,book$(start+5)
cur_item=start 'tell the main loop which cell is on display
END SUB

CASE=delate_text CALL clear_box
CASE=find_text CALL find
```

**LISTING 5**

```
LISTING 5
SUB remove_cell(start_item)
SHARED book$(),items
STATIC i,b,a$
a$=["2"] "Delete cell.
| Are you sure?
| [OK] [Cancel]
but=Findform_alert(2,a$)
IF but=2 THEN EXIT SUB
items=items-cell_size
END SUB
```

**DELETING A CELL**

Another useful facility is being able to edit an existing cell. Again, the cell must be found using sub-find and displayed in the dialogue box. This lets you edit the text in the box, delete and add text. If you click on New, a new cell will be created and, as a result, the old and new versions are stored in the address book's memory. This is not ideal and what is required is a new sub which works very much like the sub new_name, but instead of the user trying to scroll beyond the last cell which will result in an empty cell or a crash. The new sub—which calls prev_cell—is shown in Listing 7 along with the new main loop.

**LISTING 7**

```
LISTING 7
SUB show_cell(start_item)
SHARED book$(),items
STATIC i,b,a$
a$=["2"] "Delete cell.
| Are you sure?
| [OK] [Cancel]
but=Findform_alert(2,a$)
IF but=2 THEN EXIT SUB
items=items-cell_size
END SUB
```

**SCROLLING**

Occasionally, you will need to scroll through the address book instead of just using Find. Two new buttons, Next and Previous, are provided to do just that. Before we go ahead and write more subs, let's go back to the main loop.

**DELETING A CELL**

Generally, using a GEM interface makes programming more complex, although deleting a cell is greatly simplified by the flexibility of a dialogue box. To delete a cell, you must first clear the box by clicking on Clear, then enter a search string and click on Find to find and display the cell. Lastly, you must click on Delete to remove the cell from the address book. This is when the new variable, cur_item, comes into play. Since we now know which cell is displayed in the box, all we need to do to delete it is to call the original sub remove_cell and pass the cur_item as the item to start deleting from. It's always a good idea to give the user a chance to cancel 'dangerous' operations and a friendly alert box is in order. You can copy the sub remove_cell from the original program and add an alert box which can be canceled before deleting.

The new version of the sub is in Listing 5. Note the call to show_cell; this is necessary so that the deleted cell will be removed from the screen.

**DELETING A CELL**

The variable cur_item is used to start the search string and click on Find to find the differences between them.

This lets you edit the text in the box, delete and add text. If you click on New, a new cell will be created and, as a result, the old and new versions are stored in the address book's memory. This is not ideal and what is required is a new sub which works very much like the sub new_name, but instead of the user trying to scroll beyond the last cell which will result in an empty cell or a crash. The new sub—which calls prev_cell—is shown in Listing 7 along with the new main loop.

**DELETING A CELL**

The variable cur_item is used to start the search string and click on Find to find the differences between them.
FINAL TOUCHES

The HiSoft BASIC compiler is set by default to check for various programming errors and to warn you while compiling.

Some errors can escape, such as the possibility of scrolling beyond the bounds of an array. When such errors occur as your program is running, it will crash and return control to the BASIC editor. Such errors normally 'mess-up' the system and display those infamous bombs but, thanks to the compiler error trapping, serious crashes are normally prevented. This comes at a cost, though.

The complex process of error trapping uses memory and slows your program down. When you are sure that your program is working correctly, you can switch this off to make your program more compact and faster. These options are found in the compiler dialogue box and you can click on Safety to disable it. You may also disable Error Messages which reduces the memory requirements even further. You have to use these options carefully. Once disabled, even the slightest bug in your program can crash the computer and you will not get any information as to why this has happened, although you can re-compile the program with the Safety option to help you locate the errors.

Another useful option is the feature to suppress the default window. Whenever you compile a program the HiSoft BASIC default window is opened. This is required for statements like PRINT and for VDI calls. The address book program, however, does not need a window and is limited to a single dialogue box. It is possible to suppress this window by adding the line - REM OPTION at the beginning of the program.

The full source code and resource files are on the cover disk for your reference.

THE WAY FORWARD

If you’ve followed this series of articles for the last nine months, I am sure you would like to know more about GEM and programming in general. For a start, you should consider getting HiSoft BASIC 2 if you haven’t already. The new version includes WERCS, the full NGT source and many other utilities. The 800-page manual will also go a long way to answering your questions. Additionally, you could get My First BASIC, also from HiSoft, which is a book designed specifically for the novice programmer. This book will take you through the basics and get you started.

With the imminent arrival of two exciting products, namely the Falcon and MultiTOS, HiSoft is busy working on new versions of its product range to accommodate the new features they offer.
PUT THE BOOT IN!

When you first upgrade to a hard disk drive, the AUTO programs and accessories start to mount up. Each time you get a new PD disk, more programs seem to collect in the AUTO folder and the accessories proliferate in the root directory of your boot disk. This can, of course, lead to all sorts of problems with clashing accessories and shortage of memory. If you have a floppy drive based system, you can configure a set of disks with each one set up for the operation you need to run, but this is costly and takes up a lot of disks.

The solution is a boot selector program, and the latest one to hit the market is XBoot III.

Help is at hand, all of the right-hand buttons defined.

This screen shows the COMMS set including the terminal program set to start automatically.

The AUTO folder has a wide range of uses. There are various system patches like the one that enables early STEs to boot up in medium resolution, comms patches that solve data communication problems and system enhancements like clock setting programs, alternative file selectors and much more. These are loaded automatically when you switch on, so you don't have to worry about them. Loading programs in this way has a disadvantage in that they can't use any GEM functions, such as graphics screens or mouse control. XBoot provides these facilities using clever programming to create a GEM-like surrounding.

When the ST is switched on, it loads and executes all AUTO folder programs first, followed by all of the accessories in the root directory of your boot drive. XBoot is placed in the AUTO folder first. It then stops and presents you with an options screen, where you have the option to change the settings, by renaming PRG files to PRX, ACC to AOX and CPX to CPZ, making them invalid for loading. Of course, the process is reversed for activated programs. If no selection is made within a predefined time limit, XBoot continues to load a default set of instructions or a repeat of the last set used.

FEATURES

XBoot enables you to perform a few other tricks. It can link programs to CPX files if they go together. For example, MACCEL3, Atari's mouse accelerator, can be linked to its control panel configuration file so that when you select one, the other is also activated. By selecting the Tools icon, a further range of utilities becomes available. These include facilities for setting preferences, de-activating all programs, accessories or CPXs and even determining the order in which the programs run. Information about the system and individual files is contained here along with an option to call up the file selector. Batch commands can be used to copy files into a RAMdisk and move them around as needed.

VERDICT

A good boot selector is essential and XBoot III is an excellent product. The range of features is impressive and, while there are no fancy loading screens, the program is extremely functional and user-friendly. There are other boot selectors available in the public domain or as shareware, but at the end of the day, the commercial package wins by a short head.

Choosing AUTO programs and accessories can be awkward without a boot selector program. Tony Kaye looks at a package designed to help...
Ofir Gal looks at a commercial alternative to the standard GEM file selector.

Anyone who has owned their ST for four years or more will certainly be aware of the frustrating inadequacies of the GEM file selector. The Universal Item Selector (UIS) is the only commercial product to go what the GEM file selector couldn’t.

Before UIS can be used, the installation program must be run – this requires the user to type in his name and the serial number of the disk. There is only one file, UIS, which should be placed in the AUTO folder on the boot disk. An optional accessory is included, which can call the file selector.

