

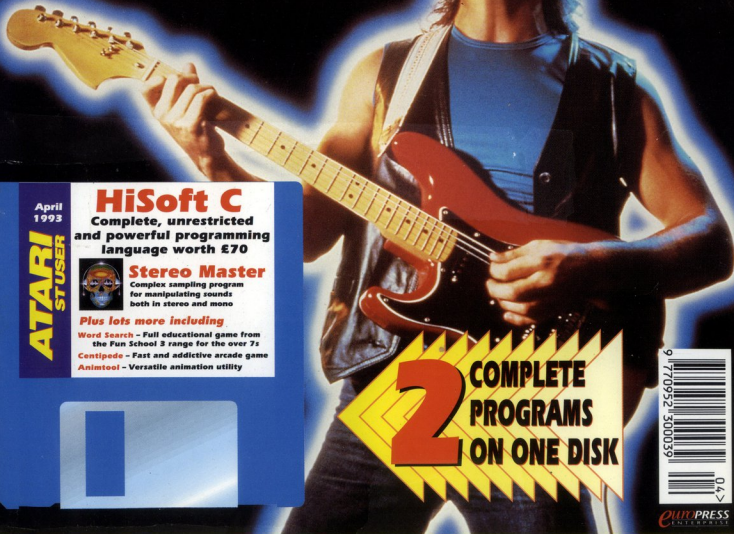
ATARI ST USER

April 1993
Issue 86
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- Songwriting made easy



April
1993

ATARI
ST USER

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Ladbroke Computing International are one of the longest established home computer dealers in the UK. We have developed an extensive customer service policy which involves testing of all hardware prior to despatch to ensure that goods arrive in working order, offering free advice and support over the phone and keeping customers informed. Although our prices are not always the cheapest we do endeavour to offer consistently good service and backup.

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Migraph OCR Upgrade £79.99

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- Ergonomic design

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Silhouette £60.00
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Calamus V1.09N £124.99

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1st WordPlus £39.99

Timeworks 2 DTP £39.99

Signa's Script WP £79.99

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The SC1435 comes complete with cable and tilt/swivel stand

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- 39 channel remote control
- Flat Screen

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- 3 Speaker sound

Philips SCART to ST/STE £9.99
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"The Natural way to draw"

- 150 dpi resolution
- Opto/Mechanical mechanism
- 500mm/SEC tracking speed
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- Includes the exceptional **DELUXE PAINT ST** art package with full manual

GI Brush + Dpaint ST £24.99

GI Brush Mouse £19.99

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- 1st Word wordprocessor, Neochrome Art & Ani ST

520 STE £219

1Mb STE £229

2Mb STE £275

4Mb STE £329

1040 STE CURRICULUM 2 £289

Falcon 030

- 16MHz 32 bit 68030 Central Processor, 16MB blitter
- 32MHz 56001 Digital Signal Processor
- 1.44Mb 3.5" Floppy up to 14Mb RAM
- Displays 65536 colours from 262144 palette at 768 x 480 resolution
- 8 Channel 16 bit, higher than CD quality stereo sound sampling
- Multi TOS MultiTasking Operating System

FALCON 1Mb No HD £479.00

FALCON 4Mb 65Mb HD £879.00

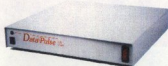
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- 720K formatted capacity
- Double sided, double density
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- External Power Supply
- Attractive case design

GI External drive £54.99
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- | | |
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| Data-Pulse + 127Mb | £429.99 |
| Data-Pulse + 170Mb | £499.99 |
| Data-Pulse + 213Mb | £579.99 |

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 - On Line help facility makes it very easy to use
 - Load/Save Custom backup configurations
 - Incremental backups by date/time or Archive bit (TOS 1.4)
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HD Turbokit £4.99

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- Available as a stand alone unit, an upgrade to existing Data-Pulse (Plus) drives or as a combination unit with Hard Drive mechanisms from 42Mb to 213Mb
- Ideal for fast data backup from hard drive
- Low cost removable media



21Mb Floptical Drive	£399.99
Datapulse upgrade	£299.99
42Mb HD+21Mb Floptical	£509.99
85Mb HD+21Mb Floptical	£669.99
127Mb HD+21Mb Floptical	£719.99
170Mb HD+21Mb Floptical	£789.99
213Mb HD+21Mb Floptical	£869.99

All the Above drives include one 21Mb 3.5" Floptical Disk

21Mb 3.5" Floptical Disk	£24.99
5 x 21Mb Floptical Disks	£114.95
10 x 21Mb Floptical Disks	£199.99

Aries Upgrades

- Will fit any ST(F)(M) or Mega ST
- Extremely compact in house designed Multi-layer circuit board smaller than a credit card
- Upgradeable in stages for the base 512K to 2Mb then 4Mb
- Solder in design for greater reliability
- Fully tested prior to despatch
- All Aries RAM upgrade boards come packaged in a 10 capacity disk box, complete with full fitting instructions and memory test software.

512K Board	£39.99
2Mb Board	£79.99
4Mb Board	£129.99
512K SIMM'S STE	£9.99
2Mb SIMM'S STE	£49.99
4Mb SIMM'S	£94.99
2 x SIPP to SIMM adaptors	£3.00

Image CAT

- Catalogue all image files on your hard disk. Prints tiled display with path names

Image CAT £24.99

ST Networks



Datanet Network Hardware

- Cartridge based high speed network solution
- Compatible with ST (F)(M), Mega ST, STE, Mega STE

PowerNet Network Software

- MultiTasking Network software allows applications to run on the server while drive and printer accesses take place in the background
- Allows the mixing of Network types. ie DataNet, LanNet and MidiNet devices
- Full Falcon compatibility using LanNet device

DataNet with PowerNet £99.99
LanNet with PowerNet £89.99
MidiNet with PowerNet £59.99

Prices quoted are for 1 Node. Each computer attached to a Network requires 1 Node. A LanNet device is required to Utilise the Lan Port on a Mega STE, TT or Falcon.

Printers



Star LC100 Colour	£165.00
Star LC20	£124.00
Star LC24/100	£179.00

All Star Dot Matrix printers include 12 months on-site warranty.

Starjet S48 Bubblejet £210.00

Citizen Hewlett Swift 240 Colour £270.00

Hewlett Packard

HP Deskjet 500 £339.00

HP Deskjet 550 Colour £580.00

Lasers

Seikosha OP104 £549.00

● 512K RAM (Exp to 2.5Mb)

● HP Laserjet IIP emulation

● 14 resident fonts

● Centronics/RS232C/RS422

● 12 months on-site warranty

Seikosha 512k RAM upgrade £69.00

Ricoh LP1200 £759.00

● Fully HP III compatible

● 400Dpi resolution

● 2Mb RAM on board

● Serial & Parallel ports

● 12 months on-site warranty

Add £3 for Centronics cable and £7 for next working day courier delivery.

Repair Services

Our Service department can repair ST's in minimum time at competitive rates. We can arrange for fully insured, courier pickup and return delivery of your machine to ensure it's safety. We even have a same day service which will ensure your machine is given priority and subject to fault, completed the same day.

We can fit memory upgrades, PC Emulators, Security devices, ROM upgrades, hard drives to Mega STE's etc.

We offer a Quotation service for £15 for which we will examine your machine and report back with an exact price for repair. If you do not wish to go ahead with the repairs then just pay the £15. However if you do go ahead then the charge is included in the minimum charge.

Please note: The minimum charge covers labour, any extra parts are chargeable.



Quotation	£15.00
Minimum repair charge	£35.25
Same day service	£15.00
STFM(E) PSU	£39.99
1Mb internal drive	£39.99
A/B Boot switch	£4.99
TOS 2.06 + Switch STFM	£65.00
TOS 2.06 + Switch STE	£65.00
Courier Pickup	£11.00
Courier Return	£7.00

Phone for price and availability of ST spares

PC Emulators



- Run PC Software on your ST
- Full installation instructions
- XT or AT Emulation

PC Speed STFM (XT) £79.00

PC Speed STE (XT) £79.00

AT Speed STFM (8MHz) £129.00

AT Speed STE (8MHz) £139.00

AT Speed C16 STE £189.00

AT Speed C16 STFM £199.00

Ladbroke Computing

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midi and music ♦ emulation ♦ communication ♦ dtp ♦ business

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The CoverDisk



On the Disk this month is the complete HiSoft C Interpreter software, an ideal package for learning the intricacies of the powerful C programming language

PLUS:

- Sampling software from Microdeal's Stereo Master package which allows you to manipulate sampled sound effects
- Word Search, taken from the popular Fun School 3 educational software series, designed to improve your child's word skills
- Animtool, a brilliant utility for creating animation sequences
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- A fast and frantic arcade game based on the old Atari classic, Centipede

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With prices going up next month, why not grab this last chance to guarantee 12 issues of Atari ST User at our current rate?

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Complete your Stereo Master package at an unbeatable price!

HiSoft offer - 84

Explore the intricacies of this powerful language with a bargain-priced manual

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Falcon prices jump by £100

By John Butters

VISITORS to the recent International Computer Show were able to see the Falcon030 for the first time, as it became clear that Atari had slapped £100 on to the machine's price tag.

Several of the computers were shown at the Falcon Feature stand, where developers demonstrated new software and Atari staff held regular question and answer seminars.

The firm promised that Falcons will be available at independent stores from the end of March, and that around 50 software titles will also be on sale.

But the computers will cost more than originally planned, with the entry-level computer now retailing at £599, and the 4Mb machine supplied with a 65Mb hard disk at £999.

The move is blamed on the unfavourable exchange rates which have inflicted financial pain on many British importers since last summer. The pound has

lost over 25 per cent of its value against the US dollar since Falcon was launched into Britain at last September's European Computer Trade Show.

But rather than a rise, most industry pundits were expecting the manufacturer to slash the Falcon's price later this year when the computer becomes housed in a new case.

Atari's marketing manager Darryl Still does not expect the rise to damage potential sales as the price of PC-compatible and Apple Macintosh computers continues to tumble.

"It would still cost two and a half times the price to get a similar spec PC or Amiga with a DSP," he said. "Falcon is all things to all men. No other machine gets near it in price."

He refused to comment on their future price policy for the machine, but a source close to the firm believed a drop will be possible when higher numbers of the machine are produced.

Flying in from Germany

AS FALCONS become available in their country, German developer Trade iT have announced details of two software packages due for imminent launch.

Chagall is a true-colour paint program containing 24-bit colour scanner input with colour calibration.

The program works in both vector and bitmap modes. The vector mode has a built-in colour vectoriser and supports both vector and GDOS fonts.

A number of professional functions and tools are available for sophisticated image processing including various filter and mask options and a set of standard painting tools.

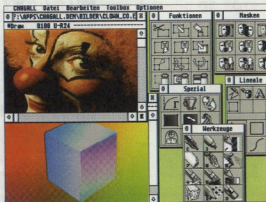
The program has a software interface to link it to external modules. These can be written by third-party developers.

A range of picture formats is supported including TIFF, GIFF, IMG, PAC, PIC, PI3 and IFF.

Available in two versions, Chagall H with 256 greyscale will cost DM399 (about £170), and Chagall C with 16.7 million true-colour will sell for DM699 (about £300).

The second program, DigiTape, is a direct-to-disk music system which uses the stereo 16-bit A/D and D/A converters and DSP to provide effects such as reverb, flanger and vibrato.

It can be run in three different operating modes - multitrack digi-



Chagall in action with two pictures and lots of tools

tal tape recorder, real-time sound processing using effect modules or as a frequency analyser.

Two tracks can be recorded simultaneously at up to 50kHz and there are six tracks for playback. Addition of effects and mixing. The effects board contains

four empty slots which can be filled by the user. DigiTape is modular and interface specifications will be published to enable third-party developers to add other functions. Trade iT can be telephoned from Britain on 010 49 6151 9037.

Marpet break memory barrier

YORKSHIRE firm Marpet Developments (0423 712600) have broken the ST's 4Mb memory barrier with an upgrade board to give STes and Mega STs 8Mb of extra memory.

Running alongside the machine's existing RAM, Xtra-RAM 8+ is supplied with an auto-booting configuration utility and installs beneath shielding.

The extended memory allocation found in some professional applications is supported, and the board's design offers solder-free installation on some computers.

Unpopulated, the board will cost between £100 and £110, and fitted with 8Mb of RAM the price will range from £380 to £400. It requires TOS 2.06.

Experimenting with Micro Science



Micro Science: Teaches science up to GCSE level

EDUCATION software specialist LCL (0491 579345) will soon release Micro Science, a national curriculum-based integrated science course for ST users.

Aimed at children aged between eight and GCSE level, the program can also be used as an aid for physics, chemistry and biology exam revision.

The £24.99 package contains practical experiments, a graphics adventure game and biology demonstrations with moving 3D pictures of body parts.

Said an LCL spokesperson: "Micro Science combines the creativity and fun of the national curriculum with the academic intensity of GCSE.

"The fun and serious type of programs are alternated to motivate the student to keep moving through the course."

Business show axed

THE Which Computer? Show, one of Britain's leading business computing events, has been scrapped this year because of insufficient exhibitor participation.

Read Exhibition's 12-year-old show was due to be held at Birmingham's NEC on April 20 to 23. Last year it was attended by 53,000 visitors.



Which Computer?: Leading business show scrapped

Laser range extended

EPSON have extended their range of personal laser printers with the launch of a six page per minute, 300 dots per inch model, the EPL-5200.

With a £929 price tag, Epson claim their new machine sets a new benchmark in affordable, entry-level laser printers.

Features include fast first page for users needing to print small documents frequently throughout the day, and a printer sharing facility to enable three computers to be connected.

Its default language emulation is PCL5 but it also has standard Epson LQ and FX emulations. PostScript and HPGL are provided through optional cards.

With 1Mb of memory - expandable to 5Mb - it has a footprint of 14in x 18in and weighs 10kg.



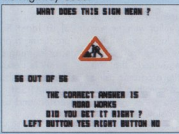
EPL-5200: Six page per minute laser from Epson

Taking the driving seat

RIP It Up is a new software package for all STs which has been designed to help teach learner drivers and test the experienced on road signs and symbols from the Highway Code.

Featuring more than 150 questions asking what various signs and symbols mean, the student can either say what they think the correct answer is or select from four possible replies.

It was developed by Aztec Software (0329 235249) and costs £4.95.



Rip It Up: Teaches road signs and symbols

Charity help sought

CHARITY Soft is a non-profit making computing organisation just set up to help a selection of registered children's charities.

They are now on the looking out for programmers of any age or experience who would like to work on a freelance basis.

Various computer formats including the ST will be supported by the project, which aims to produce games in the first instance. Contact marketing manager Michael Moseley on 0840 770935.



Ricoh: Now with more memory

Ricoh gets memory boost

A NEW version of Ricoh's LP1200 laser printer boasting extra memory is now available from dealer Silica Systems (081-309 1111).

Fitted with 4Mb the printer sells for £938.82 and continues to cost £821.32 when bought with 2Mb of RAM. Said Silica's Andy Leaning:

"We are very confident that in its price range there is nothing that competes with the LP1200."

Other features include 400 dots per inch resolution and six page per minute printing.

News flashes

● DESIGNED to be used alongside computer joysticks, Spectravideo's Foot Pedal is aimed at players of multi-functional games such as flight and driving simulators.

It offers a function control pad, industry-standard micro switch and a durable body design and costs £24.99. Spectravideo can be telephoned on 081-902 2211.

● AMITAR is the name of Analogic Computer's (081-546 9575) new swivel-based mono monitor for ST computers.

The low radiation 12in screen operates at 45MHz and is claimed to have a sharper display than the old Atari model.

It costs £129.95 and can be bought with stereo speakers for ST owners for an extra £20.

● TWO developers claim that many ST programs become compatible with the Falcon when the computer's memory cache is turned off.

Among the tested software were games without auto-loading files and a selection of home productivity applications.

● DUE to bulk buying, Ladbroke Computing (0772 203166) are now able to supply SIMM memory upgrade boards at reduced prices.

ST owners can buy 0.5Mb for £9.99 while a 4Mb upgrade costs £94.99. Memory for older versions of the ST starts at £39.99 for 0.5Mb and range up to £129.99 for 4Mb.

● USERS of inkjet printers can now buy refills from Memorex, who have just added a nine refill product range to their existing line of computer accessories.

Compatible with Canon, Epson and Hewlett Packard machines, the refills are claimed to offer an ease of use that printer users have long been seeking.

● COMPO Software (0480 891819) have announced that a new version of wordprocessor Write Now is under development.

Among the improvements will be a new "That's Write 2-style" interface and the ability to handle compressed fonts.

● FROM May's issue the quarterly direct debit charge for Atari ST User subscribers will rise to £7.99. This is due to an increase in production costs.

Show the spreadsheet way

ONE of the least understood computer applications is explained in *Spreadsheets Made Simple*, a new book just published by Kuma Computers (0734 844335).

It is aimed as a companion for any ST program that offers even limited compatibility with the industry-standard Lotus 1-2-3.

Using a set of step-by-step exercises, it takes readers from a simple worksheet containing only a single calculation to a complete financial model.

Features covered include macros, data entry screens, summary reports and Monte Carlo Analysis, and practical applications such as cashflow forecasts and budgets.

Targeted at managers, businessmen and business studies students, the guide costs £12.95.

DO YOU KNOW SOMETHING WE DON'T?

Although Atari ST User has scores of contacts in the ST world we need you. If you have some hot news ring John Butters on the news desk now on 0625 878888 or fax to 0625 879966. All sources will be treated in the strictest of confidence.

COVERDISK

An exclusive triple-billed software giveaway with three fully working and complete programs from HiSoft, Microdeal and Euress Software

HiSoft C Interpreter

HiSoft's complete and unrestricted C Interpreter is a powerful, easy to learn programming language

● Format two blank disks and label them Disk 1 Interpreter and Disk 2 Examples & Help. Copy X_HC1.TOS to disk 1 and X_HC2.TOS to disk 2. Then run each on the formatted disk to extract the files.

Most ST users who are interested in programming will be very familiar with the two most common programming languages, Basic and assembly.

Basic is ideal for the beginner in that the novice programmer can write programs using English-like commands which can then be run immediately.

On the down side, Basic is slow and the programmer has less access and control over the ST's hardware.

Assembly language is at the other extreme and is used by professional and experienced programmers because it allows total control over the ST's innards and is extremely fast.

However, the price of this power is that the commands are more concise and somewhat cryptic compared to those found in Basic. Also, greater knowledge of the ST's hardware is required.

In simple terms, Basic is described as a high level language as opposed to assembly which is a low level language. C on the other hand could be thought of as providing a level somewhere in-between, offering the best features of both languages.

It provides more understandable and English-like commands (or functions) than assembly, although they are more complex than Basic's.

C also provides the programmer with functions to access the hardware at a very low level, thereby being an attractive alternative to assembly. Programs written in C are much faster than Basic programs.

C languages on various computers also stick to the same standards and therefore programs can be converted easily from one machine to another. C's ability to offer programmers the speed and control that assembly offers as well as easier to understand commands and portability make it a popular choice among professional systems programmers.

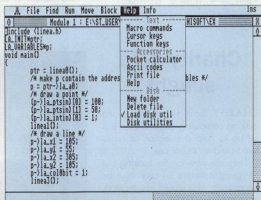
In fact, the development team behind the ST used C to write the machine's complex operating system, so you can see from using your computer just what kind of power the language provides.

The one drawback of C is that it is not ideal for the total beginner. It assumes a knowledge

Programmed by: Pierre Morel-Fourrier
Configuration: All STs - Med or hi-res
Filenames: X_HC1.TOS, X_HC2.TOS
Self-extracting archives

of at least Basic and even then, actually producing a program does not lend itself to an easy learning curve.

This is because C is a compiled language. This means that learning C by using it is not easy. HiSoft C, however, is an interpreter version and as such, it behaves like Basic in



Learning C is made much easier thanks to the C interpreter from HiSoft. What's more, we are running a complementary beginners C tutorial over the coming months to get you started

that you can write C source and run it without having to compile it first.

In other words, you just type and run. This allows for errors to be detected more quickly. HiSoft C also allows you to step through the source code and insert breakpoints.

There will be a tutorial over the coming months to complement the package which will cover the basics of the language. So, if you are keen to learn the most popular programming language available, be sure to order Atari ST User!

Reader offer

The full package for HiSoft C is available to Atari ST User readers for £19.95.

Turn to page 84 for further details

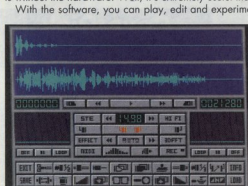


Stereo Master

Microdeal's Stereo Master software allows you to process samples to your heart's content and incorporate them into your GFA, HiSoft or STOS Basic programs

A sampling package usually comes in two parts – the hardware, which plugs into the ST's cartridge port and allows you to connect a sound source to your ST, and the software, which controls the hardware and allows you to manipulate the samples loaded into memory.

Now you may be wondering what use the Stereo Master software on this month's CoverDisk is without the hardware. Well, it's extremely useful indeed.



Stereo Master is one of the best sampling packages available for your ST. It's packed with features and very easy to use

To do this, you will need the Stereo Master cartridge, which fits into the ST's cartridge port and allows you to connect your ST to any sound source such as a hi-fi or CD player.

Then using the Stereo Master software, you can sample sound directly from the sound source into your ST, via the cartridge, where you can save it to disk.

● Note that an excellent disk copier – Fast Copy III is also included with the Stereo Master Software, and is on the CoverDisk.

STEREO MASTER HARDWARE OFFER

For just £14.95 + £1 p&p, you get the Stereo Master cartridge, a 3.5mm to 3.5mm stereo jack plug (1.2 metres long) and the Stereo Master manual. Turn to page 12 for further details.

Configuration: All STs - Lo-res

Filename: X.STEREO.TOS

Self-extracting archive

NOTE: Although Stereo Master runs in 512k, 1Mb+ is recommended for large samples

With the software, you can play, edit and experiment with the example samples included on the CoverDisk as well as the hundreds of samples that are available from most PD libraries (look out for more Stereo Master samples next month).

You can load in a sample from disk, subject it to an array of manipulations such as fade, filter and overlay to name a few, then listen to the end result.

There are also some programming routines for STOS, GFA and HiSoft basic which, once incorporated, allows you to replay samples for use in games and so on.

Also in this issue, you will find a Stereo Master tutorial explaining the basics of how to use this excellent package.

Eventually, you will want to create your own samples. To do this, you will need the Stereo Master cartridge, which fits into the ST's cartridge port and allows you to connect your ST to any sound source such as a hi-fi or CD player.

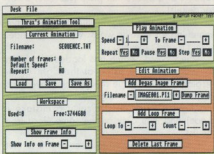
Then using the Stereo Master software, you can sample sound directly from the sound source into your ST, via the cartridge, where you can save it to disk.

● Note that an excellent disk copier – Fast Copy III is also included with the Stereo Master Software, and is on the CoverDisk.

CoverDisk Hotline

Hotline number: 0625 859766, 2pm to 5pm every Wednesday.

If you have any other problems with the CoverDisk, our technical editor, Darren Evans, will be available on the Atari ST User CoverDisk Hotline. The Hotline number is only available within the times specified, so don't waste your time trying to ring outside these hours.



Animtools' easy to use GEM environment makes creating animation files a breeze

Animtools

An excellent animation utility that allows you to string together lo-res images to create an animation file

Programmed by: Martin Packer

Configuration: All STs

Filename: X.ANIM.TOS

Self-extracting archive

Creating an animation from stills is very memory intensive, as the amount of RAM required to store one picture is not exactly small, and when you look at the number needed for a convincing animation of any time length, the memory question becomes critical.

What is needed is some kind of utility for putting together images using some kind of method to save the need for keeping full-screen images in memory – which is where Animtools comes in.

Animtools is a utility for creating an animation sequence built up from lo-res image files. It uses the delta compression technique which only saves the differences between images thereby saving memory and reducing the file size.

The program is fully GEM-driven making it easy to use and the on-disk documentation file provides full instructions on using Animtools

Problems with your CoverDisk?

With thousands of disks being duplicated each month, a few will inevitably be faulty. Fortunately, we can help you. Send the faulty disk to:

Stanley Precision, Unit F, Cavendish Courtyard, Sallow Road, Weldon North Industrial Estate, Corby NN1 1JX.

A replacement will be sent free of charge but please allow 28 days for delivery.

Centipede

An outstanding shareware version of the good ol' classic game of the same name

Do you remember Centipede? It was one of those games that – like all the best ideas – was actually very simple. You had to zap and ever-growing "centipede" which snaked down the screen, turning around whenever it hit a mushroom.

Coming as it did after the spate of Space Invader-style games, it was a clever development – and now there's a newly-available PD version available for your delectation.

The only thing I can say about this excellent game is extract it, load it and play it. It's totally brilliant, addictive and extremely manic, just like the original.

It's also totally mouse-controlled which provides a much more responsive control method than similar games that use the joystick. This is well worth the £5 registration fee so send it off immediately.

Programmed by: Sinister Developments

Configuration: All STs - Lo-res

Filename: X.CENTI.TOS

Self-extracting archive



The classic game returns in this brilliantly addictive version from Sinister Developments. Can you make the high score?

Learning with words

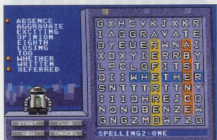
A complete module from the massively popular Fun School range of educational software

This month's Fun School 3 module is aimed at children age 7 and over. Word Search is just one of six programs that comprise the best selling Fun School 3 for the over-7s educational pack which is also available to Atari ST User readers at a discounted price (see offer below for details).

It is a puzzle program that has the player searching for specific words which are hidden within a grid of letters.

When Word Search has loaded, the letters to search for are listed at the right of the display and, using the mouse, the player must click on the first and last letters of the word to highlight it (click on Cancel if a mistake is made) and then click on the same word from the list.

If the highlighted word is correct it is then marked with a blob as a reminder that the word has been found. When all words from the list have been successfully found, a brief animation occurs and you have the option of playing again with the same words, or clicking



It's just like the puzzle book version you buy when faced with a long train or plane journey. Words have never been so much fun

Programmed by: Database
Educational Software
Configuration: All STs - lo-res
Filenames: X.FB3.TOS
Self-extracting archive

on New to load in a different word list.

If you can't see a word in the grid, clicking on the Clue button and then on the word you have a problem finding will briefly highlight the first letter of the word showing you where to begin searching.

There are three levels of difficulty to choose from in Word Search. In level one, all words can be found either horizontally or vertically. Level two has words placed diagonally as well as horizontally and vertically while level three also includes words that are in reverse. Changing the level is achieved by clicking on the numbers at the top of the grid.

Word Search comes complete with five sets of words. Between them, three sets contain 150 of the most commonly misspelled words. The remaining sets cover themes of dates and places.

It is possible for the parent, using the built-in editor, to access the editor screen to load and amend the supplied lists or to create and save new lists. To access the editor, press the F8 key.

Fun School 3 list editor commands

F1 - LOAD Loads a word list
F2 - SAVE Saves a word list
F3 - CLEAR Clears a word list
F4 - RETURN TO GAME Quits back to game
F8 - EDITOR Invokes the editor

Fun School 3 & 4 reader offer

Atari ST User readers can obtain the complete Fun School 3 and 4 modules for the over 7s at a discounted price. Simply fill out the order form below and pop it in the post.

ORDER FORM - Fun School offer

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Antimony - Versatile animation utility

ATARI ST User

CoverDisk Information

Using the CoverDisk

Write-protect your CoverDisk now by sliding the write-protect tab so you can see through the hole at the top right corner of the CoverDisk.

In order to fill the disk with as many programs as possible, ST User employs disk compression techniques when placing large programs on the CoverDisk.

These files are termed "archived files" and cannot be directly executed from the CoverDisk. Archived files are identified by their names beginning with X.

Any files that do not begin with X, are actually folders containing files which are not compressed. These uncompressed files should also be copied to a blank disk. Following are a series of step-by-step instructions for using the CoverDisk.

Important: Make a backup of your original CoverDisk and put it in a safe place.

Using archived files

Note: When copying files or disks, the ST refers to disk A and disk B in its on-screen instructions. Disk A refers to the disk being copied while disk B refers to the disk being copied to (usually a pre-formatted blank disk).

1. Format a disk.
2. Copy the required archived file to the formatted disk.
3. Run the copied archived file. It will now automatically "extract" to its full size.
4. Once complete, delete the X filename as this is no longer required. The formatted disk should now contain all the files that were in the archive file.

Normal uncompressed files

1. Format a blank disk.
2. Open the required folder and copy all files in the folder to the formatted disk.
3. You can now immediately run the program's/os is.

Highlighting and dragging files and icons

1. Click once on the item, it should turn black (the item is now highlighted).
2. If you keep the left mouse button held down on the item, a dotted outline of the item appears and you may then reposition it by moving the mouse to the required position (effectively dragging the icon) and releasing the mouse button.

If you are new to the ST and did not understand some of the terminology in the preceding steps. There now follow an explanation of some basic techniques needed.

Formatting a disk

1. Place the disk to be formatted in the drive.
2. Highlight the drive A icon.
3. Move mouse pointer up to the FILE menu at the top of the screen and select FORMAT.
4. A box will appear. Click on OK.
5. Another box will appear. Ensure DOUBLE SIDED is selected then click on OK. The disk is now being formatted.

Copying files to another disk

1. Select the file to be copied by highlighting it and dragging it to the disk B icon.
2. A box entitled COPY FILE(s) appears. Click on OK and follow instructions on the screen exchanging disks as requested.

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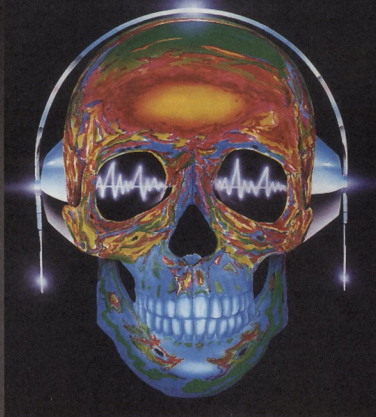
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£25 off sound sampler cartridge

Now that you've had a chance to try the superb Stereo Master software free on this month's CoverDisk, why not turn your ST into a digital sound factory? The Stereo Master cartridge and accompanying manual will enable you to capture real life sounds from record, tape, CD or even a microphone with breathless ease.

Try out one of the ST's most popular home uses and join in the digital sound revolution for only £14.95. This is an offer you can't afford to miss!

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phoning 0726 68020 and quoting their credit
card number.

When a film is being made, there is as much money spent on sound effects and music as on visual effects – so much so that there are various categories in film award ceremonies that acknowledge outstanding soundtracks.

This shows the importance placed on sound's ability to enhance the film and create a good atmosphere which generally increases the film's appeal.

The same is true of the audio effects produced for computer games and with the introduction of low cost memory upgrades and equally cheap sampling software and hardware, including sampled effects in games, the overall



Mastering Stereo Master

appeal of games has risen considerably since the days of simple effects created purely by the ST's built-in sound chip.

One company who have brought affordable sound sampling to the home user are Microdeal, and one of their popular packages is Stereo Master. The commercial Stereo Master package consists of sound sampling hardware and software.

The hardware is a cartridge which plugs into the cartridge port of the ST – a suitable audio lead plugged into the cartridge and then into a sound source, such as the headphones socket of your portable CD, completes the setup.

RECORDING

The software performs two main functions. Firstly, it allows you to record the sound produced from whatever you have plugged into the cartridge (CD player or whatever) and secondly, it provides extensive editing features which allow you to make a number of changes to the sample such as slowing it down, speeding it up, reversing it and adding special effects such as filtering.

Thus you can fine tune it before it is either incorporated into a game or one of the many music trackers available in the public domain. On this month's CoverDisk, we have given you the fully working software part of the Stereo Master package which allows you to listen to and edit many of the samples that are in the public domain.

If you want to create your own samples, you will need to obtain the Stereo Master cartridge, which is available at a discounted price to ST User readers and includes the software manual and a stereo lead (see page 14 for details).

There are also some example samples included on the CoverDisk and we will be using these during this basic



Darren Evans explains how to get Stereo Master up and running and takes you on a basic tour of its features

guide to using the software. It must also be said at this point that sound sampling is inherently memory intensive. The Stereo Master software will work in only 512k but 1Mb or more will enable you to create larger samples and generally makes the process easier.

Now we have got that out of the way, let's get down to the nitty gritty. If you have extracted Stereo Master from the CoverDisk, run the STEREO_M.PRG program from lo-res only. The colourful Stereo Master title page should appear after a few moments, at which point you should click any mouse button to continue.