Once installed, UIS will be displayed instead of the standard GEM file selector whenever you access the disk. Besides the usual drive buttons and scrolling file list, several additional buttons are available. These enable you, among other things, to format a disk, create a folder, delete, copy and even move files.

A WEALTH OF OPTIONS

The main uses of a file selector are, of course, to allow you to look through directories, locate a file and finally select a file to load or save. UIS does all this and more – 10 preset paths can be stored, and these can be called up using the function keys. UIS can even locate files simply by typing the name of the file, wildcard allowed, select the drive to search and then click on find. The normal desktop sorts – by name, size, date and extension – are available, as well as no sort which displays files in their real order, which is useful for quickly checking the order of your auto programs. Twenty-eight preset file extensions can also be stored – these are used as masks so that only files with the specified extension are viewed.

The UIS display has three modes – 12, 12W and 36. The basic mode shows 12 files and is similar to the standard file selector. 12W shows 12 files and their size, date and time stamps, while 36 displays 36 file names on screen. UIS also employs a special technique to speed up screen redraw when it is closed. It is also possible to resize UIS so that it displays 14 or 42 file names at a time.

UIS stands out from other file selectors in the array of file manipulation features – format disk, create folder, copy, delete, move and rename. Uniquely, UIS allows multiple file selection for these operations; instead of going to the desktop to copy or delete more than one file, you simply hold down the shift key and click on the files. Even rubber-bending or ‘les­sioning’ is possible. Whichever you select, dragging the file(s) to the button or simply clicking on the button will affect all files, but not before displaying an alert; it is all too easy to delete precious files, so UIS gives you a chance to quit.

Dragging a file or a group of files to the question mark in the top right-hand corner of the screen enables you to change file attributes such as hide files, set the archive bit or write protect. Dragging a folder gives information about the number of files it contains and their total size. Clicking on the question mark reveals how much disk space is used and how much is still available. Additionally, text files can be viewed or printed by being dragged to the ‘P’ button – a dialogue box will open, giving you the choice to print or show to screen.

Most UIS settings can be saved to disk so they are automatically set whenever you use the file selector. Having so many features in the file selector is a bonus, but it is not always convenient or even possible to access the file selector whenever you need it. To eliminate this problem, a tiny desk accessory is included which enables you to call UIS whenever you want to, as long as you have access to the menu bar.

In use

UIS takes a few minutes to get to grips with, but once in use, it’s infinitely preferable to the default file selector. Moving between drives and directories is quick and easy. All the extra file facilities mean that you hardly ever need to quit your program and go back to the desktop, all functions are available from UIS except resolution changes and save desktop.

There are a few imperfections which could be improved on. Many of UIS’s buttons are border-less, so it is difficult to tell where they are at first and easy to miss them. Selection of file masks is awkward, requiring the user to click the left mouse button over one of these buttons while holding the right one down. The program cannot format high-density disks and the drive buttons are small.

“Probably the best file selector around”

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Making money for programming is no longer the domain of commercial companies. Laura Taylor looks at how you can make a quick buck from the shareware market...

If you've been dabbling in programming but don't think that your work is up to commercial standards, it is still possible that you could make some money from your efforts if you release it as shareware.

The business side of the shareware industry is based very much on trust. If someone buys one of your disks you have to rely on them being honest enough to send you the registration fee. As always, you don't get something for nothing and in the case of shareware this means that in return for the fee sent to you you'll be expected to supply some kind of add-on or upgrade to send to registered users.

The other option is to produce a complete program and ask for one stand-alone fee. The disadvantage of this is that you don't offer the user any incentive to send you their money - and of course there's never a cast iron guarantee that they will.

The first step is to get a PO number. As far as possible, people will only register if they believe that they will get something back. The second step is to get a PO address. The third step is to supply some kind of instructions on a word processor and save the files as an ASCII file.

The customer can then either load the document into their own word processor and save it as a Proof file because your customers may not have the software to load it into.

RESPONSIBILITY

The instructions should always start with a disclaimer. This simply states that in the event of the program not working properly then you take no responsibility. But as you should already have checked your work for any bugs or quirks then it should work properly, shouldn't it?

The instructions themselves should be laid out in the order in which the customer is likely to need something or find something out. You don't need to go into too much detail, just the basics of how to use everything (this encourages them to register and get a manual). At the end you should mention that there is a registration fee and what they get for paying it. Don't forget to include your name and address.

Shareware is a good way for anyone to lay their hands on utilities or applications to increase the versatility of their ST.

Because of the relative cheapness of registration fees, there will always be a demand for the software. And you never know, once you've got a few shareware releases under your belt you might attract the attention of a commercial producer.

WHAT SELLS, WHAT DOESN'T

Before you start programming your first shareware masterpiece, you need to come up with something that people will actually want to pay for. Games are usually only acceptable as PD, unless they're of a really outstanding quality.

Utilities and applications always go down best as people are always on the hunt for gadgets that will make their life easier.

For inspiration you could look at aspects of commercial software and possibly produce your own scaled-down version. They won't be as good as the original, but they might tide some cash-strapped ST user over until they can afford the real thing.

You should also take a look at what is already available. There's no point in writing something that could turn out to be a poorer version of a program that's already on release. Alternatively, you could pick up a few shareware disks and see what they do and try to produce an improved version of them.

Remember, there are thousands of ST owners out there, so there are bound to be those who could do with a program to log their bowling scores, or cross-reference text files.
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WRITE IT AND FILE IT!

Tony Kaye explores two new programs from the same stable as Neodesk and STalker

Two new packages from GRIBNIF Software look set to make life easier for you, your ST and your friends and business contacts. Cardfile 4 and STeno are, respectively, an address file and a text editor which can both be used as accessories to simplify routine chores. The new software will appeal to comms users and anyone who needs to access names and addresses or change text quickly during work sessions.

STENO
GRIBNIF/COMPO • £14.99 • 0480 891819

STalker is available from within STeno provided it is loaded first. STeno is a powerful and easy-to-use, GEM-based text editor. As with Cardfile 4, it can be run as an accessory or as a standalone program, allowing use from within any other GEM package. This becomes very handy when you want to read text instruction files while running a program.

Most of the features that you’d expect to find in a word processor are here, including editing functions and text formatting options, so it is ideal for writing small ASCII files to accompany programming notes or for compiling messages to send to a bulletin board over the telephone.

STeno automatically finds and communicates with STalker (the terminal program by the same author, reviewed here last month) if it is installed.

You can arrange the windows so that both are visible and even invoke a type-ahead mode for when you are talking to someone over a modem link. By highlighting an area of text, you can send it at the appropriate time, allowing you to have the next response ready if you need to.

ST REVIEW COMMENT: “A useful and functional text editor, this package is ideal for many purposes.”

DIALOGUE

An interesting and useful characteristic of these packages is their ability to communicate with each other. Cardfile will send a record to STeno and to STalker. For example, you can add an address to your document and send the whole thing across to another user on a modem link. It’s nice to see programs written with others in mind, so a complete suite can be built up to give all the functions you need. A word of warning, though: all three programs leave very little memory free in a one Megabyte ST. The more memory you have, the more you can get from these packages, although each one will run quite happily in 512K.

CARDFILE 4
GRIBNIF/COMPO • £14.99 • 0480 891819

Cardfile is a lot more than just an address book; it’s a personal information manager, and with it, you can store names, addresses, phone numbers, diary appointments and even dial calls using a modem.

The main card screen is kept clear and uncluttered - you see a large box for address and contact details. Boxes along the bottom of the card screen let you scroll through your contacts list and let you make notes on your contact cards. On the right of the main box is a row of buttons giving access to other menus for searching, editing and dialing, as well as to the diary and agenda functions.

Everything you’d expect to find is here - file filters let you select all cards with certain information, like everyone living in London, for example. You can also send the details of a card directly to a word processing or DTP package.

On top of all these features, Cardfile 4 is capable of acting as an appointments diary and agenda. Records are updated automatically if you have a clock cartridge on the system.

Using the dial function, you can connect to a modem or fax machine, but you’ll need a terminal or fax program to do further, still, you can use Cardfile to dial and then disconnect the modem to talk to someone. All in all, this is a versatile package, worth adding to the collection.

ST REVIEW COMMENT: “A useful addition. This package is comprehensive and easy to use for storing names and addresses.”

Both accessories are able to communicate.

Cardfile 4 has an extensive range of functions.

NEODESK

GRIBNIF/COMPO

Aimed at the user who is going to be running a program, Neodesk provides the replacement desktop package. Neodesk Cardfile 4 and STeno work within this shell along with STalker and, by setting up the Neodesk configuration files, combine to offer some advanced features.

For example, you can configure STeno so that when you drop a text file onto the icon on the desktop, the program runs and opens the chosen file. Again, the only restriction is that the file is readable by the Neodesk program. The latest update, version 3.02, is now available from MiSoft. The cost is £34.95 for the full package and £4.95 for an upgrade from version 3.02.
Compo Software is giving you the chance to win copies of STalker, Cardfile 4 and STeno, a complete package for communications, text editing and for keeping track of names and addresses.

Last month we reviewed STalker, a new communications package from Gribnif Software. This month we follow that up with a review of STeno and Cardfile 4. Our winner will receive all three packages, courtesy of Compo Software.

STalker is a very flexible terminal program with many useful facilities. You can create logon procedures and even set scripts using its built-in scripting language. PakeTALK Installed as a program or an accessory, STalker will communicate with other packages and send and receive data from STeno. It works in the background, so you can carry on using your ST while uploading or downloading a file or while you are just waiting to log on.

STeno is a powerful text-editing package, written by the same author as STalker. You can run the two at the same time, using the editor as a type-ahead buffer as well as a source for uploading files.

If you have more than one RS-232 port (as is the case on the TT, for example), you can use STeno to add a second copy of STalker for use on the other terminal.

Cardfile 4 will keep track of all your names and addresses and offers many other built-in functions, including dialling and exporting for mailings.

Our winner will receive all three packages, which together have a retail value of £70. With this wonderful prize, all you need to do is connect your ST to a modem for trouble-free communications.

Gribnif AND COMPO

Compo Software is an Atari specialist and distributes a range of products for the ST, Mega, TT and Falcon, including software like Write On!, That's Write 2.0 and Composcript. It's the first company to offer an Atari authorised TGS 2.06 upgrade and also sells PC emulators and accelerators.

Recently, agreement has been reached to distribute and support a range of Gribnif products in the UK. These include
Arabesque, Professional, Convextor, Professional and Neoscroll Command Line Interpreter, as well as the products offered on this page.

Compo provides full support to all of its customers. If you have problems with any of their products, help is available over the telephone.

Compo Software can be reached at 7 Vinegar Hill, Attenborough West, Huntington, PE17 4WA, Tel: 0440 691619.

HOW TO ENTER

To win this great Gribnif triple bill, all you need to do is answer the easy questions below. You'll find all the answers either above or in the reviews on the opposite page.

Send your answers on a postcard or on the back of a sealed envelope to the address below to reach us before April 14th 1993.

1. What is the name of Gribnif's replacement desktop?
2. Who is offering these Gribnif products in the UK?
3. Cardfile 4 is a PIM. What does PIM stand for?

Send your completed entry to TALK TO THE WORLD COMPETITION, Atari ST Review, Priory Court, 30-32 Farrington Lane, London EC1R 3AU.

The closing date for entries is April 14th 1993 and the winning entry will be the first correct answer to be drawn out of the hat after that date.

Only one entry per household is permitted: multiple entries will be destroyed. The editor's decision is final and no correspondence will be entered into. There is no cash alternative to the prizes.
Once again our panel of experts gets to grips with your problems

RAMMING IT HOME

I own a 520 STFM upgraded to two Megabytes and use a copy of Timeworks 2 (bought just before you included it on a cover disk). This program runs very well but is very slow and with a double disk drive and no hard drive, the disk swapping is getting on my nerves. The solution, I thought, would be to put it all on RAMdisk which would solve all my problems. The only trouble is that all the RAMdisks I have from various different magazines are not big enough. I need one of at least one Megabyte, ideally 1.4 to hold all the data. What can I do?

The closest I came was with the program disk RAMdisk on issue nine, but that only gave 700K. Please advise.

Richard Young, Tisbury, Wiltshire

There are several RAMdisks in the public domain that would probably help you. We actually gave you one with issue five's cover disks called FAS-TRAM.DPRG. The program goes into an AUTO folder on your boot disk and a small file called RAMDISK.INF goes in the root directory of the same disk. You can alter the value of the .INF file (currently p250 to create a 250K RAMdisk) to the size you require.

If you don't have issue five, I'm afraid that there are none left in our back issues department now, but the program should be available from any PD library.

GAME LOADING PROBLEMS

I have a problem with my 520 STE. Sometimes when I load some of my games, the starter screen shows normally but I can't start the game with the mouse or the joystick. I am then forced to turn off and reload, after which, the game loads nine times out of ten.

This problem only occurs on four of my games including Pool and Jimmy White's Whirlwind Snooker. On one occasion, a game loaded and ran, but there was no sound. Please print my query as I am desperate for help before I consider repairs. As I said, the ST is fine except for the above problem.

Hywel Boylan, Maryport, Cumbria

Your problem is almost certainly not a fault with the computer. It sounds like you are not allowing the memory to clear before loading. If this happens, the processor is not correctly set up and the game will crash. The solution is to switch the computer off and wait for at least 5-6 seconds before loading the new game. This will allow all the memory pointers to reset before the next set of instructions is received.

ILLEGAL ENTRY?

I am writing with an enquiry about HiSoft BASIC that I hope you may be able to answer. How is it possible to produce an AUTO folder program with the compiler that does not cause the computer to lock up when run? Additionally, is it possible to prevent the machine from opening a window in a program with a .PRG extension? I am aware that it may be placed out of sight with the command WINDOW FULLW: GS, but seeing the window appear and then jerk outwards seems rather unprofessional.

I have a theory that the answer to both of these queries may be the same, as the program trying to open a window from an AUTO folder is illegal and therefore does not run.

Hoping very much that you may be able to shed some light on these difficulties.

George MacKerran, Brighton, Sussex

AUTO folder programs are actually TOS programs which have had their extension changed to PRG. By default, when AUTO programs are loaded and run, GEM is not yet initialised and that is why it is impossible to open a window or access the file selector. You can ensure that your program is a TOS program by not using any graphics and avoiding the GEMVID and GEMAES libraries. If you need to print anything to screen, you can use PRINT and similar commands. When you compile the program to disk, the compiler checks to see whether the program needs to be a GEM or AUTO program. If it does, a warning is issued and names the program file accordingly. If it's a TOS program, change the extension to PRG and you should be able to load it from the AUTO folder.