Eventually, the Stereo Master main

screen will appear. All functions are accessed by clicking the mouse on the appropriate button. The top half of the display is where the waveform of any sample that is in memory is shown.

There are two windows for the waveform with the top window showing samples that are assigned to the left window and the window below showing samples assigned to the right channel.

The lower half of the screen consists of buttons which are clicked on using the mouse to access the many functions offered by Stereo Master. Also, there are two windows which are oscilloscopes that measure the strength of the sound source coming into each channel (providing you have the sampling cartridge connected to a sound source).

In order to achieve good quality samples, the sound must not be too loud or too quiet and these windows provide a visual indication of the sound

strength. Let's get straight to the interesting bit and load a sample into memory ready for us to tinker with. Click the left mouse button on the Load icon and when the file selector appears, click on the folder called Samples. Now click on GUN.AVR and choose left channel when asked which channel to load it into.

Now the gun sample is quite a small sample so not much will be displayed in the upper two waveform displays. However, you can zoom into a selected portion of the display.

You have probably noticed that there are two dark blue lines at the ends of each waveform window. These are cursor lines and are used to select portions of a waveform upon which any editing will be done.

SAMPLE

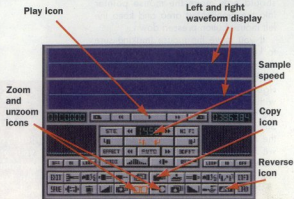
Move the mouse cursor to the far right blue line and click and hold down the left mouse button. Move the mouse to the left and you will see that the blue line moves along with it. The same can be done with the left blue line.

Now, simply move the right blue line as far as it will go. You should notice that in the upper (or left channel) waveform display, there is a blob. This is the gun sample, but not much can be done with it as it is too small to see clearly.

Having moved the right blue line to the far left, this blob is now between the blue lines and the area enclosed by the lines can be zoomed into.

Click on the icon that looks like a magnifying glass and you will see that the display zooms into the gun waveform showing more detail. This can be done a number of times to allow minute areas of the sample to be manipulated.

To zoom back out, simply click on the spectacles icon to the left of the magni-



fying glass. This greater detail is useful for all editing purposes such as joining samples together, overlaying, filtering parts of a sample or specifying the exact start and end of a sample that is to be played continuously to avoid any annoying clicks that can arise.

Ok, now let's listen to the sample. Click on the Play icon and you will notice that a small white line moves from left to right in the grey area between the two channel displays. This is the ghost cursor and shows which part of the sample is being played.

REPLAY

This ghost cursor also only plays the sample that lies between the two cursor lines. Click on the Loop icon under either of the two oscilloscope displays so that it turns red. This tells Stereo Master to continually repeat the sample.

Now click on the Play icon. You will hear the gun sample playing again and again but there is a delay between replays because the empty space after the gun sample is being played.

Move the right cursor line to the end of the gun sample waveform – you should see a small peak on its own at the very end. As you move the cursor line, you should also notice that the numeric display on the right changes. This indicates the approximate size of the sample in bytes.

Once the cursor line is positioned, click on the Play icon again. You should now see that the ghost cursor only moves between the cursor lines, and the sample is being repeated more quickly.

Well, that covers the fundamentals of loading and selecting parts of a sample. Now we will turn our attention to actually changing the sample to our hearts' content. One of the more

Limitations

Although Stereo Master works on all STs, the stereo features are only evident using an STE and stereo monitor. Also, the Effects menu only provides real-time effects that operate on incoming sound signals and cannot be used to alter samples in memory.

dramatic and audibly noticeable manipulations that you can do to a sample is reverse it.

Make sure that the cursor lines are at the start and end of the gun sample and click on the reverse icon. After a brief calculation period you will see that the waveform of the sample has changed. Click on the play icon and you will hear the drastic effect which reverse has had.

Another drastic change can be achieved simply by altering the speed at which the sample is played. If you look at the centre of the main display, you will see a number just under the play icon.

This represents the speed, in kHz, at which the sample is to be recorded or played (see the technical information box for a brief description of sample

Those technical bits

The speed of a sample is measured in kilohertz (kHz) and represents the speed at which the sound source was sampled. Higher speeds produce clear and sharp samples while lower speeds are more prone to noise and are less sharp. Also, higher speeds increase the amount of memory which the sample takes up with lower speeds being less memory intensive.

One of the many tricks that are described in the Stereo Master manual is to sample a sound at double the speed you intend to have your program play it back, then use the compression functions to shrink the sample size in half.

This results in a higher quality sample than would have been achieved if the sample was recorded at the speed at which it is to be played back.



Clicking on the copy icon will highlight the area between the cursor lines and the data to a buffer



Once the area to be copied is highlighted you can move the cursor lines to place the destination box to the area to copy to

speed). The gun sample has a speed of 14.98, and you can change this by clicking on the double arrows to either side of the number display. Try this now and listen to the effect at various speeds. After you have finished, reset it back to 14.98.

We will now make a copy of the sample, reverse it and join to the original. The gun sample should still be reversed from the previous reverse operation we performed so reverse it again to revert it to its original form.

SPECTACLES

Next, click on the spectacles icon to zoom out and move the right cursor line a little to the left then zoom back in again – there should be enough space after the gun waveform to fit another waveform after it.

Move the right cursor line to the very end of the gun and then click on the Copy to Sample icon – you will see that the area between the cursor lines is highlighted. Everything between the cursor lines has now been copied.

You will also notice that the copy icon is glowing, meaning that there is another step to the operation yet. You should now move the mouse pointer into the highlighted area and keep the left mouse button pressed down.

If you move the mouse (making sure to keep the left mouse button pressed) the outline of the area that has been copied will move. Move the box to the right until the left-hand side joins up with the highlighted area and release the mouse button. We are about to tell Stereo Master to make a duplicate of the copied area at the point at which we have positioned the outlined box. Now click on the glowing copy icon to confirm the copy process.

The highlighted area and the outline box will disappear resulting in two iden-

To confirm the copy process, click on the copy icon again and the waveform is duplicated



tical waveforms with one of them immediately following the other.

To complete our manipulation, click on the reverse icon again to reverse the duplicate sample. The duplicate sample now forms a mirror image of the first one with both of them joined at the middle. Now before you click on the listen icon, move the left cursor line to the beginning of the original sample then play it back.

As you can see, manipulating samples is extremely easy with Stereo Master and if you decide to obtain the Stereo Master cartridge (at a special discount price) you will find creating samples easy.

There are also some example replay routines in various basic programming languages included for those of you who want to incorporate samples into your own programs.

Stereo Master cartridge offer

To create your own samples and to get the most from your Stereo Master software, we are offering ST User readers the Stereo Master sampling cartridge and the Stereo Master manual. See page 12 for details.

Analogic Computers (U.K.) Ltd

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Computers, especially the ST, have revolutionised the way music is written, and the limitations placed upon it – period. It cannot be over-stressed just how much popular music has been influenced by the basic sequencer/Midi keyboard set-up.

The main advantage the potential hit-making musician has now over his contemporaries ten years ago is accessibility – accessibility to the means of making music at an affordable price, and accessibility to the time and creative space which previously could only be afforded by signed/rich musicians with the money to spend endless hours experimenting in professional studios.

Nowadays, with an ST (which you already have), some software (a couple of hundred pounds, maximum – and a lot less if you wish), a Midi setup (less than £500 for the basics) and your domestic hi-fi, you have all you need to write a hit record. This is the truth, and I speak with the knowledge that many bands have done just this.

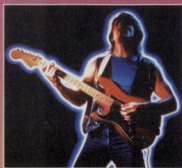
HAVING A HIT

However, wishing to have a top ten record is not the way to approach a project such as writing a song on your ST. Having a hit is a lot more than coming up with a classic, and this article certainly won't be telling you how to get a record into the top ten!

Instead, if you approach your song-writing with an attitude that says "I'm doing this for the love of it", you won't go far wrong. Just marvel at the ability you have as an amateur musician to access so much, so easily, and with the minimal outlay – if you've got what it takes, the rest will follow. On this point, let's move on...

To start with, you need the right equipment. Let's assume you've got an STE, with 1Mb of RAM. Should you have less memory, it really is a good idea to get that 1Mb now – most packages assume it nowadays, and the sampling side of music is memory intensive. More memory certainly wouldn't go amiss here, either.

As far as sound synthesis goes, the STE is not a shining example of computer-generated noise. How many times have you cringed at the weedy twangs emanating from your monitor while



Hey Mr Songwriter

...write me a song on your ST. Found in studios the country over, the ST is the perfect machine on which to compose a musical masterpiece on. Phil Morse tickles the ivories...

playing a game and thought, why is the ST meant to be the best music computer? This sounds rubbish!

Well, the ST is the best machine for controlling other sound-generating equipment, as opposed to its own internal sounds. Professionals are only interested in computers as controllers of their own synths and the like, which is why

the sound an ST is capable of producing itself are immaterial to them.

So to make a song, you'll need some kind of synthesizer to generate your sounds.

If you have never come across Midi before, now is the time for a well-needed introduction. If you have, skip a paragraph or two...

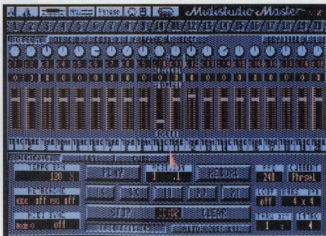
Midi stands for Musical Instrument Digital Interface, and is an accepted protocol throughout the electronic music industry that allows electronic musical devices – samplers, keyboards, effects units, computers – to talk to each other. It is thanks to Midi that you can use your ST to control instruments and write songs.

So your synth must be Midi-compatible. This is fine, as all synthesizers worth having nowadays are, but that old Moog tucked away in uncle's cupboard won't be of any use to you.

There are two ways of buying a synth – going for a traditional-looking beast, with a keyboard on it and lots of controls and lights built in, or a master keyboard (just the keys themselves in a box) with a separate "synth module" – normally a diminutive-looking unit with



Midstudio is a powerful sequencer, with the added advantage of this highly user-friendly mixing screen, which mimics those seen in professional studios



it once you'll never forget it – it's not actually that hard.

Look at Diagram 1, and bear in mind that a "Midi lead" is nothing more than an old-style five-pin DIN-to-DIN lead, available quite readily and pretty cheaply. A few trips to the local electrical retailers to buy eye-opening weird lead combinations and you should be all set up and (nearly) ready to go!

Wait a second, though! Before attempting to write any songs, it's important that you get used to your equipment. Read all the manuals carefully, play with the demos, and remember you can't break anything!

It's all right to deviate totally from any tutorials given, as long as you're prepared to re-boot and start again should seemingly unintelligible things begin to happen.

The main aim is to become familiar with the equipment so – like driving a car – its use becomes automatic. Only then can it aid – rather than hinder – the creative juices.

Finally, before we get on to the exciting bit and actually write a tune, some words about the limitations of writing a song with such a set-up.

ELECTRONIC

Basically, you can't record any real vocals, guitars or any other non-electronic sound sources. Should you wish to do this you'll need a four-track tape "portastudio" at the very least.

You can sample snippets of vocals, and sample guitars too, but bear in mind that it's strictly an "electronic" set-up you have. Still, Jean-Michel Jarre wouldn't lose sleep over these shortcomings.

So our tune will be basically an instrumental, although the option to add vocal samples is also explained. Treat it as a "showing-off-my-set-up" kind of thing, and you'll be duly impressed – as will your friends!

This is not the place to teach you about musical structures, theory and the like. Indeed, the only person who can teach you these things is yourself, through experience, trial and error –

and above all through listening to other people's work, which is where we'll start off.

Listening to someone else's songs, whether off record or on the radio, will alert you to structure, sound, song-building techniques and the rest of it – and the more you attempt to emulate such music, the more you'll notice new things. It's called learning through experience, and it takes time.

Before attempting to write a tune from cold, why not put a tape together containing a few records similar to what you have in mind, listen to it a few times to see how everything is put together?

I won't explain how to use your sequencer, or go into the mechanics of actually doing the things I describe here – you should be able to put these ideas into practice by the time you've read your manual and played about for a bit. Instead, I'll offer loads of pointers and tips for knocking out your first masterpiece.

We'll use five Midi tracks – one each for the drums, bass, piano, strings and flute. This is a simple set of instruments which will be perfectly adequate for our purposes. Many records go no further than these anyway!

So, set your Midi channels up as follows:

Channel 1 – Piano
Channel 2 – Bass
Channel 3 – Strings
Channel 4 – Flute
Channel 10 – Drums

We've used Channel 10 for drums because most synths and sequencers assume this nowadays – the standard, established by Roland, has become an almost universally-recognised norm.

Select a suitable instrument to match each of the channels – I'd personally go for an electronic drum kit, such as the Roland TR-808, a dry, punchy acoustic bass, a pop-sounding acoustic piano, simple orchestral strings and a breathy, pan pipe-style flute sound.

This set of instruments sound almost universally good, but feel free to use sounds which you enjoy – remember, there are no hard and fast rules. Changing the drum kit to a rock set-up

Tricks of the trade

Much is left unwritten in the world of sequencing. You'll pick up a lot yourself by trial and error, but here are a few tips to help you to avoid common pitfalls and solve some practical problems which you'll almost certainly encounter sooner or later:

● Leave a blank bar at the beginning of your song when inputting it to a sequencer. Here you can add Midi control changes and the like, to set up your synth every time you play the song, or after loading from disk to ensure that the control codes from previous files have been overwritten with the correct ones.

● Access the balance control code to put instruments slightly to the left or the right in the mix. This adds a huge feel of spaciousness and can completely revolutionise a simple piece of music – especially if your synth has stereo chorus as well. But do use such effects sparingly!

● You'll almost definitely use the Quantise function to "pull" your music, or more accurately clumsy playing, into line. Try not to clinically quantise everything, though, or it will sound dreadfully flat. Learn the quantising function's features well, and use them in a knowledgeable and sensitive way.

● A great use for quantising is when writing little drum fills, especially with instruments like bongos. Set your sequencer running, hit the bongo keys randomly for a few bars, then quantise the whole lot and listen back. Any fills you like the sound of can be cut and pasted and turned into an original bongo line you'd never have had a chance of writing intentionally!

will get away from the house music-style sound that the TR-808 will give your tunes.

A song is built up from blocks, so let's define a simple structure for it. Something like this will suffice:

1. Intro	8 bars
2. Verse	8 bars
3. Chorus	8 bars
4. Verse	8 bars
5. Chorus	8 bars
6. Intro (variation)	8 bars
7. Chorus x 2	16 bars

Now once you have written each block, it's a simple case of slotting them all together – something which a sequencer is made for!

I can't write a tune for you, but it's time to look at each instrument part in turn, and discuss what each instrument might be doing at the various stages of the song.

Drums and percussion

The drums are the backbone of most tunes. They are also extremely easy to structure using a sequencer.

Let's consider a simple set-up, using hi-hats (on a drum kit, they're the ones which



A mono sample, which has been loaded into the left channel of the Stereo Master sampler, and zoomed in on for easier editing



● When writing music, you can do it all in the key of C, allowing you to avoid the black keys completely. Then, assuming your sequencer has a Transpose function, you can "shift" the tune to a higher or lower key, thus making it look like you're a diva of the awkward ebones. You cunning blighters, you.

● Splitting up your drums so that every drum has its own sequencer track allows much easier editing and switching within a song. The drum map can look very complicated with five different drums all being displayed at the same time, and cutting and pasting is much easier when the drums are separated. Simply set, say, five sequencer tracks to Midi channel 10, and they will all play on the same Midi channel.

● While developing melodies, set your sequencer to loop, say, the verse, so that the same bit plays over and over again. Then you can play along on the instrument whose part you're currently concerned with until you get some ideas which can be developed into full-blown melodies, without the need to keep rewinding the song to the start and playing it again.

● If a certain instrument is causing you problems because you can't play fast enough (hi-hats are the obvious culprit here, as are fast piano arpeggios), then simply slow the tempo right down when you're recording the offending piece, speeding it up again immediately afterwards. When Mike Oldfield did this 15 years ago it was revolutionary - now everyone can access the ability to write music they're not actually capable of playing!

look like one cymbal upside-down on top of another, and tap the quick, treble rhythm), bass and snare drums, a crash cymbal and bongos.

To set down a simple beat in 4/4 time (four beats to every bar) simply listen to any record containing this type of beat (95 per cent of pop music, for instance) and copy it! You'll probably notice that the bass drum plays a contains "thud, thud, thud", the snare drum joins in on every other beat, and the hi-hats tinkle a very fast but simple pattern all the way through.

BONGO BEAT

The crash cymbal can be used at the start of something big - maybe hit once when a new instrument starts, or on the change from verse to chorus, or to signal the drums starting to "rock out" properly. Don't overdo this one, though.

For your intro, why not use just the hi-hats and a bit of bongo garnishing? You can bring the bass and snare in on the verse drum pieces, maybe losing the bongo at the same time, and bring the bongo back again, so that all of the kit is playing, for the chorus.

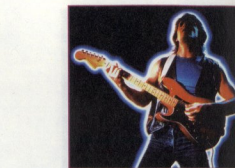
See what I mean? Just experiment, see what sounds good. If something suggests itself in your head, try it on the sequencer! There's nothing to be lost...

The bass line

Bass lines underpin songs. They should be sympathetic towards the rhythm of the music, which usually means considering the drum track when you're writing them.

Keep it simple - maybe a one-note repeat for your intro, a couple of notes chopped around for the verse, and a catchy four-note circular pattern for the chorus.

Don't attempt to give the bass too much glory. There are other instruments to play over it yet! I often think that a good bass line is one which complements a track without drawing undue attention to itself - the kind of thing you



notice the second it's gone or plays a note out of line!

When starting out, you're probably best using the root note of a chord. For instance, if the piano and strings will be playing the chord C, which consists of the notes C, E and G, the bass note should be C. You can stray from this path later should you wish when you've got your basic song structure down.

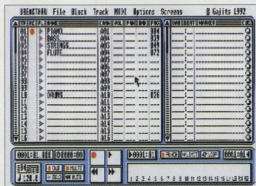
Ebony and ivory

How can you tell someone how to play a piano part in a few paragraphs? Of course you can't, so I'll suggest some ideas. For the classic Italian house sound, popularised by the likes of Black Box and FPI Project, use chunky, three-note chords in the middle of the keyboard, alternating with the root note played on the bass end of the keyboard.

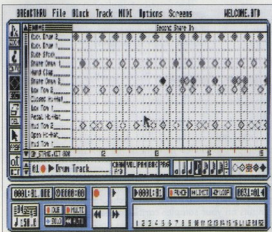
Just copy the rhythm from, say *Ride* on *Time*, follow your bass root notes and you'll have a complementary melody line for the bass you've already recorded. It's devilishly easy to play this kind of thing, too.

Maybe you could let the all-out piano stuff go on in the chorus, leaving the piano out of the intro totally and playing the odd embellishing chord in the verse section. Again, experiment!

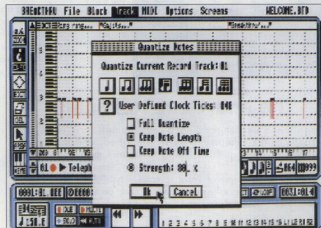
Remember, a bit of judicious cut and



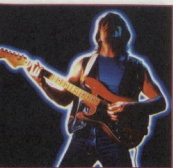
Assigning Midi tracks to channels in Breakthrough. Notice the drums are on the almost universal Channel 10



Using the Quantize feature in Breakthrough. Notice that the strength of the function has been downgraded from 100 to 80 per cent, in order to preserve some "human feel", while correcting the worst of the bad playing!



Breakthrough's drum editor. As the drum channel has certain unique properties, a drum map is a good thing to look out for when buying a sequencer - it makes editing and writing patterns much easier



▶ pasting can piece together a punchy, short and note-perfect piano line from a messy, long and sprawling ten minutes of experimentation.

Flute

Of all the instruments we've chosen, the flute is the one which should carry the listener away, and this can be achieved very easily if the musical underpinning of bass, drums and piano is solid.



Play a one-note flute melody, towards the top-end of the keyboard (after all, when did you last see a flautist playing a bassline?) – little runs and trills add excitement to such melodies.

As far as whereabouts in the song to place the flute, why not have a simple melody over the intro, with a related but "bigger" tune going over the chorus? I'd leave the flute out of the verse – you can get too much of a good thing.

The secret with an instrument like this, capable of adding so much dynamism to a piece, is to make the playing dynamic – a flat, boring, repetitive



These effects can be added in real time from Stereo Master, which means that you can't apply them to a sample in memory

What to buy

Roland CM-32L, CM32P, CM64, CM300, CM500 synth modules

Stand-alone sound modules, each containing bread-and-butter sounds. The first three are, to the best of my knowledge, not made any more, which means you can get them at a discount if you shop around.

The final two – the CM300 and CM500 – contain combinations of the previous modules, including the ability to emulate them, and crucially are GM-compatible – among other new goodies.

● Prices range from about £150 for a lucky-purchase CM32 to over £500 for the CM500.

GMX-1 synth module

Easily the cheapest GM-compatible module available at the moment. A good range of sounds is provided, it's excellent value for money, and a very good choice for the budget-conscious Midi beginner.

● Price: £269

Roland PC100 & 200 master keyboards

No-nonsense, ST-grey styled compact master keyboards. The 200 model has a few more keys and includes a pitch-bend wheel.

Both run off batteries, although an optional mains adaptor is available. Light, portable and good value for money.

● Price: £120 to £200

Breakthru sequencer

Breakthru is the latest version of Gadgit's Sequencer One and One Plus sequencers. It's easy to use, powerful and priced realistically, and as it's a development from the excellent Sequencer One, it comes well recommended.

● Price: £129.95

Midistudio sequencer

Ladbroke's very popular sequencer, Midistudio, is easy to use, has a wealth of features and, more to the point, was given away free on the September 1992 ST User CoverDisk. Get digging out those back issues! Should you wish to buy it, though, go for Midistudio Master which has now had its price slashed.

● Price: £19.99

Stereo Master sampler

Microdeal's very popular budget sampler is the ideal beginner's model, and frankly the only choice if you're reading this, as on the CoverDisk is the complete software, and for a pittance you can send off for the hardware and manual to complete the package. There's also a tutorial in this issue for extra information.

● Price: See offer on page 12

Realistic/Tandy Mixer

The cheapest audio mixer Tandy supply and monikered "Realistic", this is a wonderfully simple and functional piece of kit which runs off one PP3-sized nine-volt battery.

● Price £25 or less

melody can and will kill your piece if you don't have the boldness to give it a bit of pzazz and confident style. Be free, be easy, be experimentalive...

Soaring strings

Strings, soaring high above a piece, can soon be forgotten by the listener – but take them away and the song will sound like it's been robbed of something absolutely essential.

A drawn-out chord played on orchestral strings while the bass and piano are plonking away lends a breathtaking feeling of beauty to a piece, and quick, staccato-like stabs played anywhere on



the keyboard can add a jumpy, tense energy to a build-up.

Another very common use of strings is to add little runs or embellishments – more often than not, elaborate scales running from low to high notes – just before something big happens, like a chorus.

You should attempt to use the strings in as many ways as you can – but make sure you know what you're doing if you start allowing them to dominate the mix.

Finally, things can easily get cluttered, and as any musician will tell you, what you leave out of a song is as important as what goes in.

The spacious feel of a well-written and produced piece can be suffocated if all the instruments are playing hell-for-leather at the same time.

The short-cut to vocals

As mentioned earlier, adding a real, human lyric is beyond the scope of the equipment we've described, and moves into the realm of analogue recording – much as money required, basically.

However, get a couple of vocal samples – typically a shrill female singing something like "take me higher" or "ride on time" (to quote the ill-translated Black Box again) and you can add a human feel very easily.

Either steal your samples from an obscure record – this is part of the art of putting a dance record together – or use ready-made samples from a PD library, fine-tuning them in your sampler package in order

to get them to match the key your music is in. Alternatively, fine-tune the music to match the sample.

Then, you can "play" the samples from the keyboard just like they're musical instruments.

The major difference is that the sample output will be coming from your ST – you can control the vocal/instrument mix using your mixer. You can also place samples to the left or right of the mix manually by adjusting the mixer faders.

Of course, it's not just vocal snatches that a sampler can be useful for – classic, clichéd sound effects like pouring rain can add atmosphere to slower pieces, you can add fog horns, cheering – anything you can get to the inputs on your sampler cartridge, basically. Another feature Mike Oldfield would have killed for 15 years ago!

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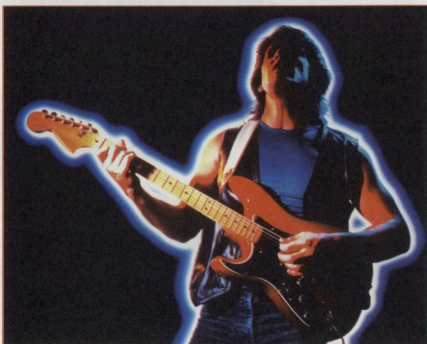
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Midi buyer's guide 1993



Compiled by Ian Waugh

The Atari ST is the most widely used computer for music control and creation in the land. More music software is available for the ST than all of its contenders put together. Packages range from impressive and cheap PD and shareware offerings to sophisticated hardware/software combinations, with prices to match. Whatever your requirements, it's a certainty there's a package specifically tailored to your needs.

Here *Atari ST User* presents the most comprehensive and up-to-date Midi buyers'

guide ever published. Sequencers, scorewriters, sample editors and librarians, creative aids, educational packages and all their associated utilities and hardware are listed, together with extensive tabling detailing system requirements, features and Midi compatibility.

There is a brief description of each product, and prices and suppliers are also detailed, adding up to a Midi user's bible – essential reference for anyone with any interest in utilising the Midi capability of their ST.

Sequencers

Product	Price	Current version	RAM required	Colour mono	Number of tracks	Event editor	Piano roll editor	Score editor	Arrange feature	Graphic song display	Ext. Midi / sync hw	Comment
Steinberg Cubase Hartman	£449	3.01	1Mb	m	64	•	•	•	•	•	•	Steinberg's full featured top-end sequencer. Superb front end. Runs under MacOS multitasking o/s. Includes Switcher (MROS shell prog).
Steinberg Cubase Hartman	£199	2.00	1Mb	m	64	•	•	•	•	•	•	Budget version of Cubase now includes drum editor but lacking score edit, the Midi Manager and Midi Effects Processor.
Steinberg Chase Lite Hartman	£99	1.0	1Mb	m	16	•	•	•	•	•	•	Budget version of Cubase. The only editing available is via the Score page. Can print out.
C-Lab Notator SL Sound Technology	£329	3.15	1Mb	m	64	•	•	•	•	•	•	Top-end sequencer/scorewriter. Very powerful, not as graphic as Cubase but superior scorewriting/editing/printing facilities.
C-Lab Creator SL Sound Technology	£259	3.1	1Mb	m	64	•	•	•	•	•	•	Notator without the scorewriting features. Compatible with all C-Lab supporting hardware and software.
C-Lab Notator Alpha Sound Technology	£219	1.1	1Mb	m	16	•	•	•	•	•	•	Budget version of Notator. No Ext. sync, 4 staves editing, 8-stave printing, fewer editing features.
Hybrid Arts SMPTETrack Gold Atlantic Audio	£546.73	6.01	1Mb	c/m	60	•	•	•	•	•	•	Includes Sync interface which generates all SMPTE and most synchronisation formats. Fast, reliable and easy to use. Update due in April.
Hybrid Arts EditTrack Gold Atlantic Audio	£126.65	6.01	1Mb	c/m	60	•	•	•	•	•	•	As SMPTE Track without the hardware interface but easy upgrade option. Supports Song Position Pointers. Update due in April.
Virtuoso The Digital Muse	£305	2	0.5Mb	m	99	•	•	•	•	•	•	Powerful, highly specified modular sequencer. machine code - screen updates are fast Multitasking. Hook into GEM for running other programs.
Prodigy The Digital Muse	£135	2	0.5Mb	c/m	32	•	•	•	•	•	•	Budget version of Virtuoso well featured for the price. Written in machine code. Now includes the Score Edit program module.
Rave The Digital Muse	£49.95	2	0.5Mb	c	32	•	•	•	•	•	•	Very budget version of Virtuoso. Written in machine code - very fast. Can play samples on an STE.
Dr.T KCS Omega Zone	£299	4	1.5Mb	c/m	48	•	•	•	•	•	•	Feature-packed bundle now replaces individual programs - KCS Level II, Graphic Song Editor, Tiger (The Interactive Graphic Editor) and Quickscore.
Dr.T Tiger Cub Zone	£119	1.1	1Mb	c/m	12	•	•	•	•	•	•	Starter sequencer but with powerful graphic edit facilities and ability to display but not edit score as notation.
Dr.T Realtime Zone	£129	1.1	0.5Mb	c/m	Unlim	•	•	•	•	•	•	Unique and powerful sequencer with many features - note generation, graphic editing, multitasking, device list for synth setups, unlimited songs.
Dr.T Keyst Zone	£59	2	1Mb	c/m	1	•	•	•	•	•	•	Creates files for KCS using step-time notation input. Includes simple Auto Composer feature.
Big Boss 24 Zone	£189	2.0	1Mb	c/m	24	•	•	•	•	•	•	Real- and step-time editing, scoring and printout. Dynamic configuration system supports GS/GM.
Trackman II Hofis Research	£149	2.4	0.5Mb	c/m	32	•	•	•	•	•	•	Easy to use yet powerful UK sequencer. Informative manual, large onscreen buffers.
Trackman II System Hofis Research	£199	2.4	0.5Mb	c/m	32	•	•	•	•	•	•	As Trackman II but package includes foot pedal and Midi port expander to give additional 16 Midi channels.
Vivace Module 1 Desert Software	£199	1.3	1Mb	m	32	•	•	•	•	•	•	Music/notation-based sequencer. Dynamics and articulation added after recording. Graphic controller editing.
Midi Studio Junior Ladbrooke Computing	PD	2.5E	0.5Mb	c/m	20	•	•	•	•	•	•	Once commercial, now PD. Phrase-based sequencer, excellent starter program, doesn't support standard Midi files.
Midi Studio Master Ladbrooke Computing	£19.99	2.06	1Mb	c/m	100	•	•	•	•	•	•	Totally re-written version of Midi Studio Junior. Easy-to-use, phrase-based multi-featured sequencer. Realtime scrolling archive window.
Concerto Microdeal	£39.95	1.1	0.5Mb	c/m	24	•	•	•	•	•	•	Budget sequencer with score editing (but no printout). Inc. ghosting, delay, note search and replace, relative tempo changes, pause, staccato and slur.
Sequencer One Gajits	£19.95	2.2	0.5Mb	c/m	32	•	•	•	•	•	•	Sequencer, easy-to-use, GEM-based UK sequencer with some sophisticated edit functions.
Sequencer One Plus Gajits	£59.95	1.2	0.5Mb	c/m	32	•	•	•	•	•	•	Scrapped up version of Sequencer One. Includes improved graphic editing, Juke Box screens, tempo maps, Sys Ex support, sample playback facility.
Breakthru Gajits	£129.95	1.02	1Mb	c/m	32	•	•	•	•	•	•	Scrapped up version of Sequencer One Plus. Includes Drum Edit page, can play 16-bit samples and has a Juke Box.
Breakthru + Gajits	£129.95	1.02	1Mb	c/m	32	•	•	•	•	•	•	As Breakthru but includes a hardware device which plugs into serial port to give another 16 Midi channels.
Trontrax Raford	£99	1	0.5Mb	m	10	•	•	•	•	•	•	Designed by Steinberg specifically for Roland's MT-32 and CM modules. Looks like a 10-track mixer. Superb hardware/software combination.
Geardes StarTrack Newtastic	£99	1.3	1Mb+	m	Unlim	•	•	•	•	•	•	Modular sequencer/sound manager system running under MidiShare with optional add-ons including synth editors. Supports 256 Midi Ins and Outs.
Geardes StarTrack v2 Newtastic	£179	2.0	1Mb+	m	Unlim	•	•	•	•	•	•	Updated version of StarTrack 1.3. Includes enhanced Midi controller and track editing - ew controller features. \$12 addressable Midi channels.
Geardes 1STrack Newtastic	£29	2.2	0.5Mb	m	24	•	•	•	•	•	•	Budget version of StarTrack but still with many features. Supports Midi files and Sys Ex data.