The answer to the second question is yes, type in REM $OPTION y at the beginning of the program and BASIC will not open a window. However, you will not be able to use any screen output unless you are using a resource file, all other screen output must be inside a window.

AUTO LOADING TERADESK

On reading issue nine (January 1993) of Atari ST Review and using the cover disks, I noticed that my InstallRAM disk on issue nine did not run automatically on my 520 STFM. With the aid of another computer magazine, I looked more closely and I noticed that my InstallRAM disk Applications does not have an AUTO/NORMAL selector. I wonder, if you can explain why, as the computer is only three to four years old.

B.H. Lee, Stonebridge, London

There are many different versions of TOS in the ST. Yours probably has TOS 1.0 or 1.02. If this is the case, then you won't be able to load a program automatically unless it is capable of remapping by running an AUTO folder. Teradesk cannot be run in this way, so you need one of the many programs available in the public domain such as Stargem or Headstart. The loading procedure is explained in the manual supplied on disk. These programs are public domain, so you should have no problems in obtaining one of them.

PRINTED PICTURES

On issue nine's cover disk, you gave us a picture printer and viewer. I enjoyed the program very much, but after a while, I ran out of pictures to print. I printed some of my own that I created with Cyber Paint, but they are not as good as the ones drawn by other people. I'm no good at drawing.

Could you please tell me if there is a disk full of pictures and, if so, where I can get it from?

Stephen Plumb, Kingswinford, West Midlands

There are many disks of art available from various PD libraries. Try Goodmans International, 16 Conrad Close, Meir Hay Estate, Longton.
CHANGE OF DRIVE

I own an Atari 520 ST which I have upgraded to one Megabyte drive by Other (not original). Herefordshire have doubled your ST 3.5 Megabyte drive from and which disk drive is the best?

Stephen Lloyd, Weploy, Herefordshire

The standard ST disk drive is double-sided and capable of storing around 720K of information. It has been called a one Megabyte drive from the early days of ST marketing. Most STs, apart from early ones which had single-sided units, have this. The advertisers are offering a direct replacement for this in their ads, so any of them will be suitable, although some may require some surgery on the case of your ST to accommodate the eject button on the drive.

VIRUS DIFFICULTIES

I am a regular reader of your magazine and find it an excellent read and very helpful. Unfortunately, after using the second cover disk of the January 1983 issue, I experienced a major problem. I bought the TSW E-Bak folder and loaded Fastcopy 3. On the main menu, I clicked on the virus check box to check my original game disks and the program wiped out four of my games (Microprose Formula One Grand Prix, Robocod, Supremacy, and Speedball II), two of which were loaned from a friend. The virus check menu stated that it would heal a virus, not wipe out the complete disk!

These games were half of my entire collection as I am only just starting. As you can understand, I am very upset and at a considerable loss for a solution.

I definitely feel that some warning, or more thorough instructions, should have been given with this package and that the fault was with your program, not with me.

John McElligot, Co. Kerry, Ireland

HISOF T DISK ROUTINES

Firstly, may I congratulate you on winning over at least one reader who was dedicated a rival magazine – you know, the one that claims to be Britain's best selling ST magazine.

It took a few issues to convince me (mainly due to some fuzzy looking vaxes, and dodgy screenshots), but all things considered I prefer your approach. Your tutorials are understandable, your mix of games and serious software is just about right and your own disks are excellent. This brings me to the point of this letter. Since you gave us Hisoft BASIC, I have been hooked on programming (I used to play around with GFA BASIC which came on the mag. It's good, but where's the compiler?). Hisoft BASIC is the bee's knees, though. I can't get enough of it and imagine I will soon be forced to upgrade to version 2.

I have a disk drive problem. I am working on a cover disk back-up program, similar to the one on each of ST Format's disks. This is a huge improvement on the Gem copy routine, especially to newcomers to the ST – and I imagine there will be a lot of these this year. My problem is formatting, or rather it is getting the ST to read a disk that I have formatted. I believe it's something to do with writing information to the bootsector which tells the ST what format the disk is configured to, but I'm not sure.

Please help me. How do I format a disk using Hisoft BASIC? I would like to be able to set different parameters, like 80-82 tracks and 9-10 sectors. Can you tell me where I am going wrong?

Mike Fitzgerald, Spalding, Lincolnshire

To format a disk you need to use an XBIOS function EFlopfmt which takes a long list of parameters. The first parameter is an address of an array which should be at least 9K (4608 elements), this is followed by a 0. The third parameter is the drive, 0=A, 1=B followed by the number of sectors per track (normally 9). The next parameters are the track number to format starting with 0 and the side (0 or 1). The last parameter is the check to use which should be 1. If you are copying a formatted disk, you don't have to worry about the boot sector as this will be copied from the source disk.

There are two calls that simply read and write data to and from a floppy disk and both take the same parameters.

These are EFl Opfmr and EFl oppr and read/write up to one track per call.

The first parameter is the address of an array where data from disk is to be held, since each sector holds 512 bytes, a track holds 4608 (9 x 512), so you need an array with 2304 elements per track. The second parameter is the drive (0 or 1) the third the sector to start reading from (normally 1 as sectors are numbered from 1 upwards).

The next parameter is the track number starting at 0, followed by the side (0 or 1). The last parameter is the number of sectors to read/write which should normally be 9. It is not a good idea to use extended formats because they are more prone to errors.

All three functions return 0 if they are successful or a negative number if failed. The number represents a TOS error code, -13 for example stands for destination disk is write protected.

The following example reads from drive A, formats B and writes to it. Your program will have to allow for an ST with a single drive – you will need to read as many tracks as necessary then write them to virtual drive B. If you don't, a single drive user will need to swap disks 460 times.

DEFINT +2
LIBRARY "bios"
CONST drv=0,drv=1
DIM trkbuf(2530),frmtbuf(4607)
frmtbufadr=VARPTR(trkbuf(0))
frmtbufaddr=VARPTR(frmtbuf(0))
PRINT "Track","Side"
FOR trk=0 TO 79
FOR sid=0 TO 1
PRINT trk,sid
trskerr=EF lopmr(trkbufaddr,drv,1,track,sid,9)
trskerr=EF loppr(frmtbufaddr,0,drv,9,track,sid,1)
trskerr=EF lopwr(trkbufaddr,0,drv,1,track,sid,9)
NEXT sid
NEXT trk
games you’ve lost when you return the originals.

BEGINNERS’ HELP

I am writing to you because, believe me, I need help. I have owned my machine for four months and I am still the wiser as to what it does.

The setup I am using is, I believe, fairly basic and consists of a 520 STE, Philips CBM833 Mk II colour monitor, second disk drive and a ST/2 II printer.

On the advice of a friend, I have upgraded the memory to one Megabyte. My problem is boot sockets, file extensions, fonts, understanding what it is local STE, or rather there are several

If there is not one of the few programs you can use.

You may be wondering why I decided to buy this setup in the first place. The answer is that I saw my friend using Neochrome on his machine and I was very impressed.

The manual that came with the machine really does nothing for me except make me more confused. The only game I play is Lemmings and although I would like to understand more about my ST, when it becomes too much, I play Lemmings and that’s it.

So please, please can you tell me if there is a good book on the ST that I can buy that will take me through it all in a language I can understand step by step?

I am trying to increase my understanding and have ended up feeling a right dunce. I am 41 years old and am going nowhere fast. I would be most grateful for any help you can give.