Sample editors/processors

Product	Price	Supplier	Version	RAM	Mode	Comment
Steinberg Avalon	£325	Hartman	2.0	1Mb	m	Powerful, highly graphic generic stereo editor with drivers for all popular samplers including several SCSI formats. Includes re-sampling, re-entraining, filtering and looping. D/A hardware available.
Hybrid Arts Genwave	£179.48	Atlantic Audio	1.1	1Mb	c/m	Generic stereo sample editor for 12/16 bit samplers.
Virtual Wave	£99.95	Resatak	1.2	0.5Mb	m	Highly graphic. Creates samples through additive synthesis and waveform interpolation in realtime. Samples 1Mb+ can be generated on a 520ST. Supports most popular samplers and synths. Sample playback facility.
Slam	£25	Intrinsic Technology	220992	0.5Mb	c/m	Sample database for Akai samplers. Search facility, print disk table. Range of sample CD templates available.
Slam Pro	£89	Intrinsic Technology	N/A	0.5Mb	c/m	Due March. As Slam, runs as a Desk Accessory and includes a suite of programs and utilities. Upgrade from Slam £74.
Mississippi BLISS	£18.80	Four Minute Warning	1.1	1Mb	m	Bulk Library Sample Sender. Transfers samples in bulk from one sampler to another. Different versions for different samplers.
Mississippi Filemaster QD	£39.95	Four Minute Warning	3.2	1Mb	m	Generic sample editor for samplers with Quick Discs. More efficient storage using the ST.
S-FATARI	£116	Akai	N/A	N/A	m	Front panel software for the Akai S1100 sampler.
Prox 01	£78A	Akai	N/A	N/A	m	Allows total control of the Akai budget priced S01 sampler from the ST.
Sampletools Wavestor S01	£149	Akai	2.0A	1Mb	m	Realtime wave editor software for the Akai budget priced S01 sampler.
Sampletools Wavestor S1000	£149	Akai	1.0A	1Mb	m	For the Akai S1000/1100/2000 samplers. Frame module of other Sampletools programs. Realtime wave editing lets you hear the result of most mouse operations as they are carried out.
Sampletools Parastor	£199	Akai	1.0A	1Mb	m	Front panel editor for the Akai S1000/1100/2000 samplers. Includes Wavestor.
Sampletools Polystor	£399	Akai	1.0A	1Mb	m	Powerful 16-bit sampler and sample editor for Akai S1000/1100/2000 samplers. Gets samples direct from SCSI drives. Includes Wavestor.

Scorewriters

Product	Price	Supplier	Version	RAM	Mode	Comment
Dr. T Copyist Apprentice	£119	Zone	1.7	1Mb	c/m	Lots of symbols, import (but not export) Midi files, 5-page scores only. Excellent printout but old-fashioned interface.
Dr. T Copyist DTP	£249	Zone	1.7	1Mb	c/m	100-page scores, font editor, export score as Midi file and TFF file, PostScript drivers. Some interface as Apprentice.
Steinberg Masterscore	£285	Harnon	2.0	1Mb	m	Top-end desktop score publisher. M.RCOS compatible.
Hybrid Arts EZ Score Plus	£139.65	Atlantic Audio	1.1	0.5Mb	c/n	Three staves, integrates with Hybrid Arts sequencers, supports Midi file format 0, also plays via monitor.
Music DTP v2.2	£305.50	Titan Designs	2.2	1Mb	m	High quality notation/printout. Midi compatible, auto note alignment/grouping after file import. Read/step time input/playback via Midi. Handles Intg./GEM files. PostScript driver available.
Vivace Module 3	£90	Desert Software	N/A	1Mb	m	Due in May. Score printout module for Vivace Module 1.
Scores Edit	£40	The Digital Muse	N/A	0.5Mb	c/n	Looms as a module into Prodigy to add score editing/printing. Supplied with current version of Prodigy.

Associated hardware

Product	Price	Supplier	Comment
Steinberg MIDEX	£335	Harnon	Plugs into the cartridge port. Provides two extra Midi Ins, four additional Outs and space for four dongles to be plugged in simultaneously.
Steinberg MIDEX+	£435	Harnon	As MIDEX but with full SMPTE timecode read/write facilities.
Steinberg SMP-II	£747	Harnon	v1.65. SMPTE processor.
Steinberg DMP-7 DTM	£399	Harnon	v1.1. Desktop Mixing software bundled with Yamaha's DMP-7 but also available on its own.
Steinberg Avalon DA	£299	Harnon	Digital-to-Analogue converter designed for use with Avalon editor. Allows auditioning of sounds as they are edited.
Clab Unitar II	£299	Sound Technology	Plugs into Cartridge port. Provides two extra Midi Ins and Midi Outs for Notator/Creator. Full SMPTE/EBU synchronization facilities.
Clab Output 32	£99	Sound Technology	Plugs into Modern port and provides 3 extra Midi Outs for use with Notator and Creator.
Dr. T's Phantom	£199	Zone	For RCS. Plugs into Modern port. Provides extra Midi Out and full SMPTE read/write facilities, song pointer FSK and pulse sync.
Hybrid Arts SMPTEMate+	£311.35	Atlantic Audio	v3.06. Generates true SMPTE timecode plus FSK, TTL, DIN and supports DF and DF#. Included with SMPTETrack Gold.
Hybrid Arts MidIPlexer	£345.16	Atlantic Audio	v1.5. For SMPTETrack and EditTrack. Provides 2 merged Midi Ins plus four Outs. Front display shows Midi activity.
StarPort	£179	Newtronic	Adds 8 extra Midi Outs. You can daisy-chain four StarPorts to give 512 Midi channels. MidShare compatible.
Midi Portfolio 128	£249	Newtronic	Midi interface for Atari Portfolio. 2 In, 2 Out. Includes 128k RAM with software.
The Dangle	£21	Intrinsic Technology	A hardware solution which lets the Steinberg dangle fit the Clab Unitar II port.
K...AT	£79	QLogic	v1.05. Plugs into 2nd joystick port. Keyboard remote for controlling sequencers (and other software). Configured with a desk accessory.
Musiconics SCP	£299	AMG	Sample Card Programmer. Due soon. PCM card programmer for Roland D70, U series and 88. Support for Yamaha and Korg instruments under development. Cards extra, price depending on type.
Sound Output Adapter	£21	Intrinsic Technology	Links ST sound output to a mixer, etc.
On Stage	£99.95	Hands On	v1.1. A Midi file player program for live use - on stage. Can be used without a monitor.
16+	£29.95	Hands On	Plugs into the serial port to give an extra 16 Midi channels with programs such as Notator/Creator, On Stage, Trackman and Master Tracks Pro.
Midi Doubler	£28	Tesseract	Plugs into the serial port to give an extra 16 Midi channels with programs such as Notator/Creator, On Stage, Trackman and Master Tracks Pro.
Modem Midi	£29.95	UKMA	Plugs into the serial port to give an extra 16 Midi channels with programs such as Notator/Creator, On Stage, Trackman and Master Tracks Pro.

Education

Product	Price	Supplier	Version	RAM	Mode	Comment
Dr. T Copyist Apprentice	£119	Zone	1.7	1Mb	c/m	Lots of symbols, import (but not export) Midi files, 5-page scores only. Excellent printout but old-fashioned interface.
Dr. T Copyist DTP	£249	Zone	1.7	1Mb	c/m	100-page scores, font editor, export score as Midi file and TFF file, PostScript drivers. Some interface as Apprentice.
Steinberg Masterscore	£285	Harnon	2.0	1Mb	m	Top-end desktop score publisher. M.RCOS compatible.
Hybrid Arts EZ Score Plus	£139.65	Atlantic Audio	1.1	0.5Mb	c/n	Three staves, integrates with Hybrid Arts sequencers, supports Midi file format 0, also plays via monitor.
Music DTP v2.2	£305.50	Titan Designs	2.2	1Mb	m	High quality notation/printout. Midi compatible, auto note alignment/grouping after file import. Read/step time input/playback via Midi. Handles Intg./GEM files. PostScript driver available.
Vivace Module 3	£90	Desert Software	N/A	1Mb	m	Due in May. Score printout module for Vivace Module 1.
Scores Edit	£40	The Digital Muse	N/A	0.5Mb	c/n	Looms as a module into Prodigy to add score editing/printing. Supplied with current version of Prodigy.

Synthesizer editors/librarians

Product	Price	Supplier	Version	RAM	Mode	Comment
Synthworks Yamaha DX/TK	£166	Harnon	2.02	1Mb	m/c	For DX7, TX7, TX216, TX816, TX802 and DX7D/FD. Highly graphic editor with powerful librarian facilities. M.RCOS compatible.
Synthworks Yamaha SY77	£166	Harnon	1.23	1Mb	m	For SY77 and TG77. Highly graphic editor, powerful librarian facilities and DLS/ST conversion routines. M.RCOS compatible.
Synthworks Korg M1	£166	Harnon	2.14	1Mb	m/c	For M1, M1R, M1REX, M3R, T1, T2 and T3. Highly graphic editor/librarian. M.RCOS compatible.
Synthworks Roland D50	£166	Harnon	1.54	1Mb	m/c	Highly graphic editor for D50 synth and D550 module. Powerful librarian facilities. M.RCOS compatible.
Synthworks Real D110/10/20	£166	Harnon	1.54	1Mb	m	Highly graphic editor with librarian facilities. Includes D50 sound conversion routine. M.RCOS compatible.
Synthworks Roland D110	£166	Harnon	1.51	1Mb	c	For D110, D20, D10, D5 and MT32. M.RCOS compatible.
Synthworks Emu Proteus	£166	Harnon	1.3	1Mb	m/c	For Proteus 1, 2, XR, 2XR, Prologue and Classic Chip models. Highly graphic editor for Proteus expands. Includes librarian facilities. M.RCOS compatible.
Synthworks Kawai K1	£166	Harnon	1.57	1Mb	m/c	Highly graphic editor for K1, K1M and K1r instruments. Includes powerful librarian facilities. M.RCOS compatible.
Synthworks Korg Wavestation	£166	Harnon	1.13	1Mb	m	M.RCOS compatible. Highly graphic editor for Wavestation and Wavestation rack synthesizers. Includes powerful librarian facilities. Needs 3.04 OS software. M.RCOS compatible.
EMC Yamaha SY55/7055	£55	AMG	1	1Mb	m	Highly graphic editor/manager, well specified for the price. Additional sounds supplied.
EMC Roland D10/20/110	£55	AMG	1	1Mb	m	Highly graphic editor/manager, well specified for the price. Additional sounds supplied.
EMC Roland U20/220	£55	AMG	1	1Mb	m	Highly graphic editor/manager, well specified for the price. Additional sounds supplied.
EMC Kawai K4	£55	AMG	1	1Mb	m	Highly graphic editor/manager, well specified for the price. Additional sounds supplied.
EMC M-emu Proteus	£75	AMG	1	1Mb	m	Highly graphic editor/manager, well specified for the price. Additional sounds supplied.
EMC Lexicon LXP-5/1	£55	AMG	1	1Mb	m	Highly graphic editor/manager for the Lexicon LXP-5/1 multi FX units. Well specified for the price.

Synthesizer editors/librarians

Product	Price	Supplier	Version	RAM	Mode	Comment
EMC Roland JX1	£55	AMG	1	1Mb	n	Highly graphic editor/manager, well specified for the price. Additional sounds supplied.
EMC Roland D70	£89	AMG	1	1Mb	n	Highly graphic editor/manager, well specified for the price. Additional sounds supplied.
EMC Yamaha SY22	£55	AMG	1	1Mb	n	Highly graphic editor/manager.
EMC Roland Sound Canvas	£55	AMG	1	1Mb	n	Highly graphic editor/manager.
EMC Korg M1/M1R/M3R	£55	AMG	1	1Mb	n	Highly graphic manager and Combo editor, well specified for the price. Additional sounds supplied.
EMC Korg M1/M1R	£89	AMG	1	1Mb	n	Das very soon. Full graphic editor for the M1 with additional sounds.
EMC Korg M3R	£269	AMG	1	1Mb	n	Das very soon. Full graphic editor for the M3R with additional sounds.
EMC Korg O1/W	£89	AMG	1	1Mb	n	Highly graphic, full editor/manager with extra sounds.
EMC Roland D50/S50	£30	AMG	1	1Mb	n	Highly graphic manager, well specified for the price. Additional sounds supplied.
EMC Kawai K1	£25	AMG	1	0.5Mb	n	Highly graphic manager, well specified for the price. Additional sounds supplied.
EMC Ensoniq VFX	£75	AMG	1	1Mb	n	Highly graphic manager and great editor, well specified for the price. Additional sounds supplied.
EMC Oberheim OB-8	£90	AMG	1	1Mb	n	Highly graphic manager, well specified for the price. Additional sounds supplied.
EMC Lexicon PCM70	£75	AMG	1	1Mb	n	Highly graphic manager, well specified for the price. Additional sounds supplied.
Geedex Kawai K4 SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian. Graphic displays plus integrated 24-track sequencer.
Geedex Yam. SY1077 SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian. Twelve editors for all sections of SY77. Sophisticated database functions and microtone feature. Integrated 24-track sequencer.
Geedex Rol. U20/220 SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian. Graphic displays, integrated 24-track sequencer. Sophisticated database functions. Easy Timbre & Patch management. Good Patch display.
Geedex Roland D70 SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian. Graphic displays plus integrated 24-track sequencer. Good Database.
Geedex Korg M3/R SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian. Graphic displays plus integrated 24-track sequencer. Horizontal page scrolling.
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Geedex Microwave SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian for the Waldorf Microwave. Graphic displays plus integrated 24-track sequencer.
Geedex Roland U110 SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian. Graphic displays plus integrated 24-track sequencer.
Geedex Roland D Series SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian for Roland's DS/10/20/110 and MT32. Graphic displays plus integrated 24-track sequencer.
Geedex Roland D50 SWS	£129	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian. Graphic displays plus integrated 24-track sequencer.
Geedex Xpert 6 SWS	£129	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian for all Yamaha 6-operator FM synths such as the DX7 etc. Graphic displays plus integrated 24-track sequencer.
Geedex Xpert 4 SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian for Yamaha 4-operator FM synths including the Y5 series, £200, D555 and Y50. Database and Microtone editor.
Geedex Korg M1/R SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian. Graphic displays plus integrated 24-track sequencer.
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Geedex Kawai K1/R/M SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian. Graphic displays plus integrated 24-track sequencer.
Geedex Casio VZ/HZ SWS	£89	Newtonic	1	1Mb	n	SoftWorkStation editor and librarian. Graphic displays plus integrated 24-track sequencer.
Geedex MT32 Ed/Man	£129	Newtonic	1	1Mb	n	Editor and manager for Roland's MT32.
Geedex Korg M1/R Manager	£49	Newtonic	1	1Mb	n	Manager program in the Supremaster series. Includes 1,400 sounds.
Geedex F801 Ed/Man	£99	Newtonic	1	1Mb	n	Editor/manager for Yamaha's F801 expander.
Geedex Kawai R50 Ed/Man	£99	Newtonic	1	1Mb	n	Editor/manager or Kawai's R50 drum machine.
Geedex Lexicon LXP-1	£89	Newtonic	1	1Mb	n	Editor/manager for the Lexicon FX unit.
Geedex Matrix 6/R/1000	£99	Newtonic	1	1Mb	n	Editor/manager for the Oberheim Matrix range.
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Newtonic Ensoniq VFX	£49	Newtonic	1	1Mb	n	Supremaster. Includes free sounds.
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Synthesizer editors/librarians

Product	Price	Supplier	Version	RAM	Mode	Comment
Yamaha FB01	£34.95	Quintsoft	2	0.5Mb	c/m	Librarian with free sounds. Includes the Incredible Bulk (a generic bulk utility) and Auto Bulk (auto file later and loader).
Advanced 4-Op	£34.95	Quintsoft	2	0.5Mb	c/m	Librarian for Yamaha's 4-operator synth. 512 sounds. Includes the Incredible Bulk (a generic bulk utility) and Auto Bulk (auto file later and loader).
Alkal X8B Organizer	£9.40	Four Minute Wam	1.2	1Mb	m	Graphic desk accessory editor/librarian for Alkal's X8B drum module.
Mississippi Union 220	£39.95	Four Minute Wam	2.5	1Mb	m	Desk accessory editor/librarian for Roland U200 and U220 instruments.
Roland SC53 Editor	£39.95	Hands On	N/A	0.5Mb	m	Functional editor for Roland's Sound Canvas range. M.ROS and SoftLink compatible and can save configurations in standard MIDI file format.
Yamaha TG100 Editor	£29.95	Hands On	N/A	0.5Mb	m	Functional editor for Yamaha's TG-100 GM sound module. M.ROS and SoftLink compatible and can save configurations in standard MIDI file format.
Switch Professional	£79	GEMWORKS	N/A	1Mb	m	GEM WS style and voice editor. Drag & Drop interface, file compression. Many free additional styles.
WS Harmoniser	£1.30	GEMWORKS	N/A	N/A	c/m	Add harmoniser function to GEM WS instruments. Unbeatable value.
Seyrel	Free	Yamaha/Kemble	1	0.5Mb	m	Bankloader and manager for Yamaha's QT-10 'Walkstation'. Commissioned by and available from Yamaha (while stocks last) and from PD libraries.
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Tony	Free	Yamaha/Kemble	1	0.5Mb	m	Editor/manager/librarian for Yamaha's TG-100 module. Commissioned by and available from Yamaha (while stocks last) and from PD libraries.
RY30 Editor	Free	Yamaha/Kemble	1	0.5Mb	m	Editor/manager/librarian for Yamaha's RY30 drum machine. Commissioned by and available from Yamaha (while stocks last) and from PD libraries.

Generic editors/librarians

Product	Price	Supplier	Version	RAM	Mode	Comment
C-Lab Polyframe	£191	Sound Technology	1.2	1Mb	m	Powerful, highly graphic editor. Uses a virtual window. Comes with 25 instrument modules.
Dr.T X-Or	£249	Zone	1.1	1Mb	c/m	Many powerful features. Over 100 modules available for most popular synths (none being written) although not user programmable.
Lizard	£189	Zone	1	1Mb	m	Highly graphic, easy-to-use editor. Around a dozen volumes of drivers available.
Lizard Single	£89	Zone	1	1Mb	m	Like Lizard but can only handle one instrument at a time. Comes with one volume of drivers.
Lizard Drivers	£49 each	Zone	N/A	1Mb	m	Volume discs mainly organised by manufacturer. Each supports several instruments.
Hybrid Arts Genesis 2	£345.16	Atlantic Audio	2.0	1Mb	c/m	Works as editor, librarian and file with most instruments and FX units. Many existing modules, also user-programmable. Contains internal sequencer track v3 drive very soon.
Hybrid Arts Genpatch	£96.64	Atlantic Audio	1.2	0.5Mb	c/m	Librarian for System Exclusive data compatible with most instruments. Many pre-written routines and user-programmable. Contains MIDI module.
Chameleon	£89	Keynote	1.1	0.5Mb	c/m	Powerful librarian with over 400 instrument 'profiles', user-configurable. Search for sounds by user-assigned criteria. Runs as program/desk accessory.
MidMan	£49	Halls Research	1.4	0.5Mb	c/m	Desk accessory. Universal remote patch editor controller. Profiles for over 50 instruments/functions. Extra interface features with Topdog.
StarTrack v2	£149	Newtronic	2.0	1Mb+	m	Modular system which includes sequencer and editor. See entry under Sequencers.
Zakod Uni-Man	£149	AMG	2.2	1Mb	m	Around 40 'device adapters', user-programmable. Highly graphic, design your own controls, supports sample dumps.

Digital audio systems

Product	Price	Supplier	Version	RAM	Mode	Comment
Hybrid Arts Digital Master	£3865.75	Atlantic Audio	3.0	1Mb+	m	Stereo direct to disk recording. SMPTE, chase lock, timestretch/compression, cue sheet, playlist, digital and analogue I/O. Recording time up to 14 hours.
Hybrid Arts Digital Master Ext	£4832.19	Atlantic Audio	3.0	1Mb+	m	Due soon. Four track version of Digital Master with 32 internal tracks allowing virtual onscreen mixing, editing and digital filtering.
ADAS ST1	£599	Plasmeq	1.4	0.5Mb	m	Low cost stereo recording at 44.1 and 48kHz. Hardware controls ADAS allowing the ST to run a sequencer simultaneously. Requires TOS 1.4/5 and an ST or STP (not STFM).
ST1/SPDF Card	£299	Plasmeq	N/A	N/A	N/A	Optional digital interface for ADAS. Allows use as DAT editing system and allows hard disc files to be saved to and loaded from DAT.
Keale Desktop Sys. Soft.	£199	CDP	N/A	N/A	N/A	Powerful, complete direct-to-disc graphic editing environment. Requires a Falcon or special hardware for the ST (only available now second hand).
Groucho	£48	CDP	N/A	N/A	N/A	An add-on of around 40 sound processing programs for the CDP Keale Desktop System.
Vocoder/Spectral Prog.	£50	CDP	N/A	N/A	N/A	Phase Vocoder & Spectral Manipulation programs for the CDP Keale Desktop System.
4T/FX	£299	DDD	N/A	N/A	N/A	A 4-track direct-to-disk recording software-only package for the Falcon.

Composition/arranging/improvisation programs

Product	Price	Supplier	Version	RAM	Mode	Comment
Dr.T Music Mouse	£9	Zone	1	0.5Mb	c/m	Move the mouse around the screen to generate four-part music. Includes computer-assisted harmonisation.
Dr.T M	£119	Zone	1.1	1Mb	c/m	First commercial composition program. Combines pitches and duration cycles to produce note sequences. Lots of graphic controls and controllable in real time.
Dr.T Fingers	£59	Zone	N/A	0.5Mb	c/m	Random music generator. Runs in MPE.
PO Music Band-in-a-Box Pro	£79	Zone	1	0.5Mb	c/m	Generates 5-part accompaniment - bass, drums, piano, guitar and strings - from a chord sheet and then lets you record the melodies. Lots of styles and devices to get you going.
Hybrid Arts Ludwig	£179.48	Atlantic Audio	1.2	1Mb	c/m	Algorithmic composer. Creates music lines based on numeric settings. Has some 'musical' note manipulation functions.
Fractal Music	£67.50	Dobomac	2.1	0.5Mb	c/m	Generates up to 16 tracks using fractal motifs. Includes powerful music processing facilities such as inversion, retrograde, rotation, time stretch, etc. MIDI file compatible.
Fractal Music Composer	£49	Fractal Music	1.3	0.5Mb	c/m	Generates 4-track music from fractal images on screen. Very easy to use and tonally maps ensure 'harmonic' output. Update due soon.
Improviser	£99	Creative Sounds	1.4	0.5Mb	m	Takes a 4-track input and creates a 5th track which you can interact with in real-time. Highly graphic, easy to use, innovative.
Improviser Pro	£149	Creative Sounds	1.0	0.5Mb	m	As Improviser but with greater rhythmic and melodic real-time editing facilities, more scale options and greater user control.
Steinberg Tango	£199	Harman	1.0	1Mb	m	Records music entered from a keyboard and analyses and modifies it in real-time producing 6-part 'improvised' accompaniment.
Feeling Partner	£149	Zone	1.6	1Mb	c/m	Combines a 16-track sequencer with an arranger and real-time harmony feature. MIDI file compatible, 74 styles (definable) and library of sequences.
Zakod Arranger ST	£149	AMG	1	1Mb	m	Real-time professional, flexible, improvisation/auto accompaniment program.
Session Partner	£149	Newtronic	2	1Mb	m	Intelligent song arranger supporting 13 instruments. Grid edit and MIDI file export. MidShare compatible.
John The Composer	£45	Newtronic	1.2	1Mb	m	Song-oriented algorithmic composition program. Output to ST's speaker or MIDI. Many user functions.
Music Mandala	£29	Newtronic	N/A	1Mb	m	Draws geometrical 'Mandala' patterns on screen and generates electronic World music. Many user functions.
Symbolic Composer	£250	Tonality Systems	1.1	2Mb	m	Powerful composition language based on USP. Requires hard disk.



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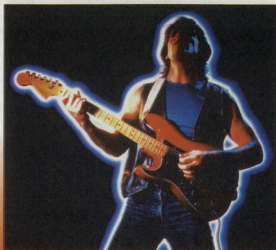
Product	Price	Supplier	Version	RAM	Mode	Comment
MidGrid	£92.93	Dawsons	1.5	1Mb	m	Alternate composition and performance system. Note patterns are stored in boxes in a grid and played by moving the mouse over the grid. Can be adapted for users with special needs.
MidGrid Professional	£175.08	Dawsons	N/A	1Mb	m	Enhanced version of 1.5. Includes piano roll editor, real-time editing and support for standard Midi files.
ADG Jazz Tuition Beginners	£17	Zone	N/A	0.5Mb	c/m	Tuition package consisting of music book, audio cassette and Midi files.
ADG Jazz Tuition Advanced	£17	Zone	N/A	0.5Mb	c/m	Tuition package consisting of music book, audio cassette and Midi files.
Jazz Chord	£59	Zone	1	0.5Mb	c/m	Teaches recognition and formation of chords on the keyboard and guitar and in notation form.
Chord DA	£29	Zone	N/A	0.5Mb	c/m	Desk Accessory to help with chord recognition. Contains over 2000 chords.
Big Boss Methods	£49	Zone	N/A	N/A	c/m	Teaching modules (book and Midi files) for Big Boss (see entry under Sequencers). Topics include jazz, piano, blues etc.
Guitar Trainer	£75	Hands On	N/A	N/A	N/A	Endorsed by Frank Gambale and Paul Gilbert. Contains and plays samples.
Guitar Library	£75	Hands On	N/A	N/A	N/A	Contains scales, modes, fingerings, polychords etc. for Guitar Trainer.
Scale Master	£75	Hands On	N/A	N/A	N/A	For guitarists. Click on a fretboard for notes, play along function, transpose, change the groove patterns and so on.
Notator Resource Pack	£65	Impac	3.0	1Mb	m	For schools. Introduction to sequencing using Notator (not supplied). Includes worksheets.

Utilities/Miscellaneous

Product	Price	Supplier	Version	RAM	Mode	Comment
MidDrummer 2	£40	Bit By Bit	2.06	1Mb	c/m	Comprehensive drum pattern editor/creator. Includes auto pattern generator, humanise function and drum maps. Some patterns in Midi file format.
Audio Integer Patch Vision	£25	Intrinsic Technology	2.0	0.5Mb	m	Machinemade D/A patch changer. Categorise sounds and select them by name. Copes with Bank Change messages and double program change systems.
Trax	£99.95	Quinsoft	1.5	0.5Mb	c/m	A full-featured recording studio manager. Includes Tracksheet, Cue Sheet, Mixdown page, address utility, invoicing/accounting program and disk index archiver.
Hybrid Arts HybridSwitch	£69	Atlantic Audio	4.88	0.5Mb	c/m	Desk accessory which lets you hold up to 16 programs in memory and switch between them.
EMC The Mapper	£45	AMG	1	0.5Mb	m	Converts drum maps from one machine to another. Comes with several maps for popular instruments.
Dr. Tritic	£25	Intrinsic Technology	N/A	0.5Mb	c/m	Analogue of 'artic'. Produces sayings, does impressions [yeh!] using robotic speech. Includes very simple music and drum pattern generator.
MPlan 24	£19	Intrinsic Technology	N/A	0.5Mb	c/m	A D/A track sheet. 24 tracks, includes SMPTE offset and reel No. Up to 16 songs in memory at once.
PC128	£19	Intrinsic Technology	N/A	0.5Mb	c/m	A D/A patch changer which allows selection by name. A range of pre-configured banks available.
SMPTKAL	£25	Intrinsic Technology	N/A	N/A	m	Film composer's aid. Includes calculators for SMPTE (all 4 frame rates), delay to tempo, sample loop time and hit list.
SongRep	£49	Computing Resource	1.1	0.5Mb	c/m	Prints a complete list of data and information in a Notator/Creator song file.
SC55/155 graphic Editor	£19.95	Hands On	1	0.5Mb	c/m	Cute utility which adds the orange display screen on the Roland 55/155 to produce scrolling messages etc. Save as a standard Midi file.
Pro24 Gen	£9.95	Hands On	1	0.5Mb	c/m	Converts a standard Midi file into a TRUE Pro 24 file containing all the data Pro 24 data does not read.

Contacts

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AMG:	073088 383	Gajits:	061-236 2515	Quinsoft:	0737 243066
Atlantic Audio:	071-359 3986	GEMWorkS Europe:	0227 742790	Resotek:	0202 519216
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Got anything to say to the ST community? Then send your scribbings to:

Incompatibility benefits

The Falcon won't run a lot of ST software, so what? This fact is probably the best news yet for Atari fans.

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Letter**

Many writers have said that the ST market is mature and that ST owners are more discriminating than owners of other makes.

This may be, but what it has meant is that many software publishers have announced that they will no longer support the ST.

The STFM has been a real drag on Atari, preventing owners of the STE, who must by now be in a majority, getting hold of programs which go some way to stretching their machine.

This situation is similar to that with the single-sided drive originally fitted to the STFM, and look how long it took before anyone realised that double-sided drives were in the majority.

When the ST series was originally announced I wonder how many people asked "Will it still run my 8-bit Atari software?" Not many, I suspect.

So, why should anyone want to run ST stuff on a Falcon? It's not the same machine, although at present it looks like it, so why handicap it with backwards compatibility?

If we did that we would be in the awful mess the IBM PC-compatible owners are in.

No doubt if the demand for ST compatibility is there, some enterprising soul will produce an emulator, but look at ST_Xformer, the XE emulator - not exactly selling in millions is it?

As with all new machines, good innovative software will be at a premium at first, but Falcon's appearance may wake up software houses who have written off the ST.

It could encourage them to produce programs for what may prove to be the next step forward in home computing.

A Street, Isle of Wight

A very good point. At the launch of the Amiga 1200 - a machine using Commodore's next generation Amiga technology - software houses promised scores of new games for the machine. Few have shown up, and I

Moving up the ladder

I'm a dedicated Atari ST person, having used a 520STFM for about four years for everything from playing games to some quite serious Midi sequencing.

For some time now I have been considering a move up the computer ladder, and because of modular construction and reducing costs the PC seemed the best route.

Then the Falcon appeared on the horizon. When my eyesight returned having been blinded by the specifications the Falcon was still on the horizon.

What's going on? Atari being left in the starting blocks again, that is what is going on. Well this thing seems like it's worth waiting for... ho hum!

Then I find in February's edition of Atari ST User a double page advert by Atari showing the Falcon in glorious colour with all the specs.

Just clip the coupon and send for more

Write Now

The Editor
Write Now
Atari ST User
Europa House
Adlington Park
Macclesfield SK10 4NP

suspect the reason is because the computer is compatible with older models of the Amiga. Developers can therefore write for the bigger audience safe in the knowledge that A1200 owners have little choice but to buy products that don't take full advantage of their computer's graphics.

It would be a disaster if the same thing happened in the Atari market, as it did when the STE was released with extra colours and stereo sound.

However, the Falcon is claimed to be compatible with the ST and so an emulator would not enable users to load their existing software packages.

Atari say the software incompatibility has been caused by program developers not following correct guidelines laid down by the firm.

Technical experts say that programmers need to do this, however, in order to produce the very best ST software.

Monopoly misery

I have a public domain program called Monopoly by David Addison and improved by Ralph Frampton. This program is not too bad but has many bugs. Do you or any of your

readers know of another Monopoly game that might be available somewhere? Any details would be appreciated as I love playing this type of game.

I hope to hear from someone out in Atari-land on this subject.

R Lussier, Canada

About six months ago we were told that this type of game had to be withdrawn from British public domain libraries because it infringed the Monopoly trade mark.

This followed action taken by Spears Games, who forced libraries to remove software based on the board game Scrabble.

The Multiprint answer

I noted Andrew Wright's comments in February's issue regarding Multiprint, and the difficulty he encountered when using a hard drive and saving his own preferences.

To him and anyone else with this problem I offer this solution. Having chosen your preferences go to the Desktop. Open the window on the directory containing MULTIPRINT.AC.

Now call up the accessory as normal by selecting Multiprint from the Desk menu. Now set and save your preferences as normal. That's it!

William Yarrow, Cheshire

Thanks for the tip.

More than the rest

It is not often that I feel the urge to criticise your magazine which I have been reading avidly for over a year, but I now find this to be the case.

When I saw the December 1992 issue in the newsagents, I was grabbed by the front cover which proclaimed "Two FULL PRICE programs on one disk", apparently worth £85.

Even the editorial backed up the fact that they were both full price programs. I wasn't that interested in Quantum Paint, but Home Accounts II was something I would find useful.

It wasn't until I had bought the magazine and was reading about Home Accounts that I realised it was not the full version but a demo, only usable until January 1993.

So I don't see how you can claim that it is worth anything, as demo versions disabled in

details it said, so I did. What arrived was the final nail in the coffin. I received four sheets of badly lined up, poorly photocopied trash!

Two sheets outlined the specs again and two sheets were from another dedicated Atari magazine of a head to head against an Amiga 1200.

I'm sorry to say that this last demonstration of total lack of professionalism finally sold me on getting an IBM-compatible.

I can at least look forward to a machine which will continue to be developed and supported by the people who make the machines!

Another convert lost. Atari, you may be able to develop a nice idea but you have a lot to learn. Time is not on your side.

Mitch Sambrook, Isle of Wight

Not a very impressive start to Atari's Falcon marketing, is it? But let's look positively, things can only get better.

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Please don't send us SAEs, we can't promise to reply to every letter so it really is a waste of your stamp. Sorry!

this manner are usually available free in the public domain. I am not saying that I would not have bought the magazine if I had realised this earlier, and I think the offer for the full program for £19.99 is very good.

However, there must be a lot of people out there who were misled as I was, and who bought it mainly for this package.

I also think the boast in the editorial that some magazines charge an extra £1 for less software on two disks is a bit arrogant.

At least the other serious ST mag includes full versions on its disks which are worth £50 or so.

That said, I think your magazine is otherwise great, and that it is well worth £2.99 anyway!

Sean Wright, Oxford

Publishers use covers to sell their magazines. It must have the most impact on the news-stand and encourage people to pick the publication up off the shelf.

We use strong words such as those you mention in your letter to achieve this aim.

The two programs on December's disk were complete, although Home Accounts 2 was restricted to two or three months, use. Potential buyers were also warned of this on the cover.

It is unlikely that you would find public domain examples of software without any features disabled.

The boast in the editorial about Atari ST User charging £1 less than other publications for more software was quite true, even if you care not to include Home Accounts.

Our competitors were giving two disks and charging £3.99 - one disk usually contained a full price package and the other public domain and reader submissions.

We carried a similar number and quality of programs on our single disk and charged £2.99.

Falcon life down under

As one of the few ST users in Australia, I have been watching the news of the Falcon with some interest. I've been a user of Atari machines ever since the days of the 8-bit computers.

Why I have stuck with the company for so long I don't know, as Atari Australia is by all accounts worse at promotion and support than its English counterpart.

Atari repeatedly seem to be in the position of being, briefly, at the forefront of the home computer price vs power equation and then letting the edge slip away from them as competitors upgrade their products.

This happened with the 8-bit 400 computers - which were better and cheaper than the Commodore 64 - and with the ST, which was cheaper than the Mac and the Amiga. Now we have the Falcon, which seems to be better and cheaper than IBM compatibles, Apple Macintosh and the Amiga 2000.

For my uses the ST has many advantages over its competitors. It is easier to program

than the IBM - especially Windows - prints my essays just as well as Mac, and is generally easier to use than the Amiga.

However, the technology is now seven years old, and looking around at other computers I find myself yearning for some improvements.

First and foremost is increased screen resolution and more colours. My current system is an STFM with 2.5Mb of memory, of which a paltry 32k is graphics.

Atari should have upped the graphical resolution years ago with the STE when it became clear that VGA was becoming the minimum acceptable standard.

Second on my list is increased speed, although in fairness I realise that turbo boards have been available for some time, and the third improvement is multitasking.

At this point the casual reader would be thinking that I am hanging out in desperation for the Falcon.

Well, I am, but with one major reservation - compatibility. Atari have stated that the Falcon is not meant to be compatible with the ST, and from the information given out by your magazine and others compatibility seems to be very haphazard at best.

This is not a good situation for Atari. IBM has very good compatibility with earlier computers, as does Apple and, I believe, the Amiga.

Why would I buy a Falcon if most of my existing programs will not run? The most logical thing to do would be to abandon ship and buy a cheap 486 clone.

Atari must realise that the ST market is being overlooked by developers, and must know the perils of launching a new operating format with a virtually zero user base.

Why they abandoned downward compatibility, apparently in favour of a few extra technical specs, I don't know.

In doing so they also abandoned their most favourable supporters, those who already own an ST.

Allan Kreymborg, Australia

Depending on who you talk to at Atari, you will be given various views on compatibility, but at the moment most people agree that the machine is in fact compatible.

As I have already replied in another answer this month, the incompatibility arises because software has not been written to correct guidelines.

But you are wrong when you suggest that other computer formats don't suffer similar problems when their specifications are upgraded.

The Amiga has had big problems the last two times its Workbench operating system was changed - the biggest when Workbench 1.3 was upgraded to v2 with the introduction of the Amiga 500 Plus.

The PC also has its problems. You will find that not very much of the latest PC software can be used on a 286 machine and users frequently have to update their operating systems.

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Following months of speculation and rumour, due in part to Atari's "hush-hush" and "hide and seek" games, the first Falcon production machines were delivered in Germany with Yuletide felicitations to a few lucky users just before Christmas last year.

These machines are, in part, considerably different from early developer models which were available to a few immortals about a year ago. What follows is an appraisal of the machine in its final configuration, after extensive testing and general use.

Opening the box reveals a case which, at first blush, appears identical to the STE's. The only cosmetic differences are the new colour Atari logo and dark grey keyboard. However, for substantial differences a look at the back of the machine reveals a whole bundle of new ports.

The ST has always been very good when it comes to interfacing although it did have a few weird peculiarities (monitor plug, ASCII). None of that nonsense on the Falcon! But let's do this in an orderly fashion.

The left-hand side sports the familiar ROM and Midi ports as well as two analogue joystick ports (as seen first on



new, easily accessible, "enhanced" ones.

The right-hand side contains a high-density floppy drive capable of storing 1.44Mb which is, nevertheless, downward compatible with both single and double density disks used by "normal" STs.

Another novelty is that the floppy drive now has its own LED. The "old" STE floppy LED - located below the Atari logo - now serves to indicate access to both the internal hard disk and the floppy. This might appear

Don Maple, a German Falcon user with a few months of lucky ownership behind him, documents his feelings about the machine. What follows is the most complete appraisal you'll read anywhere...

Are you ready to fly?

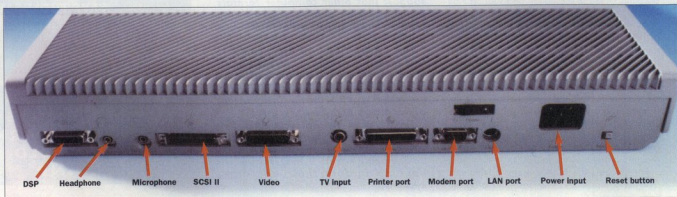
the STE). These "enhanced joystick ports" as Atari call them appear all but useless because they flopped on the STE and it's a mystery why Atari continue to insist on them.

The normal Atari joystick ports are still "access protected" underneath the front of the machine. I suppose this inaccessibility might be an Orwellian attempt by Atari to force us to use the

confusing at first but when in doubt lean to the right and take a peek at the floppy LED. And now for the real treat - the ports at the back. The DB25 female parallel printer port is the only familiar connector. The serial port is also there but as a DB9 male ("joystick size") connector which means you'll need a new cable for your modem. On the bright side this new cable is more flexi-

ble since it doesn't have all those unused wires.

There is also a second RS-422 high speed serial port also known as the LAN port. This 8-pin mini DIN female port is officially called the SCC connector. This is because, unlike the ST, the Falcon has a new serial port chip, the 85c30 SCC Serial Communications Controller. This chip is also responsi-



ble for problems with some ST terminal software which programs the old chip directly.

The weird Atari monitor connector has also been replaced. Instead, there is now a DB19 male video connector. Furthermore, Atari also supply an adaptor for a standard (joystick port size) VGA connector.

Thanks to this adaptor I was able to plug in my NEC multisync 3D straight away and you can connect the Falcon to a TV set since the RF modulator is built-in. Another replacement is the SCSI-II port which supersedes the old Atari ACS1. This means your old Megaflex hard drives are left out in the cold but Atari expect third-party people will come up with adaptors soon.

Although this is a problem when it comes to Atari laser printers, as far as hard disks are concerned, you are better off getting a new SCSI HD anyway and leaving the old HD drives hanging off the ST.

The meagre capacities of most of the old drives are just not big enough for new Falcon applications. In any case SCSI-II is great news because it means we now have instant access to a myriad of peripherals available for other platforms such as A4 colour scanners, flopticals, plotters... you name it!

And so we come to the "never-seen-before" ports. First of all there are the external stereo headphone (well, this existed on the STE) and stereo microphone connectors. These connectors are the same size as seen on personal stereos.

ACTIVE SOUND

Actually, I plugged in my Aiwa and Panasonic (passive) speakers in, and the volume is quite adequate, but a set of active (amplified) speakers or the hi-fi auxiliary input is probably what most people will use.

Another neat feature is that the microphone input is line level rated which means you can also plug in your guitars, synths and so on!

Last but not least is the DSP connector. The details about this are still sketchy (the owner's manual doesn't even list individual signals) but it can be used to connect multiple Falcons for (pardon my enthusiasm but I just can't control myself) super-computer performance!

Never mind multitasking - we're talking multi-processing here! This sort of open system design is the stuff the future is made of and it makes the Falcon "future proof".

So the time has come to open up the birdie! The multi-layer board is amazingly clean for a new machine with only

one jumper cable. The chips are surface mounted for high reliability.

The DSP block is completely isolated in a corner eliminating any interference from the rest of the system (I'm sorry to disappoint owners of a competitor's machine who have been spreading false rumours about this!).

INTERNAL SPEAKER

There is an internal mono speaker sitting just below the top grill. This is needed because VGA monitors don't normally have a speaker. The reviewed machine came with a 65Mb hard disk but higher capacity internal HDs are feasible. The 4Mb of RAM is located on a daughter board sitting on top of the 68030 processor. The Falcon can access one, four or 14Mb of RAM. I think 1Mb is really not a serious proposition. Most people will go for 4Mb. The unusual 14Mb maximum is due to two reasons.

The processor address lines are limited to 24 bits (like on the ST) but the MMU cut this down to 4Mb instead of 32 bits (as seen on the TT). This limits the processor to 16Mb of address space.

However, the top 2Mb are reserved for ROM images and port addresses. The maximum amount of RAM is therefore 14Mb. Although the room within the machine is tight, this artificial limitation is not exactly welcome when we think back to how quickly the 4Mb limit of the ST was reached.

But the biggest disappointment, when it comes to memory, is the non-standard RAM board. Instead of the inexpensive and handy SIMMs we all loved in our STEs we are now pushed back to the contortions of the original ST. Why, oh why? There can be absolutely no excuse for this. I guess old habits die hard.

The board also contains an internal expansion port, aka co-processor slot. This is where you plug in a floating point unit, DMA co-processors and (for masochists) 386SX PC emulators. The 80-pin connector is split into two parts (30 and 50 pins).

This expansion bus is just what the doctor ordered! It was painfully missing on the original ST where the official Atari excuse was that you don't need direct bus access - use DMA instead!

However, realising the error of their ways, Atari attempted to rectify this on the Mega, but by then it was too late as "the standard ST" has already been defined! It's therefore great news to see direct bus access on the Falcon from day one. The hardware hackers can



FLIPPY



FLIPPY



I E M



I E M



E J



E J

Examples of some of the new Desktop Icons before and after selection with the mouse

now go wild and come up with all sorts of wonderful and yet unforeseen hardware miracles! The only drawback is that the port is internal which means you'll have to open the machine and void your warranty every time you want to do something.

The internal expansion slot belongs on the outside! Well... you know what I mean. However, since the Falcon is extremely well endowed with ports there is just no room for it on the outside. Oh, here's an ideal How about removing those enhanced joystick ports? And so to the software. On the misnamed language disk you'll find system software for hard disk installation, XControl (new Control Accessory), a file containing a selection of desk icons and LINES demonstration program that draws multi-coloured random lines.

CLOCK PROGRAM

The Extra Programs disk contains two games, Breakout and Landmine, a talking clock program TKCLOCK and two applications, PROCALCK and CALAPPT.

The "games" do nothing to demonstrate the unique features of the Falcon. The talking clock, whose female Californian-accented voice speaks the time at adjustable intervals, does a better job. The calculator is indeed very good one but nothing really new.

By far the best of the bunch is CALAPPT, a calendar and appointments program, which also includes a telephone book which can use your modem for dialling. However, it doesn't exactly demonstrate new Falcon features.

Atari were always known for giving away a lot of software with new machines. According to certain American sources the above pack in the States will also include D2D direct-to-disk recording system and SAM - System Audio Manager used to assign sound effects to various system functions. That's more like it! For example,

my setup includes a lot of Star Trek sounds. When my system boots James T Kirk says "Energise!" followed by the sound of "beaming up". And instead of a bell I now hear "Bridge to Captain!". It impressed my friends, that's for sure! And since you can digitise sounds yourself the sky is the limit to what you can do.

The owner's manual is very well written, covering all aspects of the machine so that even a complete newcomer to Atari will feel right at home.

An interesting thing is that the manual has a small chapter on MultiTOS. The program itself is not included with the machine but should be available by the time you read this. Also supplied is the manual for CALAPPT and a leaflet about the two games.

You've waited long enough! Time to start the machine and tour the new Desktop. But a word of explanation first. Even though the Falcon's TOS 4.xx operating system has a lot in common with TOSes 3.xx and 2.xx, we will treat its features as new.

UPGRADE PATH

The reason is that TTs and Mega STes are quite thin on the ground and the upgrade path for most readers will be directly from the ST/STE, that is to say from TOS 1.xx.

The first thing that catches the eye are animated icons in colour. When clicked an icon is not just inverted but replaced by another. Clicking on floppy disk icon opens the little door, the hard disk icon light comes on and the garbage can

An altogether better blitter

Some of you STE owners must have spotted no mention of the blitter. This is because it, along with the 68030 cache control, has been moved to the Control accessory. To be precise this is the new XControl Panel with CPX modules.

The General CPX module now controls the blitter and 68030 cache, and it turns the internal speaker on and off. Interestingly enough the blitter can't be turned off any more!



ProCalc - It's a good calculator, but nothing really new

opens! You are also no longer limited to default icons but can use any icon image you wish. The system comes with a bunch of default ones - some quite colourful!

A lot of German hackers have already "translated" a scores of Windows icons into Falcon format so you'll have thousands of icons to choose from.

Another new feature is the ability to move any file onto the Desktop as an icon. So instead of rummaging through various folders the files are instantly available. There is now a printer icon so that files can be printed from the Desktop by simply dragging them on top of the printer.

And dragging a data file on top of a program icon, or for that matter on top of a program name in the window, runs the program which then automatically loads the chosen data file. This is similar to Install Application, only with this new approach you can drag any file on top of a program.

For instance, you can make 1stWord load not only DOC files but also ASC or TXT or whatever. Another advantage is that since the extension is not globally defined as in Install Application method you can still double click on the file to have a quick peek without invoking the program.

There are quite a few new tasty morsels on the menu bar. Under the File heading there is now a Search... option to waste through megabytes of hard disk storage for you. Naturally you can use both "*" and "?" wild cards. The OS then selects (highlights) files and folders matching your requirements

File	View	Options
Open...	[O] Show as Icons	Install Icon...
Show Information...	[I] Show as Text	Install Application...
Search...	[S]	Install Devices

Delete Item...	Sort by Name [N]	Remove Desktop Icon
	Sort by Date	
	Sort by Size	Set Preferences...
Create Folder...	Sort by Type [T]	Set Video... [V]
Close Directory	No sort [U]	Read .INF File... [R]
Close Top Window		Desktop Configuration... [C]
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The Desktop management options are very comprehensive and versatile

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The dawning of a new age...

It's important to stress that according to Atari Germany, Falcon 030 is just the first in a series of machines.

There will be machines above and below this model. Speculating aloud I guess this means there will be a sub-030 Nintendo-killer and super-Falcon workstation, possibly with a 68040 and detachable keyboard.

I've heard some people saying they wish to wait for this 040 version. This is very wrong on many counts, but I'll name only two.

If everyone sits and waits it will make it more difficult for Atari to develop the 040, possibly causing further delays. Or just look at it this way - when Falcon 040 does come out, all of us 030 owners will already be experts in the field while fence-sitters will be starting from scratch.

So, whether you're a developer or a user, be good to yourself - go and get a Falcon030 today!

prompting you to continue or cancel the search after each display.

When the Desktop real estate gets tight you can cycle (activate) even fully covered windows by using Bottom to Top option. No more closing or moving of windows to get at that little hidden window, way in the back.

But perhaps most useful of all is the Set File Mask option which makes it possible to display only certain files. For example, instead of going through hundreds of files in your C: drive looking for accessories you can simply Set File Mask to "*.ACC" and have a much more civilised display.

One minor objection is that Format Floppy Disk... defaults to Double Density. Considering that most Falcon owners will use high density disks, HD should have been made the default.

UNSORTED FILES

The View menu can now also show files unsorted, that is to say in the same order in which they are stored on disk. This is particularly handy when viewing AUTO folder programs to check the order in which they are run.

But the most new improvements and changes are in the Options menu. Install Icon first prompts for Desktop or Window and then shows all icons stored in the default DESKICON.RSC file. There are three GEM Desktop icons - Drive, Trash can and Printer - but as previously noted, other files can also be dragged onto the Desktop. The icons for these other files are freely selectable.

The Install Application option is now a real gold-mine of new features. Most notable is the ability to pass arguments to a program.

For example, I have defined all files ending in ".LZH" to invoke my LHARC.TTP program. The problem in the past was that LHARC expects explicit instructions as to what to do with the compressed file (decompress, list, check and so on). By adding "x" on the argument line I can now decompress files with a simple double click instead of scurrying around to remember differ-

DESKTOP CONFIGURATION

Set default directory:

Set input parameter:

Function-key Assignments:

F 1

Define Single Keystroke:

Menu Item:

Key:

System Free Memory: 3492192 bytes

Altering the Desktop configuration

ent commands for all those different file crunchers.

The File Type has also been extended to accept GEM-Takes Parameters and you can specify the default directory for the application as well as path name.

Finally, it is now possible to use those weird function keys. Each installed application can be assigned to a function key.

Pressing this key then runs the program. Twenty different F-keys are available; the normal F1 to F10 and

then more by holding down the Shift key. But the function keys are not the only keys available on the Desktop. There are a number of short-cuts - some pre-defined, others freely assignable. For example, pressing Control and the drive letter displays the drive's directory within the currently active window.

Let say you have an active window with drive C: contents. Pressing Control-D replaces this with drive D: directory. To do the same thing in the past you would have had to close the window containing the C: directory and then click on the D: drive icon to open a new window with D drive contents. Alternate and the drive letter will open a new window. This is equivalent to double clicking on a drive icon.

But wait, there's more. Using the Desktop Configuration option you can now assign key short-cuts to all menu items! A real boon to desk-jockeys who always had a strained relationship with their mouse.

On my machine, pressing N, for example, sorts the files in a window by name. T sorts them by type, and - yes - U is for unsorted.

SCROLLING

To top it all off, cursor keys can be used to scroll a window up and down or even sideways, and when you're happy with what you see, pressing ">" prints the contents of the window!

To keep track of all these new features, the Help key has finally been put to good use by displaying what individual short-cuts do.

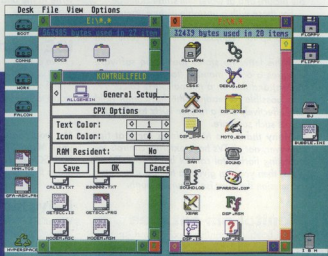
All of these icon and short-cut improvements are reflected in the NEWDESK.INF files which replaces DESKTOP.INF. The flexibility of the Desktop is further enhanced with "Read .INF File" option which installs a new Desktop layout without rebooting.

This means you can have a whole bunch of different Desktops, one for each application with the favourite utility programs already there as icons.

So, what's the verdict? All things considered it must be said that this is a very impressive machine. It will not only put Atari back on track - it marks the firm's rebirth.

Kaleidoscopic!

With so many colours, the Color module has been rewritten to use 256 16-colour blocks with RGB colours ranging from 0 to 1,000. But most interesting of all is the Window CPX which is used to change the appearance of all windows elements from scroll arrows to background pattern - see the gaudy Desktop I created to demonstrate this!



technical letters • problems • suggestions

ADVICE service

Darren Evans, Advice Service, Atari ST User, Europa House, Adlington Park, Macclesfield SK10 4NP

A reader replies

I would like to reply to two letters in the January issue of *ST User*, one from B Greevis in Morecombe under the heading "Boot up failure".

I have spent the past year not only learning how to use my STFM, but also putting what I have learned to good use by re-writing the manual, covering the bits that are not covered.

What I now have is a fairly large document to be used in conjunction with the manual or as a disk-zine. If Mr Greevis would like to contact me, I would be happy to pass on either a printed copy or disk for the price of the postage/disk.

The other letter was from L J Russell from Ramsgate regarding the A320 Airbus simulator being played on a TV.

I play this simulation game on a Ferguson 51G3 Fastext colour TV and the picture, although not as sharp as a monitor, is quite acceptable.

It does however find this simulation complex and not easy to get to grips with. If Mr Russell buys the game and can figure out the air corridor maps and so on, perhaps he can let me know?

R Lotinga, Kent

Many thanks for your offer of help to Mr Greevis. If Mr Greevis gets in touch, I will pass on your address. With regards to the A320 Airbus simulator problem, there may be a solution. For the benefit of readers who are not aware of the problem, I'll quickly recap.

A320 Airbus will not work on some TVs due to the fact that it automatically switches from a 50Hz to a 60Hz display rate. UK television sets have a display rate of 50Hz and although most new TVs will be able to cope with 60Hz, the many older TVs will at best have a unstable picture and at worst will suffer damage.

For those with a unstable picture, there may be a solution. Mr Richard Lotinga wrote in with a tip for readjusting the TV to cope with 60Hz.

In his letter he states that some software requires a 60Hz monitor (for instance A320 Airbus) and that on a normal 50Hz colour TV, it is possible to readjust the horizontal hold and effectively add a further 10Hz to allow the use of such software.

Many thanks to Mr Lotinga for that tip, however, not all TVs have external controls for adjusting horizontal control but if your TV set does, then you can give it a try. Be sure to get permission if the set isn't yours, though.

Monitor pin-out plea

I have bought a monitor second-hand, a Prism QL-14, which I hoped to use with my ST. However, since no manual came with it, I

Terminally troubled

After eventually managing to get enough dosh saved up, I am now the proud owner of a Courier HST dual standard modem. However, there's not much cash left to buy a decent terminal package so I will be looking to the public domain and shareware sources.

Could you please suggest a few titles that you feel are worthy of consideration? I will require software which has full built-in phone-book facilities to take advantage of the auto-dialling features of my modem.

M Robson, Suffolk

Wow! Starting off in the comms world with a Courier HST dual standard is what I call class. It's one of the most powerful modems you can buy (he says with envious overtones).

I can certainly believe that after buying that beast you don't have much cash left to spend on software but fear not, there is some excellent shareware terminal software available from PD libraries.

Your case is an ideal example of how the shareware philosophy can help users decide

on the suitability of the software before they buy.

I suggest that you get hold of the following three comms programs - Freeze Dried Terminal v2.20, Uniterm v2.0E and Vanterm v4.8. They are available from most good PD libraries, so shop around to find the library which offers the cheapest service.

You can then try out each program to find the one that suits your needs. It must be remembered that the programs (with the possible exclusion of Vanterm, although I'm not sure) are demos of the full versions.

However, the demos only have some of the more luxurious features de-activated - otherwise they are fully functional when it comes to logging on to services.

When you finally make your choice as to which program you find most suitable, you may then send off the registration fee suggested in the documentation for that program (normally no more than £25) for which you invariably receive the full version of the program, usually free updates and, more often than not, extra utilities to boot.

have been unable to wire it up. I would be grateful if you or any of your readers could provide me with the pin information for the monitor's Scart connector.

J Hopkins, Wirral

I can't say that I'm familiar with that particular model of monitor so I'll leave this one open to any of our readers who can help. If you can, write to me and I'll include the solution in next month's issue.

IDE connection

I have a Western Digital 80Mb hard drive and I was wondering if I can use it with my Mega ST? If not, is there anybody out there who wants to buy it?

S Sukari, Gloucester

No, you can't connect an IDE hard drive to your Mega ST. However, Falcon can handle both SCSI and IDE hard drives (IDE being internal to the Falcon).

Driveless Falcon?

What's all this nonsense about the Atari Falcon030 not supporting a floppy drive? As far as I know, the Falcon has an internal 1.44Mb floppy as standard. Also, I haven't

heard anything about the Falcon having a internal clock. Does it have one?

G Grant, Stoke-on-Trent

I'm not sure where you are hearing that the Falcon does not support a floppy drive. I guess it's the fact that there is no facility for connecting an external floppy drive that is causing all the fuss. With regards to a internal clock, yes, the Falcon does have one, battery backed and all.

Clean heads

I have seen numerous head cleaning products for disk drives and I was wondering how often you are supposed to clean your disk drive. Any suggestions?

P Brownlow, Sheffield

I have had my Mega ST for three years now and have never had the heads cleaned on my drives. It has never caused me any problems and opinion varies as to whether or not head cleaning kits cause unnecessary wear and tear to the heads.

If I suddenly experienced problems with my disk drive and it could be traced to dirty heads, personally, I would take the computer apart and, armed with a pack of cotton buds and pure alcohol cleaning fluid, clean the heads by hand. The choice is yours.

Costing calls

I was wondering how much it would cost to run a modem and whether the phone charges are at normal rates depending on the time. Are there hidden costs that I should know of?

H Sullivan, Middlesex

All charges while using the modem on the telephone lines are at BT's normal rates. However, you will find that some commercial communications services such as CIX and CompuServe, require that you also pay subscriptions and sometimes extra charges for certain services.

ST to Mac

Is it possible for me to write documents on my ST and then take them into work and load them onto a Mac? The wordprocessor that I use on the Macintosh is called MacWrite.

L Hudson, Shropshire

Yes it's possible. You will need to save your text onto a PC-compatible formatted disk as an Ascii file (there are many PC formatting programs in the public domain). You can then load the text file into the Mac using the Apple File Exchange program that is supplied with the Mac.

This program enables the Mac to read PC disks. However, be sure to select the Text Transfer option from the MS-DOS to Mac menu rather than using the default translation. Alternatively, if you have System 7 installed on your Mac, you can use PC Exchange to automatically read PC disks.

Shields up

After having recently installed an accelerator card within my Mega ST, I have experienced no end of problems with reading and writing to floppy disks.

Even when I try to format expensive TDK disks, I get an error about half way through the formatting procedure and yet when I format the same disk on my friend's computer, there are no problems.

The same is true when trying to load programs that once worked on my ST and also when trying to write files to the disk. I keep getting a error message implying that the disk is faulty but again, they work fine when used on my friend's computer.

I am beginning to suspect that I damaged some component when I installed the accelerator but this is unlikely as I took all anti-static precautions and handled all components with great care. Should I just send my ST off to be repaired or is it a problem which I can solve?

F Hampstead, London

In the words of the Star Trek character Scotty: "The shields are gone, Captain!" When you installed your accelerator, you will have had to remove that rather annoying metal shielding to get at the main motherboard.

A lot of people tend not to replace this when re-assembling their computer so that they can get at the innards quickly should the need arise to open their computer up again.

This is not recommended as the metal shielding is crucial in keeping out electronic interference.

Having a Mega ST, I assume you have a monitor sat on top of the machine's casing. So, I think you will find that the electronic emissions from it are interfering with all floppy disk operations.

The ideal solution is to replace the metal shielding but if you have got rid of it, try putting a couple of sheets of tin foil on the Mega ST casing and sitting the monitor on it. Not exactly cosmetically pleasing, but it does the trick.

If the problem isn't due to a lack of shielding then I suggest you try to ascertain whether the floppy disk drive unit or a component inside the ST is faulty.

The best way is to swap floppy drives with your friend. See if your drive works in his machine - if not then you will need a new drive, if it does, then I suggest you send your ST off to be repaired as one of the components inside is faulty.

Hard software

I have a Protar 50DC hard drive and although the hard drive software that comes with it is good, I much prefer the software from ICD and the numerous other ICD utilities such as Cleanup.

However, such software only works if the hard drive has a ICD host adaptor connected so it will not work on my Protar 50DC. Is there any way to get ICD software to run on my hard drive?

E Hawking, Birmingham

There are two ways to use the excellent ICD software on your Protar. One is to buy The Link, an ICD SCSI interface for the ST which comes in the form of an external connector that fits between a standard ST DMA cable and the 50-pin output of a SCSI connector.

The Protar 50DC has a 50-pin SCSI output socket on the back to which you can connect The Link and then connect a normal DMA cable from The Link to the hard drive socket on the back of your ST.

However, you will need to open up the hard drive casing and unplug one of the cables in the 50DC. If you follow the cable from the SCSI socket in the 50DC you will see that it connects to a circuit board and then runs on to the back of the Quantum hard drive mechanism.

This circuit board is Protar's hard drive interface and you must remove the cable so that the interface is bypassed and the cable runs directly from the Quantum mechanism to the SCSI output.

You have to do this because I found that

The Link ICD software does not function properly with Protar's interface sitting between it, and the actual Quantum mechanism was displaying unbelievably long times between reading and writing data to and from the hard drive.

Even opening up a directory took approximately four minutes before any files were displayed in a GEM window.

Another alternative is to buy the Pro level of ICD software. This latest version of enables users without ICD host adaptors to utilise the ICD utilities.

It comes complete with Cleanup and a powerful SCSI editor/tester which allows you to directly send commands to SCSI devices.

For information on The Link, contact Power Computing on 0234 843388. For information on the Pro ICD software, contact System Solutions on 0753 832212.

TOS 1.4 tips

I recently acquired an Atari STE to replace my ageing STF64 but it came without the manual. I understand that the STE operating system has more features than that offered by my STF64 and that it is now possible to move files as opposed to copying them.

Can you tell me how to move a file as I can only get it to copy a file?

A Wilkes, Edinburgh

All you need to do is hold down the Control key when dragging files to their destination in order to instruct the STE to move them. Simple eh?

What's Midi?

I have just bought an Atari 1040STE and I have noticed that there are some sockets on the side that refer to Midi In and Out. What are these sockets for?

G Sanston, London

You have discovered just what makes the ST so popular with musicians, Mr Sanston. Those sockets allow you to connect a musical instrument with Midi capability and have your ST, using suitable music software, control the instrument.

There are also software packages that allow you to write your own music, such as Notator.

Got a problem?

Are you at the point of taking an axe to your ST? Do you want to pulverise your printer? Well just count to ten, take a deep breath, then jot down the problems you are having, along with a detailed description of your setup.

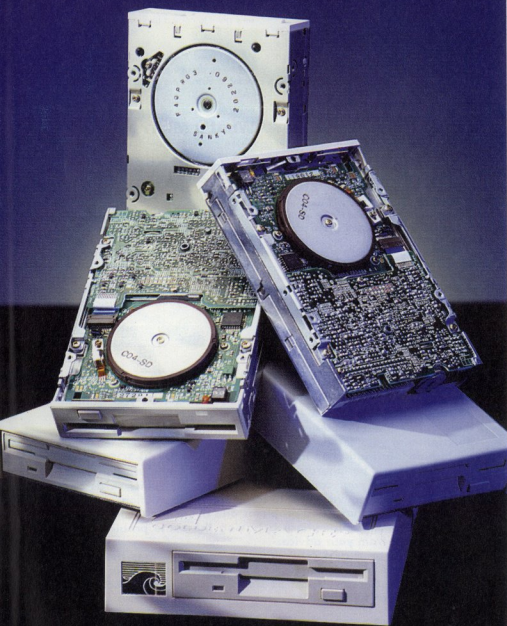
Include information on the type of ST you have, the TOS version (if known), what peripherals are attached and any extra hardware that lurks inside your computer (accelerators, graphics cards and so on) and I'll do my very best to come up with a solution.

For those who have had problems and overcome them, chances are that someone somewhere is having the same problems and would benefit from your advice.

So, get in print and send any tips or suggestions that other users may find helpful. Send all tips and cries for help to: Darren Evans, Advice Service, Atari ST User, Europa House, Adlington Park, Macclesfield SK10 4NP.