D.J. Jones, Chelmsley Wood, Birmingham

There are several books on the ST available for beginners, and we cover basic terms in our Learn The Lingo pages, but the best thing you can do is join a local user group.

It appears from your letter that your problem is not one of understanding, but rather one of co-ordinating the information. A good club will go through what you don’t understand step by step. The club will usually have someone who is familiar with these areas who can explain them to you in a way that makes sense.

Additionally, there will be people there for you to exchange ideas with. If you still want a book, try Your Second ST Manual. Call Silica Systems on 081 309 4414 for more details.

FAULTY DISKS OR COMPUTER?

I have a problem which will either test your experts or make me look really stupid.

Either way I need to know the answer and you seem to be my last hope (no offence intended).

About 10 months ago, I bought an Atari 1040 STE from Silica Systems. All was fine until about three months ago when the games that came with it would not load. To my horror, I found that some of them had been deleted from the disk completely while others just had the introduction screen without the sound and no game.

At first I assumed that the disks were at fault as they were free from Silica until it happened with a game I bought recently from somewhere else.

At about the same time as this started happening, I started to get a reversal of the mouse movement in the vertical plane, that is, I move the mouse up and the pointer on the screen moves down.

This does not happen at any particular time or in any particular program, although it does not happen in games. The only way to revert it back to normal is to reboot the system.

Now the question. Am I just unlucky in that I’ve had a bad batch of games or is there something seriously wrong with my computer? If so, what? I’ve tried contacting Silica Systems, but I always seem to get the one who’s still asleep.

Please help as I’m almost at the stage where I don’t play any games in case they are lost forever.

A J Dunnett, Bicester, Oxfordshire

There are two problems here, not just one. The main one is that what is causing the mouse to move the wrong way is almost certainly a virus called Ghost.

Secondly, if this virus has managed to creep into your system, then there is a very strong chance that you have other viruses on your disks that are spreading themselves unchecked.

The safest solution open to you is to write-protect all of your disks by moving the tab on the back to the open position.

Remember that no disks should be put into your drive without this unless you specifically need to write to it.

Make sure that you switch the computer off between programs to help to avoid spreading the problem. Most importantly, you should invest in a virus checker straight away.

Remember, if you have a virus on a commercial disk, you should not attempt to kill it until you are sure that you can do so without destroying the program.

UVK has a file containing almost all known games and it can safely repair these, but you should read the manual first and make sure that you know exactly what you are doing.

TONY KAYE

Technical help and general problems

Our own Tony Kaye will look at any problems related to the day-to-day running of your ST. He can help with technical matters, disk drives and DIY projects.

OFIR GAL

HiSoft BASIC and general programming

What Ofir doesn’t know about HiSoft BASIC, HiSoft doesn’t know itself! If you’ve got a problem with BASIC or 68000 programming, Ofir’s your man.

VIC LENNARD

Music, MIDI and sound recording

Our very own Associate Editor is also Director of the UK MIDI Association. There’s no-one more tuned in to the MIDI music scene than him.
This month, we look at some of the terms that give you the most problems, judging from the letters we receive.

**ARCHIVE**
Archiving is a method of storing files in a form that will take up less space. Popular methods have extensions like .LZH and .ARC. These files cannot be run on their own and must be restored first. It is a good way of storing program backups as it reduces the number of disks required considerably. LHARC was on the cover disks of issue 10 (February 1993).

**BLITTER CHIP**
The Blitter Image Transfer chip is found in the ST and later STFMs and controls the movement of the screen. As the name suggests, it moves images around in blocks to accelerate the routines that update the screen.

**CLOCK/CALENDAR**
The ST has an internal clock and calendar function but, unfortunately, it doesn't remember the time when the computer is switched off. This can be remedied by adding a battery-backed clock cartridge that will tell the computer the correct time when it is switched on. Mega STs and TTs have a battery-backed clock fitted as standard.

**DONGLE**
This is a small device that plugs in to the ST, usually via the cartridge port, as a form of protection against software piracy. The program looks for the dongle and will not work if it is not present. This allows programs to be installed onto a hard disk as the original disk doesn't need to be protected.

**ERROR MESSAGES**
Error messages occur when something is wrong in the system or you try an illegal procedure. They are not very well documented. An error message is not always a complete disaster and the problem often has an easy solution.

**FUNCTION KEYS**
There are 10 keys along the top of the ST and marked F1 to F10. These are programmable and can be used from within a program for various purposes. Games use them for quitting, selecting levels and so on.

**GEM**
Stands for Graphics Environment Manager. This is the system of windows, icons and mouse pointer that is used with the ST.

**HARD DISK**
A hard disk drive is a fast, convenient method of storing programs and provides a reliable alternative to a floppy disk drive. It has a much larger capacity, but it is more expensive to buy and is less portable.

**ICONS**
The pictures that depict programs and files. These can be changed on the latest versions of the operating system, but on the STFM and ST you are stuck with the icons that come with it.

**JOYSTICK**
Most commonly used for playing games, the joystick is an alternative method of controlling movement on the screen.

**KEY EQUIVALENTS**
Some programs allow you to use keyboard shortcuts during operation. This means that instead of having to go to the menu bar with the mouse and then select an option, you could use a key, perhaps in conjunction with the Control or Alternate key to perform the function.

**LICENSEWARE**
Licenceware is one type of public domain software. It is usually free to pass around, but the author still holds the copyright and makes certain reservations on the distribution. For example, he or she may insist that the document file must accompany any copies you pass on.

**MONITOR**
The ST can be connected to a high-resolution monochrome monitor or an analogue RGB (Red, Green, Blue) colour monitor by using the monitor port on the back of the computer. The STFM and ST can also be connected to a television via the built-in modulator or, in more modern sets, using a SCART lead. The monitor option is easier on the eye and is essential if you are using the computer for word processing or other serious applications for any length of time. The image is sharper and clearer than on a standard TV.

**NUMERIC KEYPAD**
The numeric keypad is the extra set of keys situated on the right of the keyboard, initially designed to ease the inputting of numbers. It has a variety of uses in game and simulation controls.

**OUTPUT**
This is a term that is used to describe anything that leaves the computer. For example, the output is sent to the printer.

**PUBLIC DOMAIN**
This describes software that is basically free and can be copied and distributed without charge. Most PD software is written by users for users and it covers all aspects of the ST.

**RAMDISK**
This is an area of the ST's memory set aside to emulate the characteristics of a very fast disk drive. Anything stored in this manner will, however, be lost when the computer is switched off, so it's important to make sure that you save anything in it to disk before turning the power off.

**ROOT DIRECTORY**
The root directory is the list of files that is found in the first window opened on a disk. An AUTO folder and any accessories need to be in the root directory of the disk that you boot up with, otherwise, they will not load.

**SHAREWARE**
This is another method of distributing software without incurring the costs associated with commercial products. Shareware programs are released into the public domain with the proviso that if you like and use a program, you send a donation to the author.

**TRACKBALL**
In simple terms, an upside-down mouse! This is a ball device used instead of a mouse for moving the pointer around the screen.

**UTILITY**
Programs that are designed to help you with other tasks are called utilities. These include such programs as RAMdisks, formatters, and many others.

**VERSION**
When programs are updated, they are given a new version number. This is usually available from the Desk menu. Later versions usually have improvements over the earlier examples.

**WYSIWYG**
This is an acronym for What You See Is What You Get. In other words, what appears on the screen is what will be printed.