Drive in, drive out

Andrew Wright takes a look at the options for those wanting to add a second floppy disk drive or upgrade an existing one



Hard disks might well be top of your most wanted list but at the end of the day, it's all down to money and they don't come cheap. A second floppy disk drive, or perhaps a faster high density model, can be a good second choice if your budget won't stretch to a hard drive.

If you're still struggling along with a single sided floppy disk drive, you should have noticed by now that the rest of the world has gone double sided – and that there are games and programs, including the ST User CoverDisk, that you just can't run as you don't have the disk space.

Back in the early days of ST computing, each machine was fitted with a single sided disk drive – the maximum capacity of the disk without using special formatting techniques was around 360k.

Most of the more recent STs and all STes, however, now have double sided drives which gives a capacity of 720k when formatted from the Desktop. These double sided drives are sometimes referred to as 1Mb drives, which can be a little confusing.

INEXPENSIVE

Users of older STs with single sided disk drives have two options open to them. The first is to fit an inexpensive internal replacement disk drive while the second is to go one better and perhaps install a high density drive instead.

High density drives, which are now standard on Mega STes, TTs and Falcons, as well as most other computers such as the PC and Mac, will let you format special HD (high density) disks with a total capacity of 1.44Mb – twice that of a normal 720k ST disk. It also reads data much faster though writing can be somewhat slower depending on the actual disk format used.

The ST's floppy disk controller, usually a Western Digital WD1772 chip, normally operates at 8MHz. To

Booting from B

As a single sided disk drive owner faced with the expense of an upgrade, you could take another route. Instead of adding a double sided internal drive and throwing the old drive away, why not add a double sided external drive and have two?

The disadvantage is that you still won't be able to boot games and other software from the double sided external drive, however there are ways around it.

You can buy a special drive lead from Power Computing for £9.95 that lets you boot directly from the external drive. Or – even if you've only limited experience with a screwdriver – you can swap the drives around by opening up both the drive casing and your ST.

Analogic 1.44Mb internal drive

Analogic's high density drive is just that – a bare drive and no controller or software.

It is based on a Citizen mechanism and certainly outperforms the System Solutions drive when formatting standard TOS disks, though it is a little noisier in action. The



absence of the vital controller and software means the drive is a good buy only if you know what you're doing, you want to replace an existing high density model or perhaps want to add a second high density drive to a system that already supports one.

Soldering experts can buy the appropriate floppy disk controllers from several sources though the software is much harder to come by.

If you've upgraded to TOS 2.0x via the Compo board, for example, high density support will be built into your system. If you've an earlier version of TOS, forget it.

Product: Analogic 1.44MB Internal
Supplier: Analogic
Telephone: 081 546 8575
Price: £51.95 (drive only)
Configuration: All ST/STE models,
all resolutions

handle high density drives, the controller has to be replaced with a faster 16MHz model but once this has been done, the high density drive becomes transparent to the system.

You can still read and write ordinary ST disks with the high density drive, so there are no worries about compatibility.

With the all-important memory upgrade under your belt, many of you will be looking at adding an external floppy disk drive.

Too many people, however, add them without thinking – the ST's operating system directly supports a second, external floppy disk drive, Drive B, making it an obvious choice.

They couldn't be simpler to install either – external drives are linked by a thick cable from the drive itself to the 14-pin floppy disk port on the back of the ST and powered from a separate power supply. In all the external models

reviewed here, the power supplies are separate but some earlier models, from Power for example, had internal power supplies – a much neater arrangement.

ADVANTAGES

If you're short of electrical sockets, there's even a Power model which takes its power direct from the joystick port without any ill effects on the ST at all.

An external floppy disk drive confers obvious advantages but it's important not to expect too much. If you're into serious computing such as desktop publishing, graphics or music, get a hard drive.

Forget the extra floppy and put the money towards a reasonably large hard disk – they start at well under £300 now so it pays to shop around. A second floppy is no substitute at all

for a hard drive, mainly because floppy drives are much slower but also because sound samples, greyscale images and PostScript files take up so much space – far more than even a high density floppy disk could hold.

But many programs do run faster with a second floppy drive attached and it can help to relieve the tiresome disk swapping allow the program access to data and font files when it needs them.

Timeworks, in either v1 or v2, is a good example of an application that benefits from the extra drive. When Timeworks 2 is installed, you need three formatted floppy disks, whether you have one or two floppy drives.

However on a two drive system, you can put the Startup disk in Drive A, the internal drive, and the Fonts disk in Drive B, the external one. The program then loads and prints without any disk swapping at all, except when saving data files.

CONVENIENT

If you are running a public domain library, distributing a disk-based magazine or helping out at the club, a second drive will be useful. Although disk copying isn't speeded up (only one floppy drive can read or write at any one time), it is a lot more convenient.

Another type of external floppy disk drive is also available – the 5.25in floppy drive. Evesham Micros and Power Computing both supply them and offer a number of advantages.

They can store up to 1.2Mb of data on a single floppy disk which costs roughly the same or less than a standard 3.5in disk. The 5.25in disk isn't quite as durable, however, especially in the post, and it is no longer widely used on the PC.

A brand new floppy disk has no structure on it at all – you have to format it so that it can have data written to it. GEMDOS is the part of the ST's operating system that handles disks and

Golden Image external drive

The Golden Image drive is larger than the Power models and contained in a beige plastic case 22cm long by 14.5cm wide and 4.5cm high. It isn't exactly slimline but it has plenty to commend it, including very quiet operation and a through port at the rear for STM owners.

The floppy drive cable and power supply are both separate items. The latter consists of a long mains cable leading from the foreign two-pin plug via a small black mains adaptor box and then a thinner cable leading from the adaptor to the drive unit.

This is a rather clumsy arrangement but in theory you could reach a power point nearly 13 feet away! The on/off switch is at the rear.

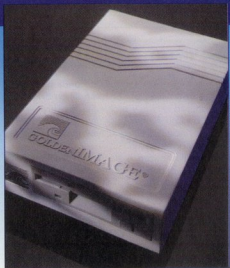
The Golden Image drive was whisper

quiet in operation – something that always commends itself to me – and it was the only drive tested that would reliably format disks with 83 tracks.

On the down side it was quite slow, especially when formatting standard disks.

The Golden Image model usually has an LED track counter on the front but no such models were available for this review. Quite what use that is is anyone's guess, but it looks high tech if nothing else.

Product: Golden Image External Drive
Supplier: Ledbrooke Computing
Telephone: 0772 803186
Price: £54.95 (drive only)
Configuration: All ST/STE models,
all resolutions



normally formats a disk so that it has 80 concentric tracks on each side, each of nine sectors.

A standard double sided disk has 1,440 sectors (80 x 9 x 2) each able to hold up to 512 bytes of information, so the total storage space is 737,280 bytes. However, the first track on each side (18 sectors in all) is used to store information about the layout of the disk itself.

One sector is the boot sector, ten more are allocated to the two File Allocation Tables (FATs) and seven are given over to the root directory. This

leaves 1,422 sectors free (728,064 bytes) but a TOS bug hides 2k and so a Desktop enquiry will reveal only 726,016 bytes free on a blank disk.

Happily the ST's operating system doesn't care how many tracks or sectors are on a disk, as long as the boot sector tells it exactly how the disk is formatted. As a result, various formatters exist to format ordinary disks to hold much more information.

All the disk drives tested here could format up to 82 tracks - another 18,432 bytes of storage. While this isn't much in itself, increasing the

number of sectors per track to ten means a disk can hold up to 832,512 bytes (830,464 visible bytes thanks to the TOS bug!). Disks of this type are reliable too - I wouldn't hesitate to entrust vital data to them.

If you want still more space, you can try even more tracks and 11 sectors - this takes you to nearly a full megabyte of space, but I wouldn't trust a disk formatted that way. Use them only for data and backup purposes.

You can use the same trick on high density disks, too. Up to 1.75Mb is possible without losing reliability - high

Power 720P external drive

Power Computing are probably the UK's leading supplier of ST disk drives and the Power 720P is its standard external model based on a Sony mechanism.

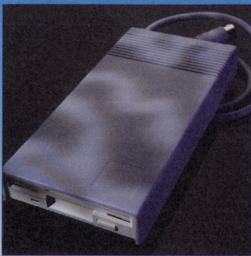
It is a compact, slimline unit with a cream drive inside a grey plastic case - earlier Power models had metal cases which were neater, but the build quality looks adequate.

The case itself measures some 23cm in length, 10.5cm in width and 3.5cm in height. There is a small positive eject button and a rather dim amber drive light on the front and a rocker switch at the back for turning the drive on and off.

The floppy disk drive cable is built in to the rear of the drive and there is a small socket for the power lead which comes from a 5V mains adaptor.

There is six feet of wire between the integrated power supply/mains plug and the drive case which should be adequate for most setups. However the thin power cable and integrated power supply and plug could be awkward for some users.

On test, the Power drive formatted disks reliably to 82 tracks and ten sectors and was reasonably quite in operation though the rhythmic "chunking" sound can be quite irritating. If you want a fast floppy drive, though, look no further. It's the cheapest external model available and does all that's asked of it.



Product: Power 720P External Drive
Supplier: Power Computing
Telephone: 0234 843388
Price: £50
Configuration: All ST/BTE models,
all resolutions

System Solutions 1.44Mb Internal Drive

One of these beauties has had pride of place in my own Mega ST for some time now and has caused very few problems. The drive was fitted by Karl Brandt of System Solutions and the job included fitting a new controller and 1.44Mb drive.

Special software is needed in the form of an AUTO folder program to fool the system into thinking that 1,446,000 bytes is a perfectly normal amount of space to have on a floppy disk. There is also a matching accessory to alter the drive characteristics on the fly and format high density disks.

There are countless advantages in having a high density drive, especially if you don't have a hard disk. First of all the data transfer

rates are at least 50 per cent faster meaning that you can load programs and files from disk much more quickly.

You can also store twice as much information on one disk and have as much storage space at your fingertips as you would have if you had two normal floppy drives. You can even get Timeworks up and running on one floppy disk!

Product: System Solutions 1.44Mb
Internal Drive
Supplier: System Solutions
Telephone: 0783 839212
Price: £88.88 (£30 fitting)
Configuration: All ST/BTE models,
all resolutions

On the case

Those of you who want to upgrade your internal drives from single to double sided or replace faulty double sided drives will find that the ST's casing causes some problems. The early STs had specially made disk drives with large eject buttons while later models used small eject buttons.

Now that Atari no longer supply official upgrades or even add-on external drives, suppliers have had to source them from elsewhere and as other computers have standardised on small eject buttons, ST owners with large buttoned drives have to cut the case when upgrading or replacing.

Most replacement disk drives require that the ST's case be cut to accommodate the eject button. If your existing ST has the small eject button, the model 720-OI official internal upgrade (£45) from Power Computing will be the best bet as no cutting is involved.

Those of you with the large eject button will be better off with the cheaper model 720-O £39.95 upgrade although you will have to cut the case. If in doubt, ring Power (0234 843388) and have your ST handy.



density drives and disks are made to slightly higher specifications so they are inherently more reliable.

Conclusion

Once upon a time we wouldn't have dared advise you to upgrade to a high density drive. Now we are doing so. You will end up paying twice as much for a simple upgrade but the performance is well worth it, both in terms of speed and storage space.

Although HD disks cost around twice as much, they hold twice as much, making your entire collection a lot easier to carry around and manage!

The painless way is to give System Solutions a call and have them fit it for you – replacing the floppy disk controller isn't a job for a wet Saturday afternoon unless you're confident that you know what you're doing.

If you're after a second drive, the base Power model is hard to beat though the Golden Image one is much quieter. If you do a lot of copying or backing up, the 720Mb model will save you some time.

The benchmarks

I'd always thought that one floppy disk drive was much the same as any other – until I started timing the review models.

The interesting feature about these tests is that there seem to be two distinct types of drive available. The external drives were tested by attaching them to my own Mega ST II turned off the Turbo board, incidentally) and using the same floppy disk in each.

The tests were repeated several times in different orders and then cross-checked using different disks. The internal drives were fitted inside the same computer (it really is very easy!) and tested in a similar way.

Formatting was carried out using Fastcopy Professional but without any of its more esoteric features.

GEM Desktop format	Standard format (80 tracks/9 sectors)	Extended format	(82 tracks/ 10 sectors)	High density (1.44Mb)
Power 720P external	98	36	53	
Power 720B external	99	53	54	
Golden Image external	100	53	54	
System Solutions 1.44Mb	99	53	54	54
Analogic 1.44Mb	101	37	53	71
Ladbroke internal	101	37	54	

The results show that some drives perform much better than others when using Fastcopy Professional to format with 80 tracks and nine sectors whereas there is very little difference when formatting from the GEM Desktop or formatting with more sectors and tracks. Any ideas....?

Ladbroke internal drive

The Ladbroke replacement internal disk drive is based on a good quality Citizen mechanism. It can be fitted inside an ST in seconds once the metal shielding and lid have been removed. Both the Shugart connector and the power lead are easy to get at and substantial enough to survive plenty of handling.

The drive performed well, with fast formatting times, and I rather liked the big red disk access light. Unfortunately the eject button isn't very positive and there is some rhythmic noise.

The instructions consisted of a single photocopied sheet but the correct screws and spacers are supplied, making it ideal for upgrading if you only have limited knowledge. Rest assured, if I can do it, you can!

Product: Ladbroke Internal Drive
Supplier: Ladbroke Computing
Telephone: 0772 803166
Price: £39.99 (£10 for fitting)
Configuration: All ST/STE models,
all resolutions



Power 720B (Blitz) external drive

The second external Power model reviewed here is the 720B, another Sony mechanism-based model. It is the same size and shape as its sister model and has an identical power supply but it includes a built-in virus protection mode, boot from drive B and the Blitz disk copier system.

The only outward differences are purely cosmetic – the 720B has a green drive light and a light cream outer casing.

There are two extra three position switches on the back of the drive – awkward to access but it's hard to see how else they could be positioned – one is labelled 0/1/X and the other A/0/B.

The first switch can be set to an (1), off (0) or boot from drive B (X). The second switch has A for virus blocker mode, 0 for normal and B for Blitz mode. Hardly the most logical of naming conventions so it might take some time before you get them right first time!

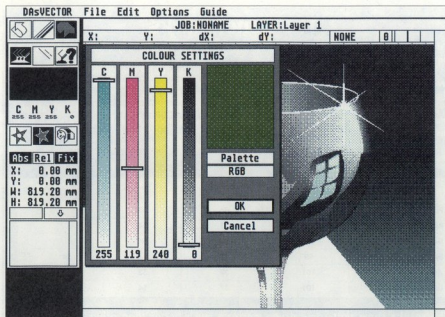
Virus blocker mode is an odd feature – it simply write-protects disks in either floppy disk drive. It could only be useful in very odd circumstances, though – perhaps in a classroom environment.

The Blitz copier is altogether more of a success – disk copying was at least 40 per cent faster than using Fastcopy Pro and most disk can be copied in under a minute.

The copier software is supplied on disk and it works in conjunction with the special Blitz hardware. It will even copy some (but not all) protected disks for backup purposes though I had one or two problems – the copier software occasionally refused to recognise that the drive existed until the system was reset.

For the extra £15, the Blitz capability is well worthwhile if it's needed. On the other hand, the drive was somewhat slower than the 720P when formatting normal ST disks.

Product: Power 720B External Drive
Supplier: Power Computing
Telephone: 0234 843388
Price: £65
Configuration: All ST/STE models,
all resolutions



DA's Vector always uses 24-bit colour internally, and gives you a choice between the RGB (Red, Green, Blue, as used by TV technology) and CMYK (Cyan, Magenta, Yellow, Black, as used in printing) colour systems. Tried-and-tested colour settings can be saved to and loaded from disk



Colour magic

Bezier curves and vector lines have at last outgrown the limits of mono. Günter Minnerup reviews DA's Vector, a revolutionary new art package from Germany

Vector graphics have truly revolutionised computer art and illustration over the last few years; gone are the days when blocky shapes, caused by blown-up pixels, were the hallmark of the keyboard-and-mouse artist.

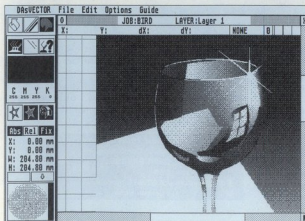
Vectors are mathematical expressions that can describe curves and lines of all shapes, and objects made up of such

vector lines and curves can be enlarged or reduced at will without any loss of quality.

The reason for this is that the files only contain the vector descriptions – the actual picture is only drawn when it comes to screen or printer output.

Whatever the final resolution, vector graphics make the most of it with smooth outlines and solid fills. If vectors

are so good, why doesn't everybody use them? Well, there are drawbacks. Vector graphics were originally developed in the context of technical drawing and design work and while they are ideally suited for that type of drawing, they are not very good at the subtle shades and textures required for non-technical subjects. For instance, try using a CAD program for a portrait and you'll know what I mean!



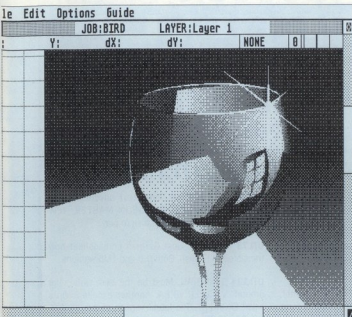
The attributes submenu allows you not only to alter the line, colour and fill attributes of each object or path, but also to load in your own bitmap patterns – which can be scanned halftones in TIFF format – and assign these as fill patterns. Once loaded, such bitmap files appear in the small window at the bottom of the submenu

CLOSELY RELATED

Bitmap or pixel graphics have therefore never gone out of fashion and a kind of division of labour developed, closely related to the distinction between "painting" and "drawing" in the real world of art.

Due to the completely different file formats, integration between the two has proved difficult. The vector drawing programs available for the ST have so far suffered another serious drawback – no colour.

Black-and-white only was fine as long as most people could only print mono pictures anyway, but now that colour



All program parts have library and clipboard functions which allow you to temporarily or permanently store away often-used objects, shapes, colours, pictures and even texts and formulas (for the transformation calculator).

This more than compensates for the initially baffling absence of any drawing tools beyond straight lines and vectors: the default libraries contain some simple sample shapes to which you can quickly add your own creations

printers are increasingly popular and affordable, and desktop publishing software offers professional-quality colour separations, mono vectors are really a bit behind the times.

Cue the peculiarly named DA's Vector. DA stands for Digital Arts, a new company, but the people behind it are well known in the ST scene as the developers of the top-notch Didot LineArt, Didot Professional and Retouche programs. Their new product is the first vector graphics application for the Atari machines that works in full, glorious true colour - 16.7 million different ones - and that can use bitmap pictures, including scanned photographs, as fill patterns.

These two features alone need some digesting. True colour is a fairly new development for ST software and you may be concerned that your hardware is not up to it. It probably isn't, unless you have a 24-bit graphics card and appropriate monitor, a very fast processor, and an enormous hard disk, but DA's Vector will work quite comfortably on a standard mono monitor.

You won't see the colours, of course, but they are still there. With a bit of guidance from books on colour theory and some trial-and-error, you should be

able to produce vector rainbows for a colour printer even if your visual control is restricted to black and white pixels.

As to the use of bitmap pictures and scanned images as fill patterns, this offers liberation from the rather cold and "technical" appearance of the standard fills available until now.

Tree bark, dog fur, human skin, Irish linen - whatever you need can be scanned in (or "painted" by hand using a pixel art program) and assigned to fill your clean vector lines and Bezier curves.

WIDER AUDIENCE

The program, however, is aimed at a far wider audience than merely those who feel their artistic style cramped by vector "coldness", or who desire multi-coloured Beziers.

It also makes a pitch for two very specialist markets which other vector graphics programs in the past could not reach - business or presentation graphics, and animation.

The advantages of resolution-independent vector drawings for the pie charts and bar graphs so beloved by the authors of company reports and statistics are rather obvious. Once

designed, the same chart can be used in rough internal memos, glossy PR brochures or overhead projectors without modification, and high-quality vector fonts (Calamus or PostScript Type 1) make for classy legends and labels. Object-oriented animation is a complete novelty, but has some big advantages over the more traditional, pixel-oriented approach to generating the many individual frames that make up a film.

For a start, vector files are considerably more economical with disk space than bitmap picture formats so that far more frames can be squeezed into a hard drive for editing (DA's Vector allows up to 10,000).

Since objects are mathematically described, you can let the computer carry out any number of formula-driven transformations automatically rather than having to hand-edit each step yourself.

As a simple example, you can tell DA's Vector to start with a triangle and finish with a circle, and the program will calculate all the intermediate frames required to animate the metamorphosis.

Since each graphic can consist of any number of transparent layers and

Access all formats

DA's Vector can import and export a large variety of file formats, either directly or indirectly through bundled converters or via its output drivers.

Its close affinities with Didot and Retouche are demonstrated by the program's preference for the TIC and TIH picture formats (colour and halftone versions of the industry-standard TIFF) and DFN (Didot Font Notation) fonts.

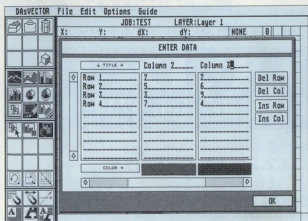
Regular TIFF and PostScript fonts can be converted into these, as can the common ST bit image formats IMG and Degos, the GEM metafile and CVG vector formats and Calamus fonts. The range of output devices includes most common dot matrix, laser and inkjet printers as well as imagewriters.

the animation editor treats these as superimposed "tracks", it is easy to separate foreground and background for editing purposes.

The availability of vector fonts and text objects opens the door to such applications as video and film titling and the latest buzzword in computer circles - multimedia presentations; the animation player program bundled with DA's Vector is freeware and can, of course, be run from within other programs.

With a bit of lateral thinking, however, the animation editor can be used to great effect by those who have no interest in cartoons and videos.

For if smooth transitions viewed sequentially make up a film, there is no reason why the frames should not be used simultaneously rather than sequen-



Up to eight columns and 32 rows are available for numerical values in the presentation graphics dialogue. The authors explain this restriction with the argument that these graphics are supposed to simplify the explanation of complex quantitative relations, and should therefore not be overburdened with information!

They are probably right... how these numbers are used depends on what kind of chart is selected. Pie charts need to calculate totals before displaying relative shares ("slices"), while bar and line graphs represent the columns in absolute values

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WPR03 ALICE. Super text editor up to 10 docs. In memory at once. EDITEXT. Super little text editor. Ideal for beginners. NEWORD 400v3. Easy to use text editor, again good for beginners. NOTEPAD. Make temporary notes from within any gem program. PHONEPAD. Pop up telephone book. FLOFAX and ORGANISER. Everything a paper filofax would have and much more in these two programs. TYPEWRITE - Turn your ST into a typewriter.

WPR09 LEXICON. A pure word list containing 46,209 words without slang, americanisms or other rubbish. Needs 1Mb to run with SPELLONE (spellchecker) also provided on this disk.

ART01 ARTUTOR. For budding artist. Includes its own package.

BRD05 AMERICAN FOOTBALL. DALEKS. START REK. DELTA 3. CELESTIAL CEASERS (versions 1 and 2). SPACE WARS. RED ALERT. MATCH. HANOI. OGRE. 11 Board and Strategy Games. SPLENDID SELECTION!!

ARC12 BELUM INTERACTUM - Good galaxians clone. BLOCKADE. HAUNTED HOUSE. AMORTRACK. BOING. INVADERS. MANIA. Another superb selection of arcade games.

ARC13 VIOLENCE. Superb scrolling shoot em DROID - Excellent platform game.

ADV03 CONQUEST. Graphic adventure. Should take weeks to complete! (Shareware).

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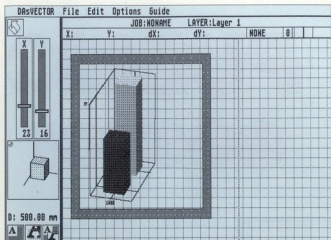
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Flat, 2D charts and graphs are not very exciting, so DA's Vector offers you a simple and intuitive method of tilting your presentation graphics horizontally and vertically into a 3D appearance.

The little cube beneath the sliders gives you visual control over the process before the graphic itself is redrawn. Fed up with bars, lines and pies? You can always import your own creations from the vector graphics editor to design new ways of telling "lies, damned lies and statistics"

ially, one on top of the other in the same graphic.

The results can be astonishing - just imagine the simple triangle-to-circle example given above, with all intermediate stages in one picture and the size, colour and position of each frame automatically and dynamically adjusted!

This review can only scratch the surface of the enormous power and flexibility offered by DA's Vector. As with all such powerful tools, the initial learning curve can be fairly steep and it can take a while to fully appreciate all the facilities offered.

A manual can teach the basic techniques and give some examples, but in the end you have to discover for yourself how these techniques can be put to

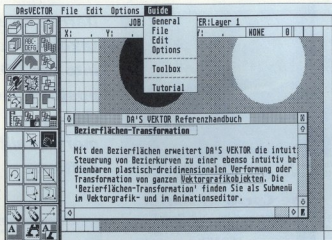
good use for your own specific purposes.

DA's Vector breaks new ground in its documentation, too, as the traditional printed manual which accompanies the package does little but provide an overview of the software's general capabilities.

ON-SCREEN MANUAL

The detailed reference manual is supplied "on-line" in the form of a desk accessory or parallel application (anticipating the imminent arrival of multitasking on the ST and Falcon) called DA's Knowhow.

I can see the advantages of this approach in that documentation can be easily updated and context-sensitive help be made available from within all



The review copy still came with the German version of the on-line manual, but this has now been translated into English by the UK distributors. I personally prefer the more traditional approach of printed documentation, but perhaps this is just the usual resistance to innovation - time will tell.

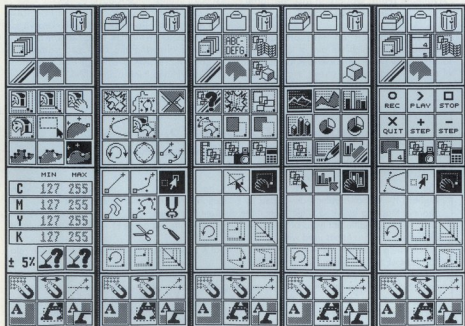
You do not need to access the drop-down menu: just position the mouse pointer over an icon and press the Help key to bring the relevant chapter from the manual onto the screen

parts of the program, but only long-term experience will show if on-screen text really turns out to be more convenient than the ring-bound hardcopy on the knee. The on-line documentation also includes a tutorial but this was not finished at the time of writing.

Those who have been deterred from buying the previous examples of the authors' classy programming skills by the hefty price tags attached to Didot and Relouche Professional will be pleasantly surprised to learn that DA's Vector is aimed squarely at the mass market at £149.

Since this buys you not only the first colour vector drawing program for the ST and all the features described above, but also an autotracer and a PostScript font converter you can hardly complain.

Mass market is a relative term, though; a basic, floppy-only ST attached to a colour television will have to be upgraded to at least 1Mb of RAM, preferably 2Mb, a hard disk and a monitor with a minimum resolution of 640 x 400 pixels.



There are four main program parts, each with their own toolbox of icons which, in many cases, lead to further submenus - these are, from the left, the Tracer, the Vector Path Editor, the Vector Graphics Editor, the Charts Editor and the Animation Editor

BOTTOM LINE

FEATURES

Unrivaled wealth of capabilities for an Atari drawing package.

Excellent
Good
Average
Bad
Appalling

EASE OF USE

Steepish initial learning curve, then quite fast and intuitive.

Excellent
Good
Average
Bad
Appalling

VALUE FOR MONEY

Very reasonably priced for what it offers.

Excellent
Good
Average
Bad
Appalling

Product: DA's Vector
 Supplier: CBS ComputerBild,
 19 Leabury Place,
 Croydon CR0 1ET
 Telephone: 081-688 8181
 Price: £149
 Configuration: All STs with 1Mb or more
 RAM, hard disk, 640 x
 400 or larger monitor



The game starts just offshore of Arons Bay. I reckon it's time to pay the local populace a visit...

The Curse of Azriel

Programmed by: A A Covell

Available from: LAPD - Disk No L31(A) and L31(B)

The Curse of Azriel is a fantasy adventure which starts with you as captain of a class 1 merchant ship just offshore near Arons Bay harbour.

Your ship is equipped with six cannon and almost a full crew. The cargo hold consists of 100 tons of food and your wealth amounts to one gold piece.

So, the first thing that comes to mind is to get rich quick. This involves travelling between the three main ports that are situated on the island and trading your goods to make money in order to upgrade to a class II ship capable of trading across the high seas.

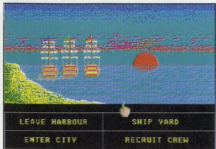
Upon entering a harbour, you have the options of recruiting crewmen, visiting the shipyard or entering the city. A sufficient number of crew members is required in order to run the ship and operate guns.

The only payment they need is food because they did not exactly volunteer for life aboard your ship (press-gangs are rife you know). A lack of food will diminish your crew so keep a good supply.

One of the many perils that you will encounter is the threat of pirates. So having a good crew trained in the use of cannon will ensure that you can survive any confrontations. You can train the crew to become more proficient in gunnery and this is achieved by hiring an instructor while at ports which do not allow press-gangs to operate.

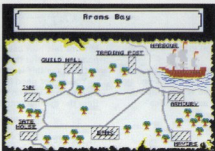
Having taken advantage of the port facilities (ship repairs, new ships and so on) you can enter the city. Here you will find trading posts, banks, armouries, guilds, inns and the town mayor's abode, among other attractions. The inns are a good source of gossip and can provide information that will aid you - or may turn out to be nothing but rumour.

The Curse of Azriel is quite a large and well written game. Documentation on the two disks provides information on the mechanics with a



Once docked at the harbour, you have the choice of entering the city or taking advantage of the crew recruitment and shipyard services

Darren Evans takes a peek into the PD postbag and finds yet more quality software



Well, I don't know about you but the Inn sounds like the ideal place to visit first

separate file providing a story overview of the world of Azriel and its inhabitants, which enhances gameplay.

Requiring 1Mb, the game's graphics are not blindingly detailed but are adequate and I found myself becoming quite involved once I started. With the massive appeal that fantasy and RPG games have in the computer market, The Curse of Azriel will undoubtedly appeal to anyone who is interested in such games. All in all, a good effort.

Rockfall - The Special Edition

Programmed by: Jason Brasier

Available from: Goodman International
Disk No GD1879

Rockfall is based on that old classic Boulderdash, in which the aim of the game is to dig your way through obstacles to collect all of the diamonds on the screen. Having done this, the exit will open up and you must then

PUBLIC sector

make your way to it to get to the next level.

Of course, there are the inevitable problems - you have to be careful where you dig or you may find things from high dropping down on top of you, which is not good for you at all.

A simple mistake to avoid you may think, but the levels are deviously designed and you may find that you inadvertently block yourself in or create a situation where that last diamond has been fenced off, thereby making it impossible to finish the level.

Also, on later levels you will encounter other creatures that will have to be dealt with.

Along with the program is the level editor for creating your own levels. It is supplied as a GFA Basic program (.LST type file) and is not user friendly as it was meant to be used only by the programmer, so don't expect some nice and easy editor interface.

As a Boulderdash clone, Rockfall is a competent game and fans of the original will find it worthy of consideration.

General Utilities

Programmed by: Various authors

Available from: Goodman International
Disk No GD1895

This disk contains a collection of nine general utilities so I will restrict this review to a couple of the more interesting ones which are of special interest to GFA Basic users.

One of the programs included is the GUI-4-GFA Construction Kit, formerly known as FRONTEND, which is a collection of GFA routines allowing the GFA programmer to create impressive, graphical user interfaces (GUIs) with the minimum of effort.

A construction kit program automates the

Algebra I - Verbal Problems

Programmed by: Charles O Gauthier

Available from: Goodmans International - Disk No GD1888

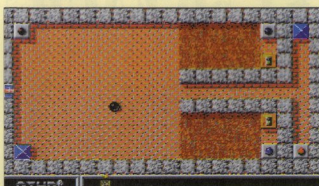
The subject dredged by nearly all school-kids has found its way into the public domain. Algebra I - Verbal Problems developed by Educational Management Systems, is based on 20 years of teaching by Mr Gauthier from three different text series.

There are 30 different types of verbal problem in ten different areas of work that are found in all current Algebra I texts used within curriculum.

Each help section starts with a definition of what X should be and leads the user into the relationships of that particular type of problem.