**X-CONTROL**
Atari's new configurable Control Panel is called XControl. It allows you to edit the environment for comfort in terms of colour, mouse response, keyclicks, bell and other options. This panel is able to configure other programs using files called CPXs.

**ACCELERATOR**
It is possible to improve the speed of the ST by installing an accelerator. See page 28 for more details on upgrading your computer in this way. The process involves replacing the 68000 processor with a faster one, but allowing the original chip to be accessed to maintain compatibility.

**RAM AND ROM**
There are two types of memory in your ST. RAM (Random Access Memory) is the main memory for programs and display use. This is what you add to when you install a memory upgrade. ROM stands for Read Only Memory and holds the operating system (TOS). This is fixed and cannot be changed in general use. The ROM chip in your computer controls the actual working environment like the desktop itself, disk functions and many more operations that are not immediately apparent.
The ST Review mailbag has once again been bursting at the seams. Find out what’s going on in the lives and minds of your fellow ST users here...

LETTERS

FOOLS RUSH IN
Like a total mug, I foolishly lent my cover disk copy of Paintpot to a so-called mate, only to discover that he’s now moved out of the area. You notice that I said total mug because I didn’t even make a backup copy. I’m so ashamed. Upon phoning your back issues department, I was disappointed to learn that this particular issue (and most of 1992’s) was completely sold out, so, as a last resort, I’m begging on bended knee.

Would you happen to have a spare copy hidden away in the depths of the ST Review offices? I’m prepared to pay, I’m not after a freebie. Alternatively, do you ever intend to re-issue this program in a later edition or reprint?

If the answer is no, could you please print my telephone number in the hope that some kind reader somewhere could contact me to arrange a copy? Perhaps this letter will serve as a reminder to anyone who might need it: always make a backup copy!

Dave Harris, Westbrook, Kent

An important reminder. With back issues selling out so fast, it’s important that the first thing you do is back up your cover disks. We get a lot of letters from people who don’t do this, or they run them without the write-protect tab on and delete data.

As we have said before, we don’t keep many copies here, so we are unable to help you. If anybody else can help out, you can contact Dave on 0843 228423.

COMPACT CONFUSION
Firstly I would like to congratulate you on producing the finest ST magazine that I have ever come across, as it has everything an ST owner could possibly want or need to know. Anyway, what I would like to ask are a few relatively important points concerning the new Falcon.

They say the Falcon has one Megabyte of memory and that it can produce sound quality on music/sampler packages ranging from 8.2 KHz to 49.2KHz (of which the latter is of higher quality than CD sound). Well, isn’t there something wrong here? On a one Meg ST, sound samples of up to 32KHz have to use up most or all of the available memory to sound as clear as possible, even though the result is still not as good as a CD. If this is correct, then how can the Falcon give out 49.2KHz of sample quality with just one Meg of memory? I have heard that just one second of CD-quality sound takes up a whole half Megabyte.

I would call it the hidden small print as they point out that the Falcon can produce higher than CD-quality sound, but what good is it if less than two seconds can be recorded on a standard Falcon?

I think that there should be a small message in the advertising saying that a minimum of four Megabytes is required, otherwise a lot of people are going to be disappointed when it comes to producing music sequences.

The graphics detail/resolution also applies to the limited memory. Isn’t just one 768 x 480 true colour picture going to take up all the memory?

Andrew Ford, Waterlooville, Hants.

You will be able to do a variety of things with the standard Falcon besides recording sound and displaying pictures and there are many tricks you can use. Take a look at the music being produced using a 1040 in music studios. A lot of the hits you hear in the charts are sequenced using a standard 1040 ST.

The home user will always have to compromise to a degree unless they realise the need for hard drives and memory expansions, but take a look at the VideoMaster package from Microdeal, reviewed last month – even a modest package can produce good results using clever routines and ‘tricks’.

VIRAL PNEUMONIA
The subject of computer viruses is always timely and topical, and it was with great interest that I read Vic Lennard’s article in your February issue. I tried out the demo version of the excellent anti-virus program The Ultimate Virus Killer, which accompanied it on disk two and have already sent my cheque to Douglas Communications.

I have also recently obtained, from a bulletin board, a long but fascinating text file entitled The Known Viruses On The ST And Their Symptoms. I believe the author will be well-known to Vic. This lists no fewer than 87 bootsector and five link viruses. Of the bootsector viruses, it seems as though four, or possibly five, can affect hard drives – CT, Media Change, Bat, DJA and Ashton Nirvana – and presumably all of the link viruses could zap a hard drive. As far as I can ascertain, none of the link viruses can be immunised by UVK or any other program or procedure, and of the hard drive affecting viruses, the Bat and the Ashton Nirvana are also said to be immune.

It is bad enough to lose the entire contents of a floppy disk, less than one Megabyte, but imagine permanently losing the contents of a whole hard drive.

All this presses home the necessity of thoroughly checking all new disks which come into your possession and of making frequent and regular backups of your hard drive. Arising from this, can you say whether UVK will detect even those viruses that are immune?

When run, UVK will point out those programs which have been compressed, although it can’t be sure that the data may not be infected after unpacking. Surely this means that a packed program could be a potentially undetectable way of introducing a computer virus into your software?

Your disks commonly include such programs, and they often unpack and run themselves without the user even being aware that they were compressed. Having checked my own hard drive, I was amazed to find how many programs of this sort I have collected without realising the fact. I would be grateful for any comments you or your other readers may wish to make on this subject.

Finally, Vic Lennard comments in his article that Atari ST Review is “the only one of the three main UK Atari magazines not to have released a virused cover disk”. We all know the names of the other magazines, and I am aware of the notorious case of the Goblin virus sold to the general public by Atari ST User, but I must have missed the one from ST Format. Could you please let us know the number of the relevant issue?

Roy Dent, Harrow, Middlesex
We tried to give an overall picture of the organisations in the game business as opposed to an indepth article. The idea was to give you a flavour for them and if you wanted to find out more, there are stores that will allow you to see them. Let’s be honest, that’s a lot more useful than a list of figures, isn’t it?

As for covering interfacing, again we were looking at the organisational angle rather than anything else. You can import any text into an ASCII format, so you could take information from the Notepad or the Portfolio.

PLOP! GOES THE WEASEL
After completing all 30 levels of the game Plop that was on the cover disk of issue nine, I thought I would send in the level codes to help anyone finding it difficult.

We are led to believe that the bombs and replace data.

Atari repairs and

My understanding is that the bombs that come up on

I have been in regular contact with the engineer and he assures me that his hands are tied and that the problem is with Atari. Surely six months is an unreasonable length of time to wait for one miserable chip, even if it has to be posted from America.

I have been in regular contact with the engineer and he assures me that his hands are tied and that the problem is with Atari. Surely six months is an unreasonable length of time to wait for one miserable chip, even if it has to be posted from America.

If you run a boot sector program such as XBoot or Superboot, you can’t write pro-

Bombs have, for a long time, been a bit of an enigma on the ST. The system of reporting crashes has never been clearly explained as most people have decided that a crash is a crash. No matter how many bombs appear, the end result is the

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same, a reboot of the ST.

For an explanation of individual

There is, however, a genuine way of being safe from them, but you can do everything in your power to avoid collecting, or worse, spreading them.

UVK is able to recognise the line viruses as well as the boot viruses.

BOMBS AWAY
We have had an Atari 520 STE (two Megabytes) for nearly 18 months now and have looked at many publications in that time, but we have yet to see any article on the subject of the bombs that come up on our screen from time to time. We have had varying numbers and in what seem to be odd circumstances. Any chance of a full description?

Cyril Cowland, Sidmouth, Devon
that the reason for it is that both programs actually require one Megabyte to run. Discussions with the author have revealed that Evader was an oversight on our part and KGP was missed by Dave himself. Please accept our apologies.

**PRINTER LEADS**

After reading your article on the Epson LQ-100 printer, I thought I would try some DTP. I bought the printer from Dixons for £180, but I found that there was only one lead for the power. Could you please tell me where to get a lead for connecting the Epson top my Atari 520 STE? J Wallis, Rochdale, Lancs.

The port on the back of your ST is a standard Centronics printer interface. Any parallel printer lead will work and this can be bought for around £2 from any printer dealer. Discos may well be able to help - if not, try your local PC shop.

**TIME FOR PRAISE**

I am just writing to say that I like the clock that I got from your offers page. The only problem is that I couldn't set it up at first as my TOS does not outlaw a program with the extension .TOS, but only .PRG. It might be an idea to change the program name to something less from an auto dealer. Despite opinions expressed in other parts of this issue, we do hope that the Falcon becomes the success it deserves, despite the marketing efforts of Atari themselves.

**SERIOUS BUSINESS**

I feel I would like to make a few points to help Mr Steven Price who wrote to you in your February edition entitled 'Bad Advice'. I must reiterate your opinion that his friend is talking rubbish. I consider myself to be a late starter in computing at 37 years of age (now 40!) with a daughter of 15. I help my husband to run a fair sized business in the entertainment industry but it was impossible to find a suitably accounts due to the nature of the business. A friend of ours found someone to write the program for us which took about a year in all to complete, mainly because of his lack of knowledge of our business. We have now used this accounts package for two years and it makes work much more pleasurable. Anyway, I'm getting away from the points I wish to make, which are:

1. I use my accounts package on a 1040 STE. I have another 1040 at home which is useful for entering data during school holidays or whenever I can't get to the office as an old copy.
2. Our staff use First Word Plus on a 520 STF along with Printmaster for publicity, biographies, newsletters and so on. They also use Labelmaster.
3. I have a Star LC20 for all the printing and will probably replace this soon for something larger.

What I am trying to say is that we have a large operation being run on the Atari with no complaints and certainly no enormous financial layout. I feel that Mr Pace should have no qualms about buying Atari. He says he has a daughter approaching school age, I have three small nephews aged four, six and nine and keep a small library of programs, mostly collected from the public domain, for their visits.

Mrs C Wood, Sheffield

So there you have it. If you can run a business with one Ats, there's not going to be many problems in the home. Most commercial software for home use is designed to run in one Megabyte, but will take advantage of larger memory configurations. The ST is capable of having four Megs of RAM on board, and even top producers in recording studios are using standard 1040 machines.

**PRICE AND AVAILABILITY**

In your February issue, you mention ST Writer Elite, DB Master, Fastbase and Accountability. Unfortunately, you do not state where to get them from. I've been through your magazine from cover to cover but cannot find them.

While on the subject of software, how do you justify the price of programs - Cubase £389, Calamus SL £675 - I'm paying off my 1040 STE and can't afford the software. How do others afford it? At least PD is sold at realistic prices.

Francis Wier, Ballymena, N. Ireland

The programs you mention are all available from PD libraries. If you contact any of the PD advertisers in this magazine, you should have no problems in obtaining them. Cubase and Calamus SL are serious professional programs and are certainly not the kind of software that the average user is likely to buy.

They may seem expensive to the amateur, but they are well written, well supported and are earning money for their owners. This is why they can command such a high price.
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THE BETTER END

We’ve had a number of letters concerning the future of the new Falcon 030. Here we print just one which raises some of the concerns of many ST enthusiasts. Atari replies

Is Falcon dead in the water before it has even taken off? I have been following with great interest all the rumours, fantasies, half-truths and facts about Atari’s new wonder computer. I am now becoming convinced that it is going to be a dismal flop due to the company’s seemingly uncanny knack of making a total mess of the launch of any new machine.

First, we are told that nearly all ST software will run on it. It has since been revealed that virtually no games and only some very well-behaved GEM/TOS software will work; a lot of popular packages will not. When you consider that little of the promised software seems to be appearing, it could cause severe difficulties.

We were also told that Falcon will be multi-tasking. It has now emerged that the first 10,000 Falcons in the country will not have MultiTOS supplied with them, but owners will be offered it in the future. By this, does Atari mean that it will send you a nice pocket containing the MultiTOS disks through the post as soon as it is ready, or is it going to offer it to you as a purchased upgrade?

We are now told that Falcon is to have a new case in the spring and the price is to be cut to £399 to compete with the Amiga 1200.

I don’t think that many potential customers are going to be thrilled with the fact that their machine will be obsolete within a matter of months and will be replaced with a better one for £100 less! I know I wouldn’t be.

Lastly, how much advertising has Atari taken out to promote its new baby? About as much as normal — none. I’m afraid the European Computer Trade Show does little to boost consumer knowledge as it doesn’t allow them to actually see the machine.

I was recently talking to the manager of a chain of computer shops and he says they will not be stocking Falcon as there is simply no interest. People other than avid readers of ST Format, User and Review just don’t know that it exists and the Amiga 1200 is selling very nicely thank you.

Why can’t Atari simply admit that it is unable to get a proper functioning machine out and release it when it is ready? Come on, Atari, we’re not stupid.

Michael Kirk, Stevenage, Hertfordshire

We presented this letter to Darryl Still, Marketing Manager for Atari UK. Here is his reply:

Dear Mr. Kirk,
You have stated that you have been following the rumours, fantasies, half-truths and facts. Unfortunately, the problem seems to be that you are treating them all as the same thing.

Let me take your points one at a time:

1. Atari has always stated clearly that the Falcon is not a new type of ST, but rather a revolutionary new computer. However, in our tests, 71 per cent of all serious ST software will run on the 68030 Falcon, compared to the opposition’s ‘evolutionary’ new machine which will run less than 60 per cent.

2. There are nearly 200 software titles in development at the moment, much of which will be available when the machine is released.

3. MultiTOS is now ready. We do not intend to split our user base.

4. Falcon was previewed at the trade at ECTS in September. Early machines were to be made available to developers and enthusiasts who could not wait until the official launch, in the old ST case. I must admit that these numbers are smaller than we hoped to ship.

5. We have always said “Wait until March unless you are a developer or a real enthusiast”. We also don’t want thousands of obsolete machines and dissatisfied owners.

6. Why criticise us for waiting until March before advertising? We don’t want to build up demand before we can supply. The same applies to chain stores or independent retailers.

Falcon is a revolutionary new computer which is technically far superior to anything under twice the price.

I hope we have shown you that we are doing what is best for the Falcon and when we do launch the machine, the software and support will be of a quality that will establish this computer at the top of the pile.

HAVE YOU WON?
Are you a winner of one of five Atari Lynx Batman Returns packs or a Seikosha SL-90 printer? Find out here.

We offered five Atari Lynx Batman Returns packs in our January issue. The winners are:

Kyle Brain from Lark Hill, Salisbury; Robert Brown, Cleethorpes; S. Humberside; Doreen Dunn, Sandwick, Kent; Richard Jones, Speke, Liverpool and Andy Knight, Hatfield Peverel, Essex.