Problems covered include Number, covering sums, differences, separate into three parts, consecutive integers and others; Age, covering basic ideas of age relationships, one person being older than another and then in so many years and so on; Geometry, covering area, perimeter, right triangles, complementary angles and the Pythagorean theory; and Motion, which covers uniform motion in still water and people who meet when one of them leaves before the other.

Those mathematically inclined will no doubt find this disk worth obtaining.



Bumping your marble into each oxyd (blue block) will reveal a colour. Match the colour in another block and it stays open

Oxyd

Programmed by: Dangleware
Available from: Goodmans International

This has to be one of the best games ever on the PD circuit. It is an extremely addictive, professional looking, mind boggling puzzle game with excellent graphics and digitised sound effects.

Each of the 200 levels have been meticulously planned by what I can only assume is the most devious mind in existence.

Oxyd is termed dangleware which means to play the game to its fullest, or, in Oxyd's case, to be able to play past ten levels, you must send off for a booklet.

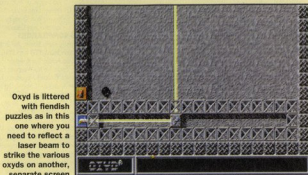
After level ten, magic tokens start to appear and you must enter a specific word to continue. These words, along with hints and tips for

playing the game, are given in the Oxyd Book available from Cachet UK whose address can be found in the game. The book is 176 pages long and costs £19.95 – well worth it for such a quality game.

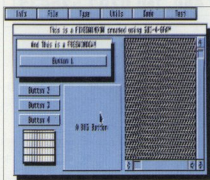
You control a black glass marble using the mouse and must negotiate obstacles and sometimes other creatures to open up oxyds. Oxyds are vital in maintaining oxygen within the slumbering world of bits and bytes inside your computer. Unfortunately they've all closed, threatening to suffocate this world.

However, oxyds can stay open and release their oxygen if they are of the same pattern or colour and if they are opened in order. When all oxyds on the level have been opened, you may then proceed to the next level and are given a long code number so that you do not have to complete that level again.

The graphics are very good and the digitised sound effects brilliantly clear. This is one to send off for straight away. With 200 levels available once you have the book, it will keep you entertained for months.



Oxyd is littered with fiendish puzzles as in this one where you need to reflect a laser beam to strike the various oxyds on another, separate screen



Graphical user interface is just one of the utilities found on the general utilities disk

creation of GUIs much like a resource construction kit does for creating GEM objects.

The GUIs created are of the 3D-look type similar to those found on NeXT machines with

buttons that have a 3D appearance – infinitely more pleasing than the bog standard GEM objects you normally get.

Some of the objects catered for are buttons of a user-definable size; text; test windows; slider bars and slider buttons. When included in a GFA program, GUIs give a very professional look. If you are a GFA programmer, this utility is a must.

Another excellent program that makes the life of the GFA programmer much easier is MenuMaker. It is a utility to speed up the production of source code for using GEM menus as used by the ST's standard desktop. Working from left to right, the user enters details of each menu item such as the title of the menu item and subsequent entries under that title.

Once the menu details have been entered, it is then possible to save the data either as RAW data, which can be loaded back into MenuMaker for later editing.

Here's how doing **EXAMPLE IN GEOMETRY PROBLEMS**

What is the smallest of two complementary angles if one of them is 10 more than 9 times the other?
(ROUND YOUR ANSWER TO THE NEAREST TENTH)

First you should LET X = the smallest angle as you know the least about it
Complementary angles are angles that add up to 90°
The equation is $X + 9X + 10 = 90^\circ$

Study the above EXAMPLE DARRIN to see how it is done.
Press LEFT button or RETURN to continue

Groan, it's those dreaded algebra problems that every school-kid is subjected to by manic mathematician teachers

Heat and Serve C

Programmed by: Ian Lepore
Available from: Goodman International
Disk No GD1513

This is essentially a modified version of Sozabon C, the popular public domain C compiler. However, the improvements made make it sufficiently different to justify a separate title.

One of the main differences that a new user will welcome is a completely automated installation procedure. Just run the install program, tell it where you want to install the compiler and away it goes. Every program should have one, but sadly they don't.

Some of the many differences from Sozabon include bug fixes over releases; a new and enhanced version of GemFast GEM support; more English-like error messages; Desktop-friendly Make utility; increased ANSI features and many performance tweaks.

It should be noted that Heat and Serve C does not come with its own text editor. This isn't a problem as there are lots available within the public domain.

Those people involved in its development are to be congratulated on producing such a quality language at an amazingly low price. If you're interested in C programming and looking for a low cost compiler, you're strongly urged to check this package out.

Where to get 'em

- Goodman International (Dept STU), 16 Conrad Close, Meir Hay Estate, Longton, Stoke-on-Trent ST3 1SW Tel: 0782 335650
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- DEMO 171-172 - M-Demo 4 by A N Cool. Very good two disk demo. £3
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- POV DEMO COMPILATIONS**
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- POV 120 - Audio Artistic, Lost K, Adient, Synchro Intro, Aura Intro
- POV 119 - My Socks Are My Weapons, Top Party (1 Mega), Eastern Party, 12 others
- POV 118 - Demos, Gollon & Megademo, Factory is Dead, Coding for Fun, 12 others
- POV 116 - In an Antenna! (1 Mega), Digipyth music demo
- POV 115 - Reanimators Music, ABC Demo 7, Megacrit, CIVI megademos, Similar
- POV 114 - Skuzz (1 Mega), Whither Music, Excitation, DMA, F40, Carston, FF demo
- POV 112 - Union Demo, Synth Dreams, Illegal Aggression, Fire Cracker, MCA
- POV 111 - Conventions, Thundertrucks, Money Talks, Thrash, Jing Jang
- POV 110 - California Baiters (1 Mega), Charts & Factory, Intro, UCC dream scroll
- POV 109 - Math Mood (1 Mega), Illumination demo 1 & 2, DMA intro
- POV 108 - Omega (1 Mega), Birmingham, Overlanders, Paradise, Aggressor 2
- POV 104 - The Run (1 Mega), Fullscreen (not STE), Mankin, Fresh Show, 4 others
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**In the first of an
informative new
tutorial series,
Roy Stead gets to
grips with the basics
of the powerful
C programming
language**



Over the past decade or so, much fuss has been made about the C language. Unfortunately, however, while there are many books telling you how to write in C, hardly any are written specifically for the ST user, or for the aspiring GEM programmer.

All that changes here. Over the coming months, we'll be writing a program together. We'll be writing it using HiSoft C, we'll be writing it on your ST, and we'll be following the program as it grows up from a single function to a fully-fledged GEM desk accessory.

Our tale, however, starts very simply. — with a function. The first thing for you to bear in mind is that all C programs are made up of lots of little functions. A function is just a named block of commands, and a function usually returns a value to whatever called it.

To define a C function, write its name, then a pair of normal brackets, followed by the body of the function itself in braces (curly brackets), like this:

```
main() { printf ("Hello World!"); }
```

All this does is print the string "Hello World!" on the screen. Not too exciting, huh? But we're just starting out — and you've already found out how to call a function to print out a string.

That's right — printf() is a function too. It's a standard, built-in one, though, and you can even re-write it if you like, but let's not get ahead of ourselves here.

One more thing — you'll notice that I gave my example function the name main(). There's a reason for this. You see, unlike most Basic programs, your C program won't necessarily start at the beginning and go downwards.

MAIN FUNCTION

Instead, it starts with the main() function and just executes that, with main() calling any other functions which go to make up your program. The practical upshot of this is that every C program must have a main() function in it, to tell the compiler where to start the program from.

Now comes the first technical bit. The second thing for you to remember is that C is a typed language. This means that you have to tell the compiler what type of values you're going to put into each variable before you can use the variable.

Generally, you'll have a little list at the start of each function which declares the types of each and every variable used in that function, as well as the

types of variables returned from any other functions which return variables, and declaring functions which don't return variables to be void functions. (pew!).

Rather than getting into weird and complicated stuff right away, let's just take a look at this tiny listing to print out "And the number is..." followed by the number 23. Oh, and notice that all C statements end in a semicolon:

```
main() { int foo;
foo = 23; printf ("And the number
is... %d", foo ); ;}
```

There're a couple of things to go over in this listing. We've got a variable declaration (int foo;), a variable assignment (foo = 23;), and a strange-looking printf() call. What does it all mean?

Well, what I've done is to declare the variable foo as an integer (int foo;), which basically tells the compiler that

every value assigned to that variable will be an integer number.

With the HiSoft C Interpreter, an int is a 32-bit integer number, which means that it can hold whole numbers from -2,147,483,648 to +2,147,483,647. You can have shorter (16-bit) integers by declaring a variable as a short (eg short foo;), long (32-bit) integers by declaring a variable as a long (eg long foo;), floating point numbers by declaring it as a float (eg float y;), or character (8-bit) variables by declaring a char (eg char x;).

Values are assigned to variables, as you have seen, just by using:

```
= ;
```

Simple enough, right?

But what about that weird printf() call? I hear you cry. Well, printf() only prints strings. That's all it can print. If you want to print something else, then you've got to make it think that what it's printing is really a string.

You do that by putting into your string a percentage sign followed by a something else which tells the compiler which type of variable you want to insert at this point in the string.

After the string, you then tell the compiler which number(s) — or whatever — to put in the string in the order that they appear in the string, separated by commas.

Since our foo is an integer, I've told

the compiler to put an integer (%d) in the string, and given printf() another argument (foo) to tell it which variable to put there.

If foo were a long integer, I would have put %ld in the string, %f for a floating point number or %c for a character. You can also insert a string-within-a-string by using %. To actually write a percentage sign, you should use %%. And so — for a longish, and totally pointless, example:

```
main() { int x = 23; Long y = 17; char
c = 'R';
printf ("%d %ld %c %n %s", x, y, c,
"ERis"); ;}
```

will print out:

```
23 17 R Eris
```

Notice that you can assign a value to a

Using the power of C

variable as you declare it (`int x = 23;`), that you can assign a value to a char by using single quote marks (char `c = 'R';`) as well as by typing the ASCII code, and also that `\n` will insert a new line into your string (putting the next output on the line below).

That `\n` is an example of a special character. C allows you to use several of these kinds of things in your strings. `\n` is one of the most commonly used, but let's quickly mention the others before we move on.

`\b` is the backspace character, `\t` is a Tab, `\f` is a form feed, and `\r` is a carriage return. If you want to put quotation marks into your string then use `\"` for a single quote or `\"` for a double quote, while the backslash itself can be used in your strings by typing `\\` rather than the single `\` character.

CONVERT

Now that we've found out about the various types of variables, you might like to know how to convert one type to another. This kind of thing can come in handy, for example, if you find yourself in the position of having to perform 32-bit integer or floating-point calculations on 16-bit integer numbers.

To take an example, consider the following piece of code. Incidentally, to save space I won't bother putting the `main()` and `printf()` stuff in these examples – although you'll have to put those things in if you want to run the code yourself and see what it's doing.

```
int foo = (23 / 3) * 4;
```

In the above calculation, `foo` ends up with a value of 28, whereas a more accurate value would be 30. The reason for this is that dividing 23 by three gives the answer 7.6666. Since we're using integer arithmetic, however, we only get the answer seven, and so we lose the odd two-thirds. The error increases when we multiply by four.

A more desirable approach, if the difference is significant to our program, would be to do the arithmetic using floating-point numbers, which preserve the fractions, and then convert the final answer into an integer when we're finished. Thankfully, C provides an

answer to this in the form of casts.

A cast is placed immediately in front of an expression in order to convert that expression to a specific type, and is written as the type of variable to convert the expression to, placed within brackets.

The expression could be anything from a single variable to a complex equation. In the example above, we might use:

```
int foo = (int)((float)23 / 3) * 4;
```

Note that we've placed a cast-to-float immediately in front of the 23 and then placed the entire expression inside brackets with a cast-to-int outside to convert the answer into an integer.

Thus, we get the correct answer of 30 after all (don't just trust me – try it yourself).

Of course, you've probably noticed that we could have got the same answer just by doing the multiplication first, like this:

```
int foo = (23 * 4) / 3;
```

but then we wouldn't have had this friendly chat about casting-to-types, would we?

Incidentally, while we're talking about arithmetic, it might be a good time to mention the various arithmetic operators available in C. As well as the standard addition (+), subtraction (-), multiplication (*) and division (/), you can also use the percentage sign to take the remainder after integer division, like so:

```
int foo = 23 % 5;
```

In this example, `foo` will be set to three, the remainder after dividing 23 by five. So far, we've been using decimal numbers in all our examples. Sometimes, though, you're going to find that decimal numbers are inconvenient to use.

If you're using a bit-mask, such as when you're setting a colour value, then some other base is usually more convenient. Personally, I like to use hexadecimal – base 16 – for this. Some people prefer octal – base eight – although I can't imagine why.

Anyway, C provides for all of us. To write a hexadecimal number, just type `0x` in front of it, and to write an octal number make the first digit a zero. Thus, the following are all different ways of writing the same number:

```
65295 /* Decimal */
0xFFDF /* Hexadecimal */
0177417 /* Octal */
```

As you can see, the hexadecimal form would be most useful if the position of the

individual bits of the number are important, since it makes it easy to spot at a glance what the binary form would be. By the way using `%x` or `%o` instead of `%d` in your `printf()` string will cause your integer value to be printed out in hexadecimal or octal respectively.

Since I seem to have returned to `printf()`, we can start to complicate things a little. I mentioned that `%d` would display an int value. But suppose you want to ensure that the output is of a specific length – if you're printing out a table of values, for example?

MINIMUM LENGTH

The way to do this is to place a number between the percentage sign and the letter indicating the variable type. The number will set the minimum length of the number, which will be padded out with spaces. To pad out the number with leading zeroes, put a zero in front of the number you've just added to the string. For example:

```
int foo = 25; long bar = 0x10001;
printf ("Er15d5isInEr1061d5isIn", foo, bar);
```

will print out:

```
Er 25is Er065537is
```

If you should want to print out a variable and have to pad the number out with spaces, but need to pad with trailing spaces instead of leading ones, in order to get something like £25 in one place and 25p in another, then just place a minus sign where you put the zero before, to get something like this:

```
int foo = 17;
printf ("Er15d5isInErL-5d5isIn", foo, foo);
```

which outputs:

```
Er 17is Er17 is
```

Any numeric variable can be formatted in this way. Floating-point numbers, however, add an extra facility. If you use two formatting numbers, separated by a decimal point, then you can specify how many digits are to be printed before and after the decimal point in the final output, like this:

```
float y = 123.456789;
printf ("%f\t%04.3f\t%3.2f\n", y, y, y);
```

will produce:

```
123.456789 0123.456 123.45
```

Well, that's enough for now. We've covered the basics, so next month we can start in earnest on writing our program together. The tale will continue with a look at arrays, strings, pointers and other mysteries.

Turn to page 84
for some
great C
offers

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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 graphically on the screen by linking directly between the individuals.

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To order your copy of Family Roots, send a cheque or postal order for £24.95 to the address below. A disk with usable demo of Family Roots. Around The World and Professional Virus Killer is available for £1.00.

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Around The World was programmed over more than a year by The Pixel Shop, better known for their many Budget UK titles under the name of Floppypop. To order your copy of Around The World, send a cheque or postal order for just £9.95 to the address below. UK postage free, please add £10.00 for Europe or £2.00 for the rest of the World. Credit card orders welcome. A disk with usable demo of Family Roots, Around The World and Professional Virus Killer is available for £1.00.

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The start of any tour of the ST has to be the Desktop. When you're not actually running a game or application, but your machine and the TV or monitor connected to it have been on for 20 seconds or so, you will have seen that at least two icons which look like filing cabinet drawers appear on the screen (the Desktop), below a line of four words - Desk, File, View and Options.

Those who have investigated further will have double-clicked with the mouse on one or other of the icons with a disk in the drive, and have noticed either a message, or a window (a rectangular shape containing further icons) appear.

These take the Desktop analogy a step further. One type, the folder, looks just like an office folder, and is used for holding files. Another, which looks like stacked sheets of paper, the uppermost sheet having one corner folded over, is a data file which could contain, for instance, a letter written using your wordprocessor or records created in your database.

The third kind of icon, which looks rather like a miniaturised window, represents program files - the programs which, when you double-click on them, result in your wordprocessor, spreadsheet or other program being loaded ready for some work or action.

EXTENSIONS

Accessory files - useful tools such as a calendar or clock that pops up at a keystroke or mouse click whenever you need it - look just like data files, but can be distinguished because the file extension (the three letters after the dot) is ACC.

Those four words at the top - Desk, File, View and Options - are in what is known as the Menu Bar.

With just a little perseverance, you will quickly discover that the Desktop is one of the best friends you've ever had, never letting you down when it comes to formatting disks, copying files or complete disks, changing filenames, choosing the screen resolution you require and much, much more.

It will only take you minutes to master each of the following useful procedures, and the experience could permanently change the way you use your ST for the better. So what are you waiting for? The Desktop beckons, and you will soon be an expert at most of the things it can



The initial view of the Desktop after starting your ST

do! So what are the main menu items - Desk, File, View and Options - and their respective sub-menu items, all about?

Desk

Move the mouse pointer to this on the main menu and an item you will always see is Desktop Info - whether you switched on with or without a disk in the drive.

Incidentally, three dots after a menu item indicates that when you click it, something else appears on screen - either a message, which you acknowledge by clicking OK, or a dialogue box in which you select options or type some data before clicking OK.

If you brought it up by mistake or decide you no longer want the dialogue, simply click Cancel.

Clicking Desktop Info... presents you with some information about GEM and TOS (standing for Graphical Environment Manager - that's the icons, windows and mouse pointer - and The

New to the ST, or simply not got to grips with all of its features yet? Part one of Richard Williams' guide takes you on a guided tour of the Desktop

Operating System. Click OK to remove the box containing the information.

If you switched on with a disk in the drive that contained any accessory files, the Desk menu will also contain the names of the accessories that were loaded when you booted.

For instance, if the Language disk that came with your ST was in the drive you should see VT52 Emulator and Control Panel.

The VT52 is only of interest to those with a modem to connect their ST to the telephone system for communication with other computers - it is a bare terminal emulator only, which means it's of most use when hooked up to a large mainframe system.

Click once on VT52 Emulator to load the emulator program. Hitting the Help key will present you with a dialogue for setting up the modem port (too advanced for the scope of this feature). Click OK or Cancel to remove the dialogue, then press Undo to return to the Desktop.

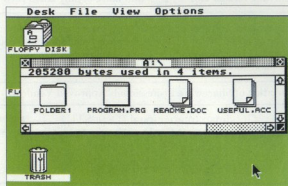
TAKE CONTROL

The Control Panel is probably a lot more interesting to the beginner. In this next little panel, you can set:

Clock/Calendar - which will then track the passage of time as long as the computer is switched on (although you can buy add ons which enables your ST to track time and date even when it's switched off).

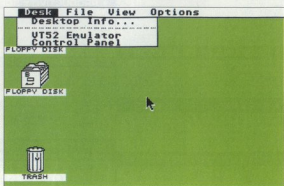
It's always advisable to have your clock and calendar set correctly, as the operating system uses these to note the time at which files are created or revised, and some applications, like wordprocessors, can make use of the system date for automatically inserting dates into letters and memos.

Keyboard response - if you hold down a key for long enough it will start to repeat the character it produces. Here, you can move the sliders, by dragging with the mouse, to set the time lapse before the key starts repeating (finger and key symbols), and also the speed at which the key repeats once repetition is in progress (hare and



Floppy Disk A's icon window, showing a folder and three types of file

The Desk menu, where information and accessories await you. The accessories can be accessed from here even while you're running other programs like a wordprocessor or database



Move the pointer to this slider and drag it to the left to make keys repeat more quickly once repetition is under way, or to the right to make them slower

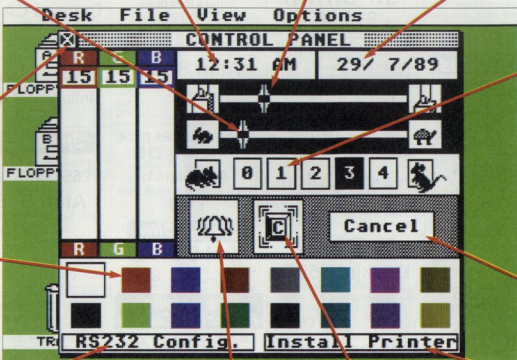
Click here, press the Esc key then write in the present time

Place your pointer on this slider, then drag it to the left to make your keys start to repeat sooner, or to the right for the opposite effect

Click here, press Esc then type in the current date

Click on this (the Close box) when you've made all your Control Panel settings. The panel does not have an OK button

If you want to change the colour display of your TV or monitor, click on the colour you want to alter in this panel, then move the sliders (above left) up or down until you achieve the desired effect



Click here to bring up a box in which you can make settings for a modem, enabling you to communicate with other computers via the telephone network

If you don't want the bell to sound when, for instance, you try to perform some other action before acknowledging an alert message, click here and it will turn grey, indicating it's disabled. Another click will bring it back into action

This icon works the same way as the bell. Click it with your mouse pointer if you don't want a click every time you press a key

If you have a printer, click here for a box in which you can make settings for it

Choose a number, from 0 to 4, to make your ST's double-click response faster or slower. The higher the number, the faster the response

The control panel, summoned from the Desk menu

If you want to Cancel the changes you've just made, click on this

tortoise symbols). Mouse Click response - double-clicking on an icon or file name is a quick way of opening a window, starting off a program or calling a file into an application.

However, if you don't double-click quickly enough, the system interprets the clicks as two separate ones, so you might end up merely highlighting something and then deselecting it. Click on a

number (from 0 to 4) to alter the response, 0 giving you the longest time-lapse allowed between clicks.

Auto Feedback - Have you found that those keyboard clicks from the monitor or TV speaker drive you crackers when you're bashing away at your wordprocessor or entering data into a spreadsheet?

Click the key symbol with the C on it to make it turn grey and there'll be no more clicks. Another sound you might have experienced is a bell after a mouse or keyboard error.

It happens, for instance, when you try to choose another function before you've clicked OK in a message or dialogue box. You can stop this by

clicking on the bell symbol to grey it out, but I personally find the bell a useful feature.

Palette Control - If you're using a TV or colour monitor, the palette boxes at the bottom of the control panel show screen colours that you can alter. If your ST is set to low resolution (see Set Preferences... in the Options menu, all 16 palette boxes will be active. If you're in medium resolution, only the first two palette boxes in each row will be active.

COMMUNICATIONS

Click the palette box you want to change, then move the primary colour sliders above left to alter it.

If you have a high resolution mono monitor, you can invert the current display (so if you currently have black text on a white background, you'll get white text on a black background) by moving all three colour sliders to the bottom (white on black) or top.

RS232 Configuration - The RS232, also known as the serial port, is a data sending and receiving device which has a socket labelled Modem in the back of the computer.

Click RS232 Config to display a dialogue box in which you can set

story

RS232 PORT CONFIGURATION

Baud Rate:

Parity:

Duplex:

Bits/Char:

Strip Bit:

Flow Control

Xon/Xoff:

Rts/Cts:

The RS232 Config dialogue box, in which you can make settings for a modem

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options to match your ST's serial port to a modem, for communications, or to a serial printer.

Most printers, however, have parallel interfaces, and you connect these to the adjacent socket, cunningly marked Printer.

If you buy a modem or printer that has a serial interface, consult the manual that comes with the hardware for the right settings.

Install printer – as with the RS232 Config, clicking this calls a dialogue box. This time, you make the settings relevant to the type of printer you may be fortunate enough to have.

Although most of the settings are fairly obvious, consult your printer manual to make sure everything is properly set. If you tell the ST your printer is sheet fed (or uses continuous paper) when it's really single sheet, you'll soon find your golden prose or art printing invisibly onto the roller!

Here's a tip. If you want the same Control Panel settings every time you load your ST, make sure you save them to your boot (start-up) disk using the Save Desktop command (see Options menu).

File

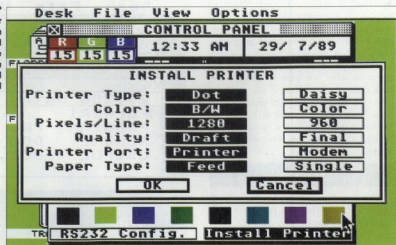
You've maybe moved your pointer to this in the main menu and found that all the items on the menu that drops down look a bit wispy. That's because those options are greyed out, or disabled, unless you selected a disk drive, folder or file icon, or opened a window beforehand.

Even then, you will find that not all of the items are a healthy-looking black, because certain of the menu items only work with certain selected icons.

A single click on Open will run a selected program or reveal the contents of a selected disk, file or folder. An alternative to Open is to double-click with the left mouse button on the file or folder icon.

Show info..., as you might expect, displays information about a selected disk, folder or file. It comes in particularly useful when you want to change the names of files or folders (with TOS 1.4 or higher), as there's a field in which you can overwrite the existing

Got a printer?
Type in your settings for it in the Install Printer dialogue box, called from the Control Panel



name. Clicking OK then saves the new name, which will now be displayed in the window in place of the old one.

New Folder – Create a new folder into which you can later drag or save related files by clicking this and then typing the folder's name, which can have up to eight characters plus a three-character extension, in the dialogue box which appears. Click OK and the new folder appears in the active window. You must have opened a disk or folder icon before you can perform this simple operation.

Close/Close Window – Fairly obvious, you might say – but there's an important distinction here. Remember a window can be produced by double clicking (or Opening) either a disk icon or a folder. Close will close a folder's window and either take

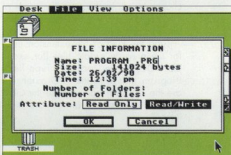
you to the previous folder or to the disk's window, whereas Close Window will close the folder's window and take you back to disk icon.

Clicking either Close or Close Window when a disk's window is active will, of course, take you back to the disk's icon. And after all those words about Close/Close Window, why bother with either when you can use the Close box (the equivalent of Close) at the top left of the window itself?

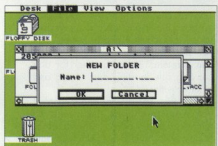
If you want to go from folder window back to disk icon, you'll need two or more separate clicks, but it's still the way most people do it.

Format: Before you can use a new, blank floppy disk it must be formatted with tracks and sectors so that you ST can find the folder and files that you later store on it.

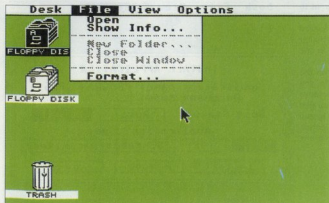
Select floppy disk A icon after placing your unformatted disk in the drive,



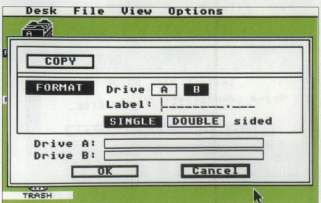
The Show Info... dialogue box where you can change file and folder names and get valuable information



The New Folder dialogue box – type the name for your new folder here



The File menu. Note that some options are greyed out, or disabled, because there's no window open at the moment



The Format/Copy dialogue box enables you to prepare a disk for use in your ST, and then copy an existing disk to it

then choose Format, and you will be presented with a choice of single or double-sided format.

Which you choose may depend very much on what you plan to do with the disk once it's formatted. If you want to copy the entire contents of another disk to it in one go, the new disk must be formatted in the same way as the source disk (the one you're copying from).

View

Show as Icons/Text: So far, we've talked about files and folders being displayed as icons only. You can also display them as text, which some people find a better option as the date and times when files and folders were created, and the size of files in bytes are also displayed.

Whether the date and time is correct depends on whether the person who created the file had the system date set properly at the time of creation - see Clock/Calendar, part of the Control Panel under the Desk menu above.

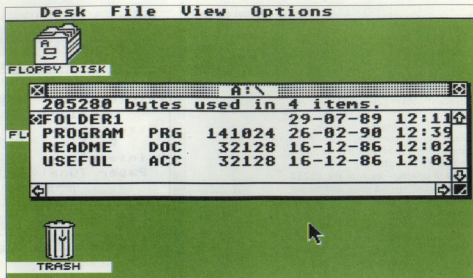
Anything you can do with icons - selecting, dragging and so on - you can also do with the text versions.

Sort by Name/Date/Size/Type: What order do you want your files and folders displayed in when you open a window? Choose any one option from four here. Name orders them alphabetically, Date is exactly what you would expect, Size orders them according to their size in bytes, Type orders files alphabetically according to extensions (the three letters after the dot, used to identify some types of file, PRG is a program file).

Options

Install Disk Drive: When you switch on your ST, it probably displays two floppy disk icons, A and B. Even though you probably have only one drive, it can "pretend" it has another for disk copying, file loading and saving and other activities.

Each icon has a letter and a label. If you want to change the labels, or remove or add a drive - either an extra floppy or a hard drive which is both faster and capable of storing far more



Files and folders can be displayed in text form instead of icons if you wish

data - use this option. Additional drives always come with full installation instructions which are easy to follow. Never remove all your disk icons and save the new setup to your boot (startup) disk - you could make big trouble for yourself!

Install Application: Normally, when you're using the Desktop and you double-click on a data file - like a document created by your wordprocessor - you get a message saying you can only view or print the file.

However, you can install the wordprocessor so that when you click on one of its document files, both wordprocessor and document will load.

First, in the relevant window, select the application you wish to install by clicking it once. From the Options menu choose Install Application. The name of the program you want to install already appears in the Application Name field.

Type the kind of file extension used for the program's data files (for example DOC) in the Document Type field. Program files with the PRG extension are the most common and use the GEM system. GEM should already be highlighted.

Boot status will more than likely be Normal (unless you've set up the program to auto-boot so it's usually a simple matter of clicking OK at this point, and the program is installed.

Provided your document (DOC) files

are in the same folder as your program (PRG) file, when you now click on a DOC file, the wordprocessor will load, and automatically bring the DOC file to screen ready for work. Not all application programs use GEM. Some program files have the TOS extension, in which case click the TOS or TOS-takes parameters option.

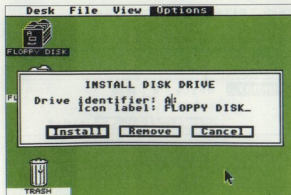
RESOLUTIONS

Choosing the latter means you do not have to give a data file extension at this stage, but provide the relevant filename(s) as requested in an Open Application dialogue box when you later start the program by clicking its icon in the non-installed manner. If a program has the extension TTP, it need not be installed - the Open Application box will appear automatically.

Set Preferences: Choose from here whether you want certain alert boxes to appear when you're performing some operations, and the screen resolution. As a beginner, it's probably best to opt for Yes for each of the confirmations listed here.

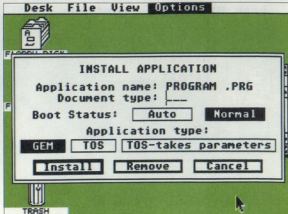
The ST can run in three resolutions. If you're using a TV or colour monitor, you can choose either medium or low resolution. Atari's mono monitors run in high resolution only.

Some programs will run in any resolution, others in one or two of the resolu-



Want to install, remove or change the identifier or label of a disk drive? Here's the place to do it

If you want to be able to load an application and a particular data file in one go simply by clicking on the data file, you can achieve your aim in the Install Application dialogue box



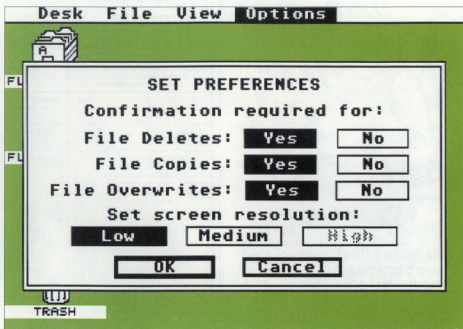
tions. If you try to run a program in the wrong one, you will normally be warned via an alert box when you try to load it, and loading will be aborted.

Save Desktop: When you make any changes via the Control Panel or Preferences, you can save them to your boot disk – probably your copy of the ST Language disk – so that the settings will be in force every time you boot. The positions of any icons and windows on screen will also be saved, and come up in the precise positions they occupied when you saved them.

Print Screen: Same as pressing Alternate plus Help – the screen's contents are printed, provided, of course, you actually have a printer, it's switched on and you've installed it via the Control Panel.

Blitter on STEs: Keep this switched on unless you come across problems with any of your applications. The blitter speeds up text and graphics, and works well with most programs. A tick next to this item indicates that it's on.

● *In part two next month, Richard Williams looks at windows, disk operations, peripherals and ST's jargon*



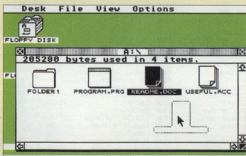
Set your ST's screen resolution and confirmation requirements for certain operations in the Set Preferences dialog box

Dragging and selecting

Even the almost totally uninitiated have probably noticed by now that placing the mouse pointer over a disk icon, a folder or a file and clicking the left button turns the icon black. That is known as selecting it.

When an item has been selected, you can do something with it. For instance, if you don't release the mouse button straight away, by moving the mouse you can drag the icon and copy whatever it represents.

By dragging files or folders from one window to another, or from a

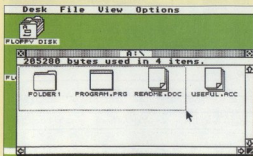


The "ghost" of an icon as it's dragged across the screen

window to a disk icon, you can copy files to other directories and disks very easily.

Beginners are sometimes unaware that more than one icon can be selected at the time. Usually, when you click on an object, whatever else was previously selected is automatically deselected. However, by holding down either Shift key, you are able to click and select several icons.

Another way of doing it is to "draw" a dotted rectangle around the icons you wish to select. Press and hold the left mouse button



"Drawing" a dotted rectangle with the mouse to select several files and/or folders

anywhere on the Desktop or in a window, then drag the mouse, and you will see the rectangle appear. Draw one of these to encompass the icons you want to select, and hey presto, they're all selected!

Multiple selection can speed up operations like copying or deleting files.

To delete a file, use the Trash Can which will be at the bottom left of the screen unless you've moved it somewhere else and Saved Desktop.

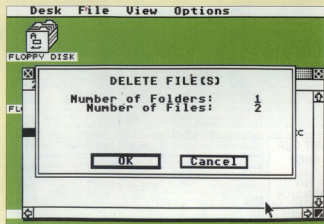
DELETION

Select the files or folders you want to delete and drag them to the Trash Can. When the pointer is over the Trash Can, it becomes selected itself.

Releasing the mouse button at this point will bring up a dialogue box asking you to confirm that you want to delete X number of files and/or X number of folders. Clicking OK results in the deletion of the selected items. Use this facility with great care.

Even when you've loaded an application and left the Desktop behind, you will find good pointing, clicking and dragging technique a great help in, for instance, selecting text and then options that will affect that text in a wordprocessor.

It's worthwhile practising until it becomes second nature – and that won't take long!



When deleting files or folders, after you've "dropped" them into the Trash Can, this dialogue appears asking you for confirmation

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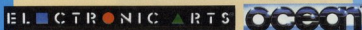
Gamer GLOBE

EA and Ocean in tie-in surprise

Electronic Arts have just announced a tie-in with Ocean. The Manchester-based software house are to re-publish a number of Electronic Arts titles on their Hit Squad label. Those involved will be repackaged by Ocean and sold at between £7.99 and £14.99.

Mark Lewis, president of Electronic Arts Europe, commented: "Ocean's expertise in the area of re-release publishing is unrivalled in this industry."

"This is a significant move for Electronic Arts that acknowledges that budget publishing is becoming more specialised." Expect to see such hit titles as Populous, Budokan and The Immortal on the shelves very soon.

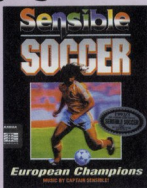


Sensible go global

One of the biggest sequels this year will hit your local game stores at Christmas. Sensible Soccer 2 is going to render all other soccer games null and void, says Sensible Software supremo Chris Yates.

The new game is going to have a player/manager angle rather like the now dated Player Manager by Amco.

Its predecessor was very European and this is going to be changed for a more global feel. Expect teams from Brazil, Argentina and the CIS to feature in the game. Details are very scarce at the moment, but we'll keep you posted on the developments.



Nominations are in for top games awards



The nominations are now in for the most prestigious video and computer games awards ever. The winners will be announced on the first night of the European Computer Trade Show, April 4.

More than 70 of the top magazines from Europe, the US and the Far East, including Gamer, have cast their votes. Hundreds of thousands of games players in France, Germany, Spain and Italy have all voted for their game of the year. In the UK the consumers' choice will be decided by viewers of BBC children's show Going Live. On the ST games front there isn't a lot to shout about

and the nominations tend to be console-orientated. ST nominees include Formula One Grand Prix for Best Simulation, Going Live Viewers' Award, Best Computer Game and Overall Game of the Year. Pushover and Wikkid from Ocean are up for Most Original Game.



Sensible Software not only have Wiz-

F1 GP -
Nominated for four awards

kid up for an award, but their football classic Sensible Soccer is nominated for Best Computer Game, Going Live Viewers' Award and Overall Game of the Year.

Software publisher of the year is a fight between Electronic Arts, Konami, Microprose, US Gold and Virgin Games.

As the ECTS is a trade show, you won't be able to get in, but don't worry because your trusted friend Gamer will be there to get you all the hot information on what goes on. Expect a full report in a couple of months' time.

THE CHARTS

This month				This month			
1	Street Fighter 2	US Gold	£27.99	11	First Division Manager	Code Master	£7.99
2	Sensible Soccer 92/93	Renegade	£25.99	12	Dizzy: Prince of the Yolkfolk	Code Master	£7.99
3	Premier Manager	Gremlin	£25.99	13	RBI Baseball 2	Hit Squad	£7.99
4	James Pond	GBH	£7.99	14	Treasure Island Dizzy	Code Master	£4.99
5	Prince of Persia	Hit Squad	£7.99	15	Spellbound Dizzy	Code Master	£7.99
6	Terminator 2	Hit Squad	£7.99	16	Lemmings/Oh No More Lemmings	Psygnosis	£29.99
7	Hero Quest	GBH Gold	£9.99	17	AV8B Harrier Assault	Domark	£34.99
8	Trivial Pursuit	Hit Squade	£7.99	18	Street Fighter	Kixx	£9.99
9	F16 Combat Pilot	Action 16	£9.99	19	Test Drive 2	Hit Squad	£7.99
10	Campaign	Empire	£34.99	20	Indiana Jones: Graphic Adventure	Kixx XL	£14.99



Attic attack!

US Gold is to exclusively market and distribute several different software products from German company Attic Software throughout the United Kingdom, France, Italy and Scandinavia.

The first title, *Blade of Destiny*, is based on Germany's successful role-playing series *Das Schwarz Auge*. It is to be known in Britain as *Realms of Arkania* and is being developed in co-operation with the original authors, Fantasy Productions.

Since *Das Schwarz Auge's* first release in 1984, more than a dozen board games have been published. Earlier this year agreements were made that allowed Waddingtons and Mattel to publish a board game under the title of *Dark World*.

US Gold's chairman Geoff Brown said: "The success of *Das Schwarz Auge* series is impressive by anyone's standards.

"The *Realms of Arkania* series represents a very exciting addition to our range. We're very much looking forward to working with Attic and bringing them to the forefront of the European software industry."

The computer series has been kept as faithful as possible to the board game and only minor alterations have been where the computer environment demanded so. The game will be available within the next few weeks.



Daze return with Ishar

The sequel to *Ishar*, the aptly named *Ishar 2*, is to be released very soon. The game, still in production, varies a lot when compared to the original.

Play now takes place over seven islands, each featuring different landscapes including forest, swamp, arctic and mountains.

The overall play area is three times larger than *Ishar 1* and the controls are easier and more streamlined. There are also 30 new characters to interact with plus over 70 different new enemies.

Many actions in *Ishar 2* are now shown as animated sequences and in general the graphics and sound are even better than the original.

The really good news for Atari owners is that the game will be available for the Atari Falcon as well as the ST. The Falcon version boasts over 256 colours and could well be worth waiting for.

What's happening? Where am I?

The answers, in back to front order, are – you are reading *Gamer*, as ever, but we are having a bit of a change, as we said last month.

These sparkling pages over which you are currently casting your bright excited eyes are the *Gamer Globe* and replace the old *Onword*.

All the latest game news will still appear within this magnificent section, but we also aim to bring you news of other game-related incidents, such as shows and... er... other stuff.

Inner *Vision* becomes *Innards* – mainly because we just fancied a change – and *The Source* gets a new look and reappears as the new *On the Drawing Board* section – quick, to the point, and more informative to boot!

It seems that many of you particularly like the previews, so we'll be bringing you more of those in the coming months.

The basic structure of the reviews remains, although we have modified the scoreboard, most noticeably with the addition of *Difficulty* and *Lastability* sections that many of you seem to want.

Difficulty refers to the trickiness of the control method and the type of puzzles or tasks within a game – a score of around seven or eight means that the programmers are spot on. *Lastability* is all about completion of the game – the higher the score, the longer it will last – compared?

We hope you like it because we're trying to tailor *Gamer* to suit your wants, so don't let it stop here – keep those letters coming and make us work for a living (for a change, more like – Ed).

INNARDS

And the Lord said: "Let there be games..."

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Oh a man's best friend is his dog – woof woof!

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By this month's guest reviewer Ranulph Fiennes

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The game that thinks it's on a Spectrum – but jeppers, it's good!



REGULARS-REGULARS-REGULARS

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Second only to *The Sun* for sex, scandal and nude pics of *Biff*

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We said we'd finish it and Ween ever lie

CHEAP SEATS.....18

Roll up, you peasants, and grab yourselves a bargain

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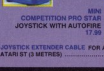
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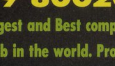
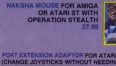
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Have a look through some recent back issues of your ST magazines, paying particular attention to the reviews of puzzle games. Just out of interest, count how many times a reviewer has likened the product to Lemmings. More to the point, check how often a phrase similar to this occurs:

"It's a good game really, and should keep you satisfied, at least until Lemmings 2 arrives"

What's that? Twenty eight? No - you're still counting? OK, you can stop now - I'm sure you get the point...

Everyone, it seems, has been waiting with baited breath for the second coming of the green-haired stage divers since about... well, since last summer.

The dozy little beasts delighted the entire gaming nation first time around, setting a new standard in the puzzle genre that has never quite been matched.

Such was the impact, the playability and the plain, simple bare-assed fun of it all, that the question hovering on the lips of, I guess, almost everyone is just how DMA could possibly come up with something better.

Rumours have circulated of course. First there was speculation that the sequel would contain a massive 8,000 levels. Then it was said that Lemmings 2 would never come about, and that Psygnosis, in keeping with the theme, had plans to release a game about Oxford University students.

There were even those who ventured that L2 would be the first virtual reality game for the home computer, whereby players wandered around spooky rendered landscapes suffering actual death by electrocution should they fail to complete a level. These proved unfounded - Lemmings 2 has indeed arrived in all its glory, sporting new Lems, new skills, new levels. But let's start at the beginning...

When we left them, the Lems - having clambered, clomped, jumped and fallen



LEMMINGS 2 THE TRIBES

Psygnosis are back with another helping of big-nosed tomfoolery



Hey - that's David Vine with a wig on, that is!

their way through level after frustrating level - were comfortably and deservedly settled on their new island home.

Of course, like any civilisation, they had varying ideas as to the way they wanted to lead their lives, and being a friendly - if not particularly intelligent - bunch, decided to split into tribes and inhabit separate parts of the island.

The cute animated intro features a grandpappy Lem taking up the story, relating it to a young pup Lem. He explains how a magical talisman - their protector - was split into 12 parts when the tribes went their separate ways, so that each group could rest easy in the assurance that they would come to no harm. Now for some reason - Judith Chalmers is on her way with a film crew probably - the Lems must move again; they can't go anywhere without their talisman though, and not surprisingly perhaps, the pieces have become lost throughout the fair Lemming Isle.

That's the story, and it's up to you as usual to guide the creatures through the levels to safety. It's a bigger game this time and more thought has gone into the way in which it's structured.

There are 12 tribes of Lemmings, each inhabiting their own little piece of the island. Every tribe needs to complete ten levels, upon which they are rewarded with a vital bit of the talisman to fit onto the others.

If you were delighted by the animation of the original Lemmings, then wear an old pair of trousers or shabby skirt, because the chances are you'll make a mess when you feast your eyes on the new extravaganza.

Animators Gary Timmons and David Osborne have really gone to town on the loves of their lives, creating dozens of new comical situations. As we hinted in February's preview, the sprites are the same size as ever, but the whole shebang



is just full of busting with brand new abilities.

Whereas previously there were a total of eight attributes to aide the cause, the Lems now come complete with a stonking great 52 abilities.

Not all of these can be used at any one time, for practical reasons as well as programming ones - instead it depends on the type of Lemming as to which abilities are available.

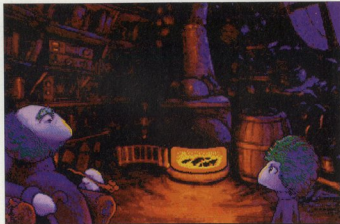
Forgive me if this sounds convoluted - you'll soon see what I mean if and when you buy the game, and you should, oh, you should...

FUN TO WATCH

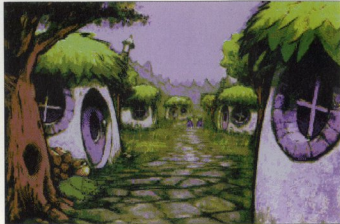
All the old abilities are still in use, but as well as the new ones, there are certain situations where a combination of skills is needed, or is just good fun to watch.

For instance, using the running and diving abilities together and you should see something worthy of an Olympic gold medal.

Passwords are out this time - instead the game can be preserved at any point by saving it to disk. Although the idea is to liberate the tribes of Lemmings one at a time, it isn't necessary by any means to make your way through the 120 levels methodically. If one aspect is proving too difficult, simply save your game and switch your



See, you remind me of meself when I was your age - ugly little devil I was



The self sufficient Lemming village - all roofs are made of Lemming hair



It might not be San Tropez, but it's home

attention to a different tribe.

As if all this wasn't enough, the levels are generally larger than before, and the scrolling now moves vertically as well as horizontally, making for some very strange looking and tricky levels.

It's more important than ever to save as many Lems as possible, because the total is carried forward to the next level, and as anyone who's played before knows - the more you have, the better your chances of making it through.

When a level is complete, the amount of Lemmings saved dictate whether you are awarded a bronze, silver or gold medal, and when a whole tribe is safely through, your skills as a saviour result in a similarly coloured piece of talisman.

The ultimate challenge, then, is to put together a completely gold talisman, but unless you're some kind of Lemtastic genius, this is about as likely as the Queen and Ken Dodd getting together to fill out their tax returns.

OK, what now? Oh, I don't know. You

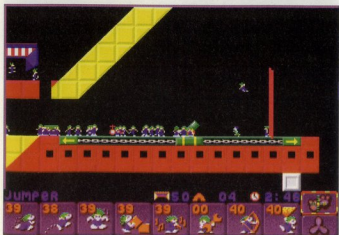


know the story; you've heard about the new Lemmings, and you already knew the basic idea before you even turned to this page.

There is just so much more to this game that I could take up the rest of the entire mag if I went into the minutiae. It isn't up to me to tell you to buy it, but you're all intelligent people - you know it makes sense.

PAUL ROUNDELL

VISION	
○○○○○○○○	●●●●●●●●
AUDIO	
○○○○○○○○	●●●●●●●●
DIFFICULTY	
○○○○○○○○	●●●●●●●●
LASTABILITY	
○○○○○○○○	●●●●●●●●
There'll be chaos when this hits the shelves. It's everything you'd expect and much more besides - a joy to look at, listen to, and to play.	93%
Publisher > Psygnosis	
Developer > DMA	
Disks > 2	
Price > \$29.99	
HD Install > No	
Size > 1 meg	



It's absolutely manic! a real boon for animal abusers



Long haired chilling dudes, famed for their lazy stride and surfing and swimming abilities.



Complete with leopard-skin loincloths, watch out for the ones with the clubs!



These funny looking chaps have a good throwing arm, and like to take the odd ride in a balloon.



A Highlander wouldn't be a Highlander if he couldn't play the baggies!



You haven't lived until you've seen a Lem on a flying carpet.



Bows and arrows were the order of the day, back in the good old days.



Like true boy scouts, these guys are always prepared - right down to the rope and grappling hook.



The old favourites, still a hell of a lot of fun.



Get a good run up and put your luck at the pole vault. If you're still alive, have a hash at hang gliding.



These sinister beasts only come out at night - sort of a Lemming SWAT team.



Flying carpets a bit too slow? Try a jet pack then!



My favourite - bring your ice skates, have a snowball fight and finish off with a brisk whizz on the piste on skis.

There is a certain air of mystery about Ocean. One minute they will put out the most unbelievable pile of second-rate trash that you have ever seen in your life. Next they'll put out a totally original and brilliant piece of software that makes you rub your eyes in disbelief.

Sleepwalker is in aid of Comic Relief and due to the massive publicity and the fact that every computer gamer you know will want it, Ocean can't afford to put out a stinker this time around, otherwise they'll be off down the dole office before you can say "charidee".

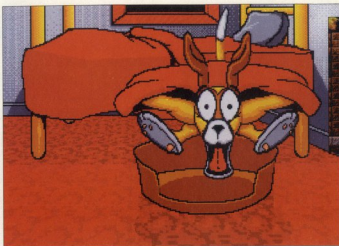
The year is 1993 and the mass media has found the computer game. Almost every major newspaper has a computer column, but they also run dodgy stories about computer games causing epilepsy and that they can turn your kids into mini Hannibal Lecters. Pretty sensational stuff, but scaremongering nevertheless.

CAST IRON

Turn on your TV and you'll find computers mentioned. Whether it's the king of the double entendre Dominik Diamond or Andy Crane, the man with the cast iron hairdo, you can't escape them.

Pop, TV and film stars wouldn't be seen dead without their hand-helds when they're out on the town. Sonic the Hedgehog and Mario are slowly becoming international stars, on everybody's lips from eight to 80. Let's face it, computers are the in thing and they're taking over.

It's not surprising, then, that some bright



I think the word "waarghh" would describe this screenshot perfectly

spark from Comic Relief saw this incredible phenomena and decided to get in on the act. Not a bad idea seeing as computers are one of the fastest growing markets in the world with billions of pounds spent in the industry every year.

If you buy Sleepwalker, over £4 will go to help fund projects in Africa and the United Kingdom. It's not a big percentage of the £25 asking price, but every little amount helps.

Normally Gamer is sent all software for free, but in our case we were feeling rather

guilty, so out came the Gamer wallet and we decided to buy it, just so we can say we did our bit.

In Sleepwalker you play the part of Ralph the dog and the idea behind it is probably the simplest since Space Invaders.

KIPSVILLE

Lee, your young master, has had been having problems in the sleep department. While he's asleep he decides to go walkabout. Now, this isn't too bad - normally he



Wakey wakey. Hey, you're just in time to watch Zig and Zag on the telly

just walks around his room for a bit and gets back into bed.

This time someone has left his bedroom window open and Lee decides to stroll around town. As his four-legged friend you must save him from all the dangers that await him in the dark streets of, ahem, Kipsville.

As if by chance Ralph has suddenly found himself with super-canine powers. Ralph can not only run, jump and bridge gaps, but he can survive being squashed, run over by trucks and even roasted.

Ralph might survive all these dangers, but Lee is not quite as indestructible. The idea is not to wake him up or you'll lose a life. At the top of the screen is Lee's sleep bar and whenever Lee is hit or damaged in any way this bar will deplete - when it's fully depleted Lee will wake up. Some things such as water will wake him up almost instantly.

The objective is to guide Lee safely through the entire level until you manage to get him out of the exit. Dotted around each level are various icons which will give Ralph or Lee a special ability.

Also scattered around the level are five

After the disastrous WWF 2 and Cool World, Ocean are back with the quite literally charidee-tastic Sleepwalker. Zzz zzz zzz...

SLEEPWALKER



Not tonight mate, you're not coming in. Wanna bet? Ralph decides to get his own back on the nightclub bouncer



Remember kids, electric fire heaters and water just don't mix!

bonus noses. Each nose bears a letter on it which when collected will spell the word "comic" and let you access the bonus level.

Ralph must run around and collect red balloons. Every 20 balloons generate an extra life. There are also extra icons which when picked up in the correct order, spell out one of the hazards which Ralph, in his dreams, would like to see happen to Lee.

For instance, if you collect certain icons in a certain order you can activate a dream sequence, such as the one where Lee comes a cropper with a lamp post.

The graphics are almost like watching a cartoon off the telly. The intro and in-between game sequences are brilliant little animations with the sound effects and voices of the characters provided by funny man Lenny Henry. Sleepwalker is definitely the best presented game I have seen from Ocean in a long time.

THOUGHT THROUGH

What you're probably saying to yourself is "wait a minute, most Ocean games have good graphics and sound, but are let down by poor playability!".

Well don't worry because there's no problem on that front. Everything has obviously



Woo yeah it's a map. I can hardly contain my excitement. Sigh...

been thought through and works as it should.

Sleepwalker is not one of those games you can sit down and progress through level upon level on your first go. The first thing you have to do is get used to controlling Ralph the dog. There are several different things he can do and it's not just a case of going left and right and stabbing fire a couple of times.

You practically need to be in complete control of Lee all the time or you will fail miserably. This means you have to run



Can you guess what going to happen next?

ahead of him like a, ahem, mad dog and check for hazards and traps - and believe you me there are plenty to check for. Sleepwalker is my first favourite game of 1993 so far. It combines brilliant graphics and sound with cool playability and is very addictive.

Even if it was fairly average I would have thought the British public would have bought out of the goodness of their hearts, because for starters it's better than sitting in a tub of baked beans for 24 hours.

JONATHAN MADDOCK

VISION	
GGGGGGGGG	
AUDIO	
GGGGGGGG	
DIFFICULTY	
GGGGGGGG	
LASTABILITY	
GGGGGGGG	
Sleepwalker contains fantastic cartoony graphics coupled with some good sound effects provided by Lenny Henry. One of the most playable games I ever came across. Buy it!	90%
Publisher > Ocean	
Developer > CTA Developments	
Disks > 3	
Price > \$25.99	
HD Install > N/A	
Size > 1.5 meg	
Config > STE only	



Ralph attempts bridge-building the hard way



See I told you all good little boys go to heaven, whereas it looks like the doghouse for Ralph

Walk into any arcade or fair-ground and all you'll hear are the death throes of thousands of aliens as they find themselves blitzed back towards the planet Felch to the accompaniment of shouts of glee from the Earthling army.

Spectrums and C64s used to whirr and shake wildly to similarly familiar intonations, but sadly, such games have been few and far between on the ST.

Clutch your favourite joystick and arm your weapons though, because after too long a wait we have an out and out shoot-'em-up on our hands once more...

Who remembers Wings of Death? It was rather underrated on its release a year or two ago; developers Eclipse have put their talents to work once more in what is essentially Wings Of Death 2.

I'd like to lay out some kind of scenario for you, I really would, but unfortunately my copy of the game is the German version and comes complete with matching box and manual, and since my understanding of the language stretches no further than the names of one or two particularly pleasant lagers, you're scuppered.

But what do we need to know? No amount of Damsel in Distress sob stories are going to detract from the fact that the whole idea is simply to sit in your spaceship and obliterate everything that moves, are they?

Lethal Xcess is ye old fashioned shoot-'em-up; on booting up the disk what I appeared to have in front of me was the chunky graphic-kill-bomb-shoot-kill-shoot-shoot-kill trenzy which I had been waiting for some time.

IMPROBABLE

The ship is a fairly standard affair - just your average intergalactic cruiser with the usual blend of improbable shapes, large guns and strange Scottish men in the engine room.

You begin your voyage into mindless violence with just a few poxy triangular missiles, which can either be powered up or exchanged for other methods of destruction, and although the game, as a concept, represents nothing particularly new, the power-ups are well thought out.

There are seven upgrades, all introduced proudly by a digitised voice proclaiming "tri-angle!", "dronel" and, uh, "wiper", among others. Once you've collected a power-up, look out for more of the same, as each PU can itself be enhanced by amassing a collection of identical pods, making for an awesome weapon.

Such awesomeness is a necessity, actually, as the game is far from an easy ride. Even on easy mode the baddies come flying thick and fast, and on the subsequent two settings your three lives are likely to last about as long as a

LETHAL XCESS

Here at last is a shoot-'em-up to dispel those pent up frustrations, so put down the carving knife and that shotgun!



Here you get to shoot something

Bill Clinton tax promise.

WEAPON

Throughout the five levels the number of enemy sprites increase, as does the difficulty in destroying them, and towards the end of the game only a huge weapon will do if you are to achieve any success in saving the earth, or whatever it is the manual tells us we should do.

Five levels - yep, not many is it? Fortunately, all of them are a decent length, and the sheer number of baddies make for a good sized game, although fiercer level guardians would have provided an even sterner challenge.

The speed of the ship could have been faster - when the screen becomes packed with enemies, as it frequently does, the slug-

gish craft struggles somewhat to keep out of harm's way, and can often be caught out by new arrivals at the bottom or side of the screen. One way (and the most fun,

incidentally) to guard against the space-man's equivalent of an early

bat, is to team up with a chummy in the co-operative two-player mode, and fight it out over power-ups and bonuses, but whichever way you look at it Lethal Xcess is a very good - not great, mind - effort in the now neglected field of the shoot-'em-up.

PAUL ROUNDELL



I was just waiting for the bus when along came this space-ship and shot the top off a mountain!



It's all surreal as the dogs belch fire

VISION	●●●●●●●●●●
AUDIO	●●●●●●●●●●
DIFFICULTY	●●●●●●●●●●
LASTABILITY	●●●●●●●●●●
All the standard shoot-'em-up features are included and the two-player mode adds a little more depth. All in all, a fun and addictive game that left me wanting more.	83%
Publisher > Grandstom Developer > Eclipse Disks > 2 Price > \$25.99 HD Install > N/A Size > 1/2 meg	



Comfy carriages complete with big train set

I am the God of Hell Fire and I bring you... a big train!

TRANSARCTICA

The year is 2022 and it's Christmas Eve. The world has been ravaged for many years by the Greenhouse Effect and is slowly dying. As ever the population have completely ignored warnings given to them by scientists, and Earth's days are severely numbered unless something gets done pretty sharply.

So scientists devised Operation Blind, an experiment designed to save us from our untimely demise. Two large nuclear devices have been planted at the poles of the earth. These are set to explode, throwing up dirt, steam and other debris which will block out the sun's rays and cool the world (man).

But as so frequently happens, the scientists miscalculate and far too much earth and steam is thrown up. The world is plunged into an intense nuclear winter, all civilisation breaks down and the ground freezes.

Centuries later there are still some survivors, who live in cities and towns. The only form of transport are mammoths who have re-evolved and huge trains which span the frozen wastes.

The Viking Union hold complete monopoly over the rail system – they are very dodgy organisation who tend to kill anyone or anything that stands in their way.

Because there is a massive cloud and debris layer in the Earth's atmosphere, the sun has become a mythical heavenly body. People who have read about it want to see it again and have set out to find more about it.

Of course the Viking Union is none too chuffed about this and so kills them off but the resistance who for want of a better name are called the Ambivalents, have stolen the Viking Union's biggest train, the Transarctica...

Because trains are the only thing that work any more, the currency has changed. Coal in two different forms is now the way in which people trade.

Lignite is the base form of currency used for buying goods and tradables, Anthracite being a richer form which is used for running the trains on.

Just because you've got this massive train doesn't mean you haven't got a care in the world – there are plenty of things you should

What have trains, global warming, and large nuclear explosions got in common? Read on...



The train standing on platform 4 is 30 years early...

be worried about.

Great herds of walves roam the icy wastes looking for trains, a bit like a tinned meal for them really, and as you can imagine the Viking Union aren't too chuffed at the fact that you have stolen their best vehicle.

Indeed, their battle trains are out on the rails after you. Also when you are going through underground tunnels you must watch out for Mole Men – cannibals who have adapted to living underground.

To progress you must trade with the various town and cities and build up the

Transarctica into a bigger beast than it already is, and you must put out your spies to find more about what really happened and what the rumoured Operation Sun is.

Transarctica is controlled entirely by the mouse, clicking on icons around the screen. The first screen is the engine room. This is where the speed and general movement is controlled from. You have to carry out all the usual tasks that you would on a normal steam train like building the fire, building up steam and keeping the coal burning, but remember you only have a limited amount



Knowsley Safari Park, I don't think

of Anthracite.

The other carriages contain the rest of your small band of men and more importantly a scale map of the entire area you can cover with the Transarctica.

At first I thought the gameplay was a little slow but then I discovered that the clock in the corner of the screen is to speed up the play – if you click on it, it will make everything in the game run quicker including the train, so there's no hanging round.

Had Transarctica been as graphically excellent as Dark Seed or Waxwork it really would be a fantastic.

It still up to a pretty good standard but it's not brilliant. The styling is not completely dissimilar to the latest Bitmap Brothers release, the Chaos Engine. However the gameplay does make up for it. A good one, definitely worth a look.

BEN STYLES

VISION	●●●●●●●●
AUDIO	●●●●●●●●
DIFFICULTY	●●●●●●●●
LASTABILITY	●●●●●●●●
Transarctica is a fantastically atmospheric game. Had the graphics been up to Dark Seed's standard then it would have been an instant classic. Nevertheless it's wonderful.	89%
Publisher > Daze Developer > Silmarils Disks > 2 Price > \$25.99 HD Install > N/A Size > 1 meg	

CIVILIZATION



John Inman, you have risen to become leader of the Babylonians. May your reign be long and prosperous. The Babylonians have knowledge of Irrigation, Mining, Alphabet, Masonry, Pottery, and Roads.

You're given a character at the start of the game and a little bit of background just to get you into the mood. Today I was John Inman, leader of the Babylonians and shop assistant in arc you being served



Scattered all through the game, are little graphical sequence to keep the player happy. The more you build on to your city the more impressive it looks on the graphical representation.

As you probably gathered this isn't a thriving metropolis yet

Civilisation, the game that bred a thousand power-crazed maniacs on other formats, is nearing completion for the ST. It's about building a civilisation, believe it or not, starting from scratch with a small band of crusties.

You have to find a site for your first cities and start inventing things, causing more irreparable environmental damage than the Exxon Valdez and MacDonalds put together. Here's your first look at the most epic game since Elite...

You begin Civilization with nothing but a few settlers and enough food and money to start building your city. Once built, the city has to be protected so you must recruit garrisons of soldiers and build city walls.

As you need to build various things for the city you have to tax your citizens but still keep them happy, so every so often you can build them one of the wonders of the world.

Of course all the other civilisations aren't prepared to let you walk all over them so you have to be prepared to swap attacks in your stride or, if you're feeling diplomatic tuck various pearls of wisdom and knowledge with your neighbours.



John Inman, you have risen to become leader of the Babylonians. May your reign be long and prosperous. The Babylonians have knowledge of Irrigation, Mining, Alphabet, Masonry, Pottery, and Roads.

This screen tells you how the city is progressing



Move your troops around on the main map



The top five cities in the world, well my world anyway. Every so often you will be given an update on various aspects of everybody's civilisation and who is doing the best. This screen is just one of them - other screen include population, happiness, wealth, technological advancement



When you begin you have to remember you are nothing but a bunch of savages, and thick ones at that. So you have to get your boffins on the job to invent things that will be useful to your people. Different combinations of things help you to develop other things. And it's possible to have a race of people who haven't invented the wheel but have nuclear weapons

Platformers eh? I have been known to say the odd unkind word about these fabled run-around-and-jump-up-and-down-'em-ups from time to time, and it can never be said that they present us with a new sphere in gaming. Truth be told though - I am quite a fan...

Yeah, yeah, it's very satisfying to see the end sequence kick in when you've finished a top adventure such as Indy Jones or Lure of the Temptress, and it's great to conquer lands in Campaign and experience the realism of Airbus A320 - but for fast loading, simplistic, half-an-hour-at-a-time fun, Doodlebug, James Pond and friends are where it's at.

EA's list of game is long and varied, although you won't find many platform romps. Risky Woods is a strange release by EA - rumoured to be their last for the ST.

WISDOM

It went down well with Amiga owners as their release a few months ago, so the initial signs were good.

The Risky Woods lie deep in the scary Lost Land, over which a great wisdom once presided, guarded - in-between bee-keeping and spanking young boys at boarding school - by a gang of monks, who else?

Well, what with one thing and another, the monks have been turned into statues and all manner of outward and heinous things are going down in the once-leafy paradise.

As usual in just such a situation, you are the person - in this case the "young warrior Rohan" - whose job it

RISKY WOODS

A change of direction for Electronic Arts as platformery takes precedence over powermongering



A packet of Spangles and a Sherbet Dip please...

is to dole out justice for the good of mankind.