In the same issue, we offered you the chance to become the proud owner of a Seikosha SL-90 24-pin dot matrix printer. The answers to the questions asked were:

1. The maximum print speed of the SL-90 is 240 cps.

2. The maximum resolution available is 360 dpi.

Entries with just the first answer were acceptable due to a slight error on our part, so the winner is Roy Carpenter from Aberdeen in Scotland.

Congratulations to all our winners, your prizes are on their way.
The HiSoft Promise

While many other companies are abandoning the Atari market, we are moving forward, acquiring and writing new titles, many of which are detailed on this page.

Rest assured that we will continue to offer you the best software at truly competitive prices with a range of customer support options to ensure that you can use your Atari 680x0 computer, and our software, with confidence and ease.

We are very encouraged by the Falcon030, believing that it will breathe new life into the general-purpose microcomputer market, which has often been driven by the computer enthusiast, who will find this new machine both fascinating and exciting.

We will stock all Falcon030 product with Atari-approved labels or for convenience and clarity, there are three such labels: Falcon030 Exclusive, Enhanced and Compatible, watch out for them.

TruePaint £39.95

TruePaint is the first art package to take advantage of the true colour capabilities of the Falcon030 computer. Some of the highlights of the product are:

- Works in all screen resolutions including 768x480 True Colour
- Easy-to-use multi-window environment with menus, toolbox and keyboard shortcuts
- Full range of drawing tools
- A large variety of effects including shear, wrinkle, smooth, rainbow etc.
- Zoom, full screen mode with edit, colour picker, bezier curves
- Animation, PSM/Speedo GDOS support, wide variety of file formats including IFF, TIFF, GIF, Targa, IMG, Neochrome and more

We have re-scheduled the release of TruePaint to coincide with the general availability of the Falcon030 computers - the package will now be available on 18 February 1993. Please contact us to be sent a TruePaint brochure when this is available.

ChemKit £39.95

ChemKit runs on any ST/TT/110 or any 680x0 computer. Some of the benefits of this product are:

- Ability to pre-assemble files for inclusion, can now assembler
- Full of assembler
- Stock at the moment. These include
- For your
- Create vivid solid 3D colour
- Chemistry have
- Improved many extra, switchable
- Wire-bound manual, all the
- Pre-assembly, the
- Is
- Feature-.
- Professional programmers alike.
- 1Mb of memory.
- Clayton Walmon,
- We have
- Together with
- Using
- Beginner;
- Shell Tuning
- Lattice
- Are
- M"/OS!
- More
- HiSoft
- 100%
- Tempus 2 ...
- All prices include UK VAT and P&P within the UK. Please call for export prices, educational discounts etc. EXCE.
- Specifications and prices may change.

HiSoft

HiSoft High Quality Software

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Books from HiSoft

We have a number of excellent books for the ST in stock at the moment. These include C-manSHIP by Clayton Walnum, ideal for the C enthusiast or the Beginner; Program Design Techniques by Paul Overaa, an informative book on how to write well-structured programs in most languages; Real-Time 3D Graphics by Andrew Tyler, shows you how to create vivid solid 3D colour graphics while the Motorola 680x0 Programmer's Reference is the bible for 680x0 assembler programmers. Please call us or write to us for pricing details on these titles.

Diamond Edge £49.95

From the authors of Diamond Back, the popular hard disk backup program, comes a new package that is essential to any serious user of an Atari 680x0 computer.

Diamond Edge is a complete set of management, optimisation, diagnostic, repair and data recovery tools for use with floppy disks and hard disks.

Please note the new price of £49.95 for Diamond Edge: the poor Sterling/US Dollar exchange rate means that we can no longer hold the price down.

XBoot 3 £34.95

We are pleased to have acquired the exclusive rights to version 3 of this package, which provides comprehensive management of your AUTO folders.

New features include independence from any video hardware, selection of CP/ks, definition of links between related files, new batch editor, integrated parameters dialog, a complete new function to change the running order of your programs and more. Please enquire about upgrades if you have an earlier version of XBOOT.

XBOOT is an efficient, easy-to-use program and comes with a well-written and useful manual.

Superbase Professional £99.95

Following the sale of the ST and Amiga versions of Superbase to Oxxi Inc with whom we are working closely on a project for the Falcon030, we are pleased to be able to offer the superlative Superbase Professional (Version 5.02) at a substantial saving over its previous recommended price.

All HiSoft's products should be available through your local computer dealer. If you have difficulty in obtaining a title you can order directly from HiSoft using your credit or debit card - just call Julia, Sally or Marilyn on 0525 718181.
HISOFT PRODUCTS

HISOFT BASIC VERSION 2
Hisoft Basic 2 comes complete with a Compiler and Debugger. This package is a complete development system which is ideal for both professional and casual programmers.

**RRP £19.95**
**OUR PRICE £16.95**

**NEW** - HISOFT DEVPAC 3
Hisoft Devpac 3 is the latest version of the popular assembler & debugger package for the ST. Packed full of features it is the ideal programming environment for beginners and professional programmers alike. It contains an Editor, Assembler and a Debugger.

**RRP £29.95**
**OUR PRICE £26.95**

FREE BOUND PASCAL
Highspeed Pascal is designed to be compatible with the hugely successful Turbo Pascal on the PC. It features a fast single pass compiler, compilation speed of more than 20,000 lines per minute. Curve fits to memory or disk and an integrated multi-window editor.

**RRP £29.95**
**OUR PRICE £26.95**

HISOFT INTERPRETER
Hisoft C lets you develop, debug and test programs quickly and easily in a simple environment. Hisoft C features over 490 library functions, fast and powerful. New, based editor and built-in help for quick and easy reference.

**RRP £39.95**
**OUR PRICE £36.95**

HISOFT LAT2C V5.5
Lattice C V5.5 is a versatile and powerful development system for the ST. It supports the international standard C programming language, adhering extremely closely to the ANSI standard. It contains all the most complete set of libraries to be found on the Atari 68000 computers. Easy based installation, multi window editor, project manager and lots more. (requires 1 Meg)

**RRP £149.95**
**OUR PRICE £139.95**

SOUND SAMPERS & DIGITISERS

STEREO MASTER
Skeevo Master is a low cost hi-quality sound sampler for the ST. It features include: Sample Rates from 3.0 to 279 kHz, 16 bit sample with full or half volume, 15 stereo playback options using the Playback cartridge. Full STV stereo support.

**RRP £39.95**
**OUR PRICE £32.95**

STEREO PLAY
Astonishingly realistic sampled and playback compact such as Sample. Pre-Programmed. Auto Record Trigger and more, as well as the usual editing commands. Replay 8 also contains some Special Effects software and 2 voice programmable Drum Machine called Drumplay 8.

**RRP £39.95**
**OUR PRICE £36.95**

**NEW** - VIDEOMASTER
Videomaster combines a Video Digitiser and a Squid Sampler is one low cost unit. Can digitise in colour using the filters supplied or an additional RGB Splitter (not supplied). Record sound tracks using the Sound Sampler to create your own short films or demos.

**MJC PRICE £92.90**

VIDI ST
Vidi ST & Vidi-Chrome CALL
Vidi ST RGB Splitter £49.95
Vidi ST Complete Colour Solution CALL

MICE

NAKSHA MECHANICAL MOUSE
Our most popular mouse includes Operation Stealth, Mat and holder.

OUR PRICE £2 CALL

SQUICK MECHANICAL MOUSE
A great value replacement mouse.

OUR PRICE £ CALL