The monks are the key (and I'm a teapot - Ed) - they're dead wise, and know just how to keep things licking along. You're armed with a... uh,

throwing thing of sorts, and need to free the monks by battering their rock-like bodies until the petrification loses its hold. Problem is, the statues are scattered liberally throughout the woods, which themselves are guarded by flesh-loving skeletons. Most of the skulls drop money when you pop them off. God knows why a fully paid up member of the living dead would find it necessary to carry gold coins around, but they do come in very handy in a Ye Olde Shoppe. Yes - there's a shop.

WEAPONS

A great many shoot-'em-ups nowadays include something along these lines, whereby extra weapons and ammo can be bought for a price, and now Risky Woods brings the option into a new genre.

It's not a particularly exciting aspect of the game, but does add extra depth in its allowance of what are effectively power-ups from your initial puny weapon.

Also lurking are other little extras - the usual type of thing, more time,

energy and so on - and a few sacks of money to increase your spending power.

Set over four zones, Risky Woods is broken down into eight sub-levels, with guardians (big nasty ones too!) after each main bit. The graphics are very impressive - the atmospheric levels are packed with details - and the various beasts are well drawn and smooth.

The main aim is to rescue the monks, but extra energy and continues can be found if you're lucky enough. Not many platformers present a serious challenge if the player is determined to complete the game - but that isn't really the point. Risky Woods is easy to get into, and once the ever-so-slightly-dodgy jumping method has been mastered, the difficulty curve is pretty much spot on for an entertaining few hours.

ORIGINALITY

As a programmer, it must be difficult, knowing that you are about to develop a platform game, to come up with a touch of originality to make your effort stand out.

Spaniards Dinamic Software have managed to do this, both by the inclusion of the shoppe and the high standard of their graphics, and while Risky Woods is less likely to be remembered in years to come than, say, Archer's Pool or Wizball, it comes close to the top of the platform class in most respects.

PAUL ROUNDELL



Quack! Risky Woods? Risky Indian food, more like



Free the monks - they're so happy they'll jump for joy!



Those sarcy skellies just want to make you feel small

VISION	
GGGGGG	GGGGGG
AUDIO	
GGGGGG	GGGGGG
DIFFICULTY	
GGGGGG	GGGGGG
LASTABILITY	
GGGGGG	GGGGGG
Nothing in particular to write home about - just a good, honest platformer with decent sound and graphics, and the odd twist to elongate its appeal.	84%
Publisher > Electronic Arts	
Developer > Dinamic	
Disks > 1	
Price > \$25.99	
HD Install > No	
Size > 8 meg	

Multi-player games are definitely not for the lonely - those people who sit in their bedrooms on their own listening to Morrissey records and sighing a lot are not going to be fond of Dynablaster. OK, so it's got the option to play by yourself, but believe you me it's not half as much fun.

I first discovered Dynablaster on the hand-held PC Engine a couple of years ago and was mesmerised. Since then I've played it on the Gameboy and the Amiga.

The game, which is probably known to many of you as Bomberman, has certainly been one of my favourites ever since I was a small boy wearing shorts (oh so, you've only been playing it for a month then? - Ed).

Normally the following comments are kept for the end of the review, but I can't keep

quiet for much longer. Dynablaster is a modern day classic computer game. It deserves to go alongside Pacman, Space Invaders, Asteroids, Tetris and Lemmings as one of the most original games ever made.

As usual the actual idea behind it couldn't be more simple. You must stay alive while trying to put your opponents out of action. The way to kill the opposition is via bombs which are released by a quick jab on the Fire button.

At first these bombs are fairly weedy, but dotted around the playing area are bricks which when blown apart reveal bonuses. These make your bombs more powerful and let you use more than one at once.

So, collect a few of them and your little man becomes a mini-arsenal capable of destroying whole cities with just one bomb, er sort of.

As mentioned before, there is a one-player option in which your little man - who inci-



Singing, bomb the idiots, bomb all of the idiots now!

DYNABLASTER

Go bomb crazy with the French as they present one of the really big games of 93. Multi-player madness and mayhem abound in this explosive bomb-'em-up

GAMER GOLD

VISION	
GGGGGGGG	●●●●●●●●
AUDIO	
GGGGGGGG	●●●●●●●●
DIFFICULTY	
GGGGGGGG	●●●●●●●●
LASTABILITY	
GGGGGGGGGG	●●●●●●●●●●
Dynablaster is a modern day classic and I would recommend it to anyone. For sheer playability and addiction there isn't a game going that can beat it.	94%
Publisher > UBI Soft	
Developer > Hudson	
Disks > 1	
Price > \$30.99	
HD Install > N/A	
Size > 1 meg	



dentally looks like a Lego man - runs around the screen killing all the monsters and then finding the exit.

Interesting yes, but not very exciting. Invite a few chums around, if you're old enough, get some finnies in and load up the multi-player - this is when the fun really begins.

You can play with up to five players via the multi-adaptor which is included in the package and lets you plug four joysticks into your computer. Unfortunately this means that someone has to play on the dreaded keys.

This gives the keys player the dreadful option of blaming his defeats on the fact that he has to use the keyboard. So, always get the worst person to play on keys, so then they'll lose no matter what.

It's also probably one of the few games that genuinely makes everyone playing it laugh their heads off. To understand what I'm going on about you really need to get a copy.

Dynablaster may not look as impressive graphically as some other games, but it beats the crap out of everything else for sheer playability, addiction and more importantly enjoyment.

On the sound front there is a manic tune which plays throughout and annoys the hell out of our art editors, but adds to the atmosphere. There are of course plenty of explosion-type noises and so forth.

As you could probably guess I'm rather fond of this game. There isn't one single downfall that I could find.

Just one go and you'll be instantly hooked. Dynablaster should be in everyone's games collection and if it isn't either means you haven't bought it yet or you are a sad and lonely individual with no friends.

If it were possible I'd tell you to run down to the shops and buy it yesterday. A classic, and it deserves every bit of its Gamer Gold. Now where did I put that joystick? It's time to put words into action. Bombs away!

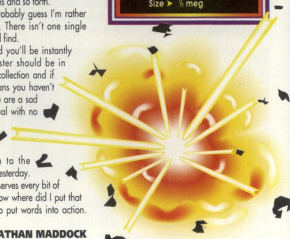
JONATHAN MADDOCK



The world of Dynablaster in one small screenshot, amazing eh?



The perfect day to drop the bomb?



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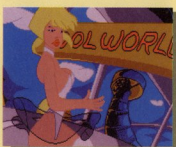
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ENTRY FORM

Circle the correct answers

- 1 Which alien phoned home? was it...
a ET b CB c RSPA
- 2 What was the name of that totally unbelievable program with the car that talked and had a flashing red light on the front? was it...
a Piper at the Gates of Dawn b Street Hawk
c Knight Rider

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WEEN

Sanctuary

Take the necklace and the glove. Click on the chest and use the glove on the scary spiders. Use the glove once more on the heart and then in turn use the heart on the right-hand statue.

Use the chalice on the scales and click on the statue head. Click on the tapestry and take the mirrors. In the oriental vase, you will find a key to pick up.

Click on the passage. Use the mirrors on the cracks and then use the key on the handy lock and exit the room.

Garden

Use the bag from the left-hand corner of the screen on the snake. Click on the link and use the bag containing the snake on the mongoose. Use the sword on the larch tree and take the root from the bottom left hand corner.

Use the root on the resin and then use the resin on the monsters. Use the pipe on the water and the pearls on the basin. Use the digitalis on the basin.

Use the femur from the root of the tree on the basin. Use the mixture on the queen and transform your pipe into a sword. Use the sword on the rope to exit.

Staircase to Beach

Use the basin on the resin and then use the resin on the flower. Use the horn on the wood. Now use the liana, which is found on the rocky peak situated in the centre of the

A couple of months back we said we'd continue the Gamer guide to Ween at a later date. Well here it comes...



The horned god looks down as you enter the sanctuary

screen, on the horn and wood. Use the pick on the stain under the rock which is in the bottom left-hand corner of the screen. Use the pot on the spring and use the water on the mushrooms.

A stone area now appears. Use the stone on the bird and then click on the eye of the skull and the worm. Use the worm on the mushrooms and exit.

On the Beach

Click on the monster and take the strawberries. Take the flute and call your old friend Urm. Give him the strawberries. Use the gold on the monster and take the haversack. Use the oar on the notch at the back of the boat and use the net on the sea. Use the sword on the fish and the eggs on the spider. Take the

sail and use the sword on the bamboo. Now use the bamboo on the boat and the sail on the mast. Use the hammer on the boat ribs and put them in the boat. Click on the coconut tree and use the coconuts on the lobster pots, then in-turn use the lobster pots on the boat ribs.

Boat

Use the hammer on the padlock, click on the hold and take the tar. Use the pipe on the bottle and take the cork and use it on the tar. If necessary, bail out with the cauldron. Use the tarred cork on hole and use the hammer on the cork.

Volcano

Use the key on the lock and enter the cabin. Take the shovel and exit. Use the shovel on the sand until you have eight holes. Use the sword on the oyster and a pearl appears. Take the pearl, the eye, the fish bones, the diamond jewels, the sandal and enter the cabin.

Call Urm and give him the strawberries. Give the old man the gold, ecu, eye, fish bones, diamond, sandal, jewels, pearl and the ingot. Now use the sword on the planks of wood at the back and exit.

Jungle

Take the sword and cut the branches on the right and the curved branch on the left. Click on the bushes with the sword. Click on one of the holes and the Orivor appears. Take the



Blimey, my mother told me about men with droopy moustaches



You are nearing the end of your quest and a meddling old duffer is in your way

cheat mode

gold and give it to him. You will receive a rope from the Orivor. Use the rope on the curved branch and use the bow on the walnut. Use the pipe on the leathers and then use the leathers on the arrows. Use the bow on the walnut and then the sword on the walnut.

Jungle - Part Two

Use the cone on the eye and then click on the old man. Call Urm and once more give him the strawberries, in return he will give you some gold. Give the gold to the old man and use the cone on the eye. Collect the recur-rants on the left and give them to Urm. Use Urm on the old man and take the leather and use it on the chest. Now you have to prepare the growth potion.

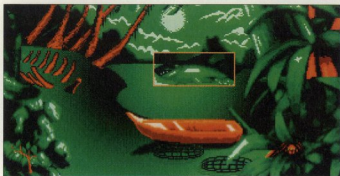
Place the pollen and venom in the cauldron. Use the potion on mushrooms and collect the truffles. Prepare yet another growth potion and use it on the grass at the back to the right of the ruby.

Collect the comomile and prepare the drink by mixing the truffle and the venom in the cauldron. Use it on the ruby. Use the cauldron on the water, place the comomile in the cauldron and the cauldron on the hearth. Use the cauldron on the worm and then use the worm on the mushroom.

Exit the screen. Use the sword on the bush and use the pollen on the quartz. Click on the flower and take the pistil. Prepare the drink by mixing the truffle and the pollen in the cauldron. Use it on borgol. Click on the ant on the leaf. Use the pistil on the ant.

Take three grains of sand and the axe. Prepare the drink and use it on the statue. Lower the lever and exit. Click on the mechanism, use the axe on the orifice (Ouch!) and lower the lever. Take the key and exit. Use the key on the lock and prepare a transforming drink by mixing the truffle, pollen and the venom in the cauldron.

Use it on the grill. Use the venom on the snake and prepare the drink and use it on



It's the boat, but how can you get it on the water?

the ruby. Go and fetch the water from the other screen. Fill the cauldron with water use it on the flames and then exit.

Entrance to Volcano

Take the bowl and click on the ornament on the statue. Use the sword on the ornament and collect the jewels. Use the sword on the hole left by the ornament four times and prepare the evil drink. Use on the ruby and take the jewel. Click on the niche on the far right and click again four times. Now use the

bowl on the glue. Follow these steps:

- 1 Prepare the energy drink and use on jewel.
- 2 Use sword on crack at bottom left.
- 3 Take the firefly and use the glue on it.
- 4 Use firefly and glue on the dark niche.

Take and use the twig on the opening of the statue's pipe. Take the jewel and repeat steps one to four. Next use it on the niche of the pillar, to the left of the first one.

Use the copper ball on the hole and re-take it. Take the jewel and once again repeat steps one to four. Next, use it on the niche of the pillar at the back on the left. Take



You see that plant? That's very scary that is!

the cracked jewel, put the glue on it, use it on the broken jewel and again repeat steps one to four.

Use on the middle niche on the left. Collect the fallen jewel near the drawbridge and repeat steps one to four. Next use it on the foreground on the left. Next, go to the pillar back on the left and turn the handle once.

Middle pillar on left - turn handle twice. First pillar on left foreground - turn three times. Pillar on far right foreground - turn four times. Pillar at the back on the right - turn five times. Take the bow and fire arrows on the illuminated letters K-R-A-A-L.

Prison

Take the heart from the bones and the nail on the wall by clicking several times with the mouse. Click on the lock and put the nail in the sixth hole of one of the locks.

Click on the needle and collect the pin from under the bar their lifts. Put the pin in the sixth hole of the right-hand lock (right - nine o'clock). Put the nail in the third hole of the left-hand lock (left - three o'clock). Now click on the two needles.

The End

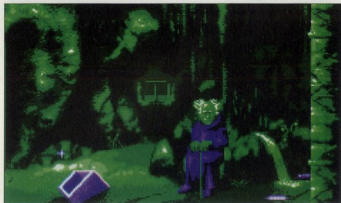
Click the levers on the machine. Click each lever four times from left to right. Click on the engravings and press the letters D J E L. Click above the niche and then place the heart in the opening. Now take the knife.

Grab the bamboo at the bottom right of the machine and use the knife on it. Use it again to get the flute. Call Urm, collect the stone and put it in the hole of the engraving. Click on A Z E U L I S S E. Take the statue from the right-hand niche and use it on the niche above the engraving. Use the three grains of sand on R E V U S S.

You have now completed Ween.



Can you dig it? It looks like someone has



It's that interfering old bloke! Leave me alone and go away

The CHEAP seats

Apart from turning off all the heating and setting fire to the dog, the next most interesting way of saving money is to buy a budget game. Why not take a quick shuffy at these "ten 'n' unders" and let your kids starve?

Paul's selection



Killing people – that's a very interesting concept for a game show, I'll bet Noel Edmonds and Les Dennis both have stiff necks from constantly looking over their shoulders at the mere prospect of it.

Well that's what Smash TV is all about, and although it does carry limited appeal, I'd much rather take up the Noel and Les option.

On entering a TV studio in front of whirring cameras and an ecstatic audience pumped with the promise of "total carnage", your job for the night is simple – stay alive!

You are provided with a gun to make the job that much easier, but the main problem are the dozens of crazed loons who chase you with baseball bats, intent on caving in your skull and ripping off your limbs. To make matters worse the perimeters of the studio are patrolled by gun-toting self-destructive guards, and there are more than enough trip mines dotted around to ensure that you'll be scraping your brains from the roof should you step on one.

Loads of power-ups are available to make matters more interesting, but really there just isn't enough to do in the game at all – even the shooting bits are very... well... clean looking. It's a laugh for a while, but all the screens are alike, and the gameplay becomes monotonous quite soon. Any more than a tenner would be an insulting price to ask, but as it is Smash TV is reasonably good value for money.

Smash TV

Hit Squad = £7.99



Not every game that comes from the Codemasters stables is a classic, and some are even quite poor, but one thing I like about the Codies is the fact that they have their feet on the ground.

They know their market, the games they like to play, and the price they can afford to pay, and they cater to this. **Bignose the Caveman** is familiar territory for platform fans.

The large conked one and his mates are looking forward to a slap-up Thanksgiving feast, but unfortunately they seem to be experiencing a few problems in the culinary quantity department, in that they have buggler all to eat.

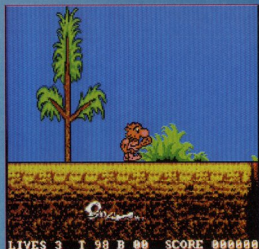
Undeterred, Bignose picks up his trusty club and sets off in search of some grub in the form of a large and tasty looking pterodactyl which inhabits the other side of the island.

Needless to say it won't be a cakewalk – there are loads of creatures on several levels to bludgeon before you reach the goal. Bones and rocks can be collected as power ups, and there are one or two secret zones to discover as well.

Graphics are colourful and clear, sound isn't too bad, and although Bignose The Caveman is far from a gaming breakthrough, it's got enough to keep the younger players happy for a good while.

Bignose the Caveman

Codemasters = £7.99



LIVES 3 T 98 B 00 SCORE 000000



I was always under the impression that pit fighting was something to do with big mean dogs – the kind that eat kids – ripping each others faces off after being fed on a diet of raw steak.

Apparently not though. You have the choice of three different fighters, you lucky blighters, whom you pit against all manner of mean opponents in an attempt to become the world champion, or something.

Ty, Kato and Buzz are the Chippendale rejects turned fighters, who like nothing better than to oil their chests before implementing their allegedly extensive repertoire of moves on unsuspecting adversaries everywhere. As you fight through the rounds you will find a few items scattered around that might save your fists – for example, for some bizarre reason you can throw motorbikes!

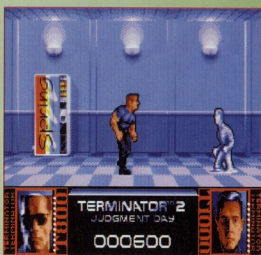
Graphically the game is far from impressive – dodgy looking sprites flickering around on even dodgier backgrounds. There are a good number of moves to make, it's true, but when success or failure hinges on what amounts to guesswork, this in my book makes the whole affair a bit of a turkey.

Pit Fighter

Hit Squad = £7.99



Biffa's selection



The big man said "I'll be back!" and by golly Miss Molly he was right. Terminator 2 did not fare well with the reviewers when it was released way in the dark ages of December 1991.

Terminator 2
Hit Squad = £7.99

Gamer gave it a very respectable 40 per cent because that's all it deserved. Despite this it still flew up the charts thanks to a big advertising campaign backed up by lots of hype.

The game itself is a mixture of three elements. It's a beat-'em-up, a puzzle-'em-up, a shoot-'em-up and, err a chase-'em-up, if there is such a thing.

The plot of the game is loosely based on the plot of the film. I have to admit that when I first arrived I was quite impressed by the presentation of, but that all stopped though when I started to play it.

The first level is a straight fight between Arnold Schwarzenegger (T-101) and the T1000 and it's not exactly stirring stuff.

Second level and it's the chase-'em-up between the T1000 and John Connor on his motorbike. There are various obstacles in your way such as burnt out cars and, err water puddles. The difficulty level of the chase-'em-up does vary a lot. On one go you might last a full minute, others you might only live for five seconds.



Cor lumme, it's another film tie-in. This time old metal bonce is back. The first Robocop was excellent at the time and sold loads due to the fact that the arcade version and, of course, the film was extremely popular.

Robocop 2
Hit Squad = £7.99

Robocop 2 the film was a bit of a disappointment to say the least and the same goes for the computer version. The first game was new and interesting, whereas the second was just seen as a standard platform game and a desperate cash-in before Robocop lost all of its popularity.

The idea behind the game is that Robocop has to save the city of Detroit from crumbling into ruin. The reason for this disaster is a lethal drug called Nuke.

The police are on strike and the citizens are easy targets for gangs of armed hoodlums and their leader Cain. The washing machine with legs has to destroy Cain and his lethal supply of Nuke.

Like Terminator 2 it's got good graphics, but is let down by poor playability. Robocop 2 is a very hard platformer and even the most experienced games player might have trouble in completing the later levels.

It will keep you entertained for a lot longer than Terminator 2, but doesn't quite make the grade.



What's going on? Is it that sequel kind of month or what? RBI Baseball 2 is just about the best baseball game that you can buy for your computer. Forget the opposition because there isn't any.

RBI Baseball 2
Hit Squad = £7.99

Why is it so good, I hear you ask? For starters it's actually quite easy to hit the ball. This always seems to be a major problem with baseball sims. They look nice and are well presented, but when it comes to the realism, there isn't any.

It's really annoying when you get what looks like an amazing game and it's let down by some small insignificant point like, ahem not being able to play it.

RBI's graphics and sound are brilliant, but they are nothing when compared to its sheer playability and addition.

Every aspect is easy to understand and easy to play. It doesn't matter whether it's batting, pitching or fielding. One of the best touches is the electronic scoreboard which comes up with amusing little animations whenever something interesting happens, for example when a team is struck out or when a home run is scored.



STOS 3D Made Easy

Now Stephen Hill adds a laser and targeting system to our rapidly developing STOS game

We'll start off with a simple scanner routine. Its job will be to take each object in our game-world, and plot its position on a neat little radar screen.

Our first objective will be to find the latest positions of all the nearby objects in our game. This can be accomplished with three TD POSITION functions:

```
x=TD POSITION X(object number) Reads the X co-ordinate of an object.
y=TD POSITION Y(object number) Gets the Y co-ordinate of our object.
z=TD POSITION Z(object number) Returns its Z co-ordinate.
```

Once we've found the physical co-ordinates of these objects, we'll need to work out their actual distances from our spaceship. We can do this by converting all our co-ordinate values into their equivalent local versions.

STOS 3D supplies us with a direct way of converting any group of world co-ordinates directly into their local equivalents:

```
lx=TD VIEW X(object number,wx,wy,wz)
```

This takes a location in the 3D game world with co-ordinates wx,wy,wz, and returns the local X co-ordinate of this point as seen from our chosen object.

```
ly=TD VIEW Y(object number,wx,wy,wz)
```

Gets the local Y co-ordinate. That's the vertical distance from our object to the point at wx,wy,wz:

```
lz=TD VIEW Z(object number,wx,wy,wz)
```

Returns the local Z co-ordinate corresponding to the point wx,wy,wz.

The object number can be anything

we like, but since we are normally interested in the viewpoint, it's usually set to zero.

Each of these TD VIEW functions automatically works out all three of the required co-ordinate values in advance. So after we've entered the world co-ordinates into the first function, we can get an instant read-out of the others using a second, faster form of these commands:

```
ly=TD VIEW Y(O) lz=TD VIEW Z(O)
```

The final stage is to reduce our distances into a form which can be plotted onto the screen. We'll therefore divide them by an appropriate scale value, so that they lie within the physical boundaries of our resulting scanner display.

Here's a line by line explanation of our finished routine. Don't type it in on its own though. It won't work! First, we

```
440 MRANGE=24000 : rem set maximum scanning range
450 XSCALE=MRANGE/CSIZE : rem Set X scale
460 ZSCALE=(MRANGE/CSIZE)*-1 : rem Set Z scale
470 rem Main Scanning Loop
475 rem NOBJECTS = the number of objects in the game
480 for OB=1 to NOBJECTS
490 RANGE=td range(O,OB) : rem Get distance between objects O and OB
500 if RANGE<MRANGE then gosub
510 : rem Call the scanning routine.
510 next OB
560 rem Scanner routine
570 X=td position x(OB) : rem Get X co-ordinate of object number OB
580 Y=td position y(OB) : rem Get Y co-ordinate of OB
590 Z=td position z(OB) : rem Get Z co-ordinate
600 XL=td view x(O,XW,YW,ZW) : rem Convert from WORLD to LOCAL co-ordinates
610 YL=td view y(O)
```

define a few constants at the start of our program:

```
42 rem OBCOL = Colour of object on the scanner
43 Dim OBCOL(2): OBCOL(1)=1 : OBCOL(2)=2
46 NOBJECTS=2 : Rem Enter the number of objects
47 CTX=160 : CTY=159 : CSIZE=40 : rem Set centre and width of scanning window
48 THEIGHT=140 : Rem Holds the height of the viewing window
```

Then, we display a rounded box at the centre of the status area:

```
419 rem New version of the co-ordinate display to make room for the scanner
420 locate 1,21 : print "X";td position x(O) : locate 1,22 : print "Y";td position y(O) : locate 1,23 : print "Z";td position z(O)
421 rem the scanner window
425 ink 0 : bar CTX-CSIZE,CTY-CSIZE to CTX+CSIZE,THEIGHT+1
430 ink 10 : rbox CTX-CSIZE,CTY-CSIZE to CTX+CSIZE,CTY+CSIZE-1 : draw CTX-CSIZE,CTY-1 to CTX+CSIZE,CTY-1 : rem Draw scanner
```

We can now set up the scanning range, scan our surroundings, and plot the results onto the display – see Listing 1.

Notice the TD RANGE command at line 490. This returns the straight line distance between any two objects in our game. It's used to limit our scanner display to the objects nearest our spaceship. The format is:

```
r=TD RANGE(object 1,object 2)
```

In our scanner, object 1 is the viewpoint, and object 2 represents our attackers. So the final line is just:

```
490 RANGE=td range(O,OB)
```

Let's start work immediately on our laser. We can produce this routine in three stages, starting with generation of the actual laser beams. Here's how this system will work in our game:

```
235 if fire or mouse key then BEAM=true
: boom : wait 5 else BEAM=false
```

```
620 ZL=td view z(O)
621 rem Scale the values to between -CSIZE and +CSIZE
630 XP=XL/XSCALE : YP=ZL/ZSCALE
640 ink OBCOL(OB) : rem Set colour of current object
650 rem If the objects above the ship display an UP arrow
660 if YL>0 then draw XP*CTX-3,YP*CTY to XP*CTX,YP*CTY-3 : draw to XP*CTX+3,YP*CTY
670 rem If the objects below the ship display a down arrow
680 if YL<0 then draw XP*CTX-3,YP*CTY to XP*CTX,YP*CTY+3 : draw to XP*CTX+3,YP*CTY
690 rem If it's perfectly aligned display a horizontal line -
700 if YL=0 then draw XP*CTX-3,YP*CTY to XP*CTX+3,YP*CTY
705 rem Lines 710-820 are waiting for the targeting system used by the Laser
830 return
```

Listing 1

BEAM is a "flag" variable that will be used to tell the rest of our program at the player has fired the laser. After the laser has been discharged, we can display it on the screen using a couple of simple STOS Basic DRAW commands:

```
466 rem Fire Laser
467 if BEAM then ink 3 : draw 0,140 to
160,75 : draw 160,75 to 319,140
```

These commands should be executed just after the TD REDRAW instruction, but before the final Screen Swap. Our laser beams will be automatically removed after the next turn of the drawing loop.

Detecting a successful hit is very easy, and can be discovered using a little-known STOS Basic graphics function called Point:

```
cpPOINT(x,y)
```

Point just returns the number of the colour index x,y at the selected screen position. We can exploit it to load the colour of the point immediately under our sights:

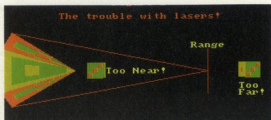
```
365 TESTCOL=point(160,75)
```

Since STOS 3D only uses colours from 8 to 14, we can now apply a simple test to this value to instantly detect whether our attack has been successful. See line 720 in the resulting program.

We then have to decide which object has been hit. If our spaceship were real, the laser beams would only meet at a fixed point in our 3D world. So unless the attacker was at precisely the right range, it could fly through our laser barrage with impunity. You can see the effect above.

In an actual game however, it's far more natural to ignore the range completely, and assume that any object that enters our sights will be fair game. The basic idea is to examine all our objects in turn, and subject them to a number of tests to see if they're directly in front of our sights.

We can begin by checking to see whether the object can actually be seen from the present position. If not, we can reject it immediately as a potential target:



Laser beams meeting at a point

```
v=TD VISIBLE(object number)
```

TD VISIBLE checks the status of our object on the screen, and returns a value of -1 (True) if it's visible, or 0 (False) if it's not displayed.

Once we've discovered that our object is visible, we can calculate its physical position on the screen using the TD SCREEN functions:

```
sx=TD SCREEN X(wx,wy,wz) sy=TD SCREEN
Y(wx,wy,wz)
```

These return the apparent screen position of any point in our 3D universe. If this point lies outside the current viewing area, TD SCREEN will return a value of -1 instead.

As with TD VIEW, we can omit the world co-ordinates completely after we've entered them into the initial TD SCREEN X command, for example:

```
SX=TD SCREEN X(wx,wy,wz) : SY=TD SCREEN
Y(O)
```

The required object co-ordinates can be taken directly from our existing scanning routine. They're available from the variables XW, YW and ZW:

```
710 rem Check if laser has hit a ship
720 if BEAM=false or TESTCOL<7 or td
visible(OB)=0 then return : rem NO
730 rem YES
740 rem get the screen co-ordinates of
the centre of our object
750 SX=td screen x(XW,YW,ZW) : SY=td
screen y(O)
760 if SX<0 or SY<0 then return : rem If
the object is out of range, return
```

After line 750, SX,SY contain the screen co-ordinates of the centre of our current object. We now can use these co-ordi-

notes to see whether this object is within our sights. We start off by working out the distance from the centre of the ship to the centre of our crosshairs:

```
770 D=sqrt(DX*2+DY*2) : rem Find the
gap between the object and the sights
780 D=sqrt(DX*2+DY*2) : rem work out
straight line distance using trigonome-
try
```

Variable D now holds the distance from the sight to the centre of our object. This distance can be subsequently manipulated to check whether our sights lie within the visible boundaries of the object on the screen.

Since the appearance of our object varies dramatically depending on our current viewpoint, we can't perform this test directly. It's far easier to wrap our object in an invisible sphere, centred at its present co-ordinates, and use that instead.

The object modeller calls this region a "circumsphere". Its radius is set to the minimum size required to enclose the object completely. We can find its dimensions by simply loading our object into the OM, and selecting the "R" icon:

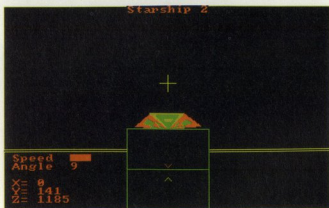
```
45 dim CIRCUM(2) : CIRCUM(1)=750 :
CIRCUM(2)=300
```

Circum is defined at the start of our program, and holds the initial sizes of the spherical test zone for each object in our game. Here's how we calculate the size of this zone:

```
790 gosub
850 : rem Find out apparent size of
object and place it in RD
800 rem If the Distance is less than RAD
and there's no nearer object
810 rem that already satisfies the test
conditions, then current OBJECT=TARGET
820 if b=<RD and (RANGE<LRANGE or
LD>LRAD) then TARGET=OB : LRANGE=RANGE :
LRD=> : LRAD=LD
830 return
840 rem Find the visible radius of the
object on the screen
850 XR=td world x(O,XL-CIRCUM(OB),YL,ZL)
860 rem Get the co-ords of the point
CIRCUM(OB) units to the left of the
object
870 YR=td world y(O) : ZR=td world z(O)
880 HEX=td screen x(XR,YR,ZR) : rem Find
X co-ordinate of this point on the
screen
890 RD=abs(SX-TX) : rem Work out an
approximate radius
900 if TX<0 then RD=CIRCUM(OB)
905 rem Arc SX,SY,RO,0,3600 : rem
(remove first rem to see the test zone)
910 return
```

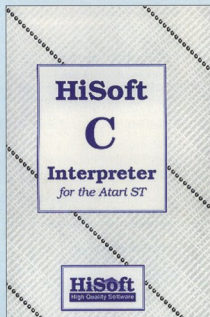
Finally, we can display the chosen target from within our program:

```
520 ink 2
530 if BEAM and TARGET then Locate 26,20
: print "You hit ";TARGET;" " : bell :
wait 5
540 screen swap : wait vbl : rem flick
display onto screen
550 goto 160
```



Three TD functions return co-ordinates for x,y and z

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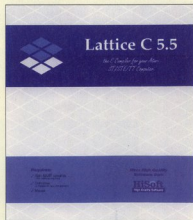
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This offer is valid until April 30, 1993

Hewlett Packard have always been at the forefront of laser printer technology. Much as Star and Citizen inevitably include Epson emulation in their dot matrix printers, most laser manufacturers include LaserJet emulation.

However, LaserJet printing hasn't stood still – each of the various models from the LaserJet Plus to the LaserJet 2 and 3 have added new features and enhancements. The latest, and it's a massive leap forward that nobody has yet matched, is the LaserJet 4.

The latest model offers 600dots per inch resolution plus the special Resolution Enhancement Technology (RET) that creates even higher effective resolutions approaching 1,500dpi by smaller dots on the edges of solid objects.

That kind of output quality from a desktop system may well put some typesetters out of business. Who needs bromides when you can print your proofs at over 600dpi?

The enhanced resolution isn't the only new feature – printing is much faster (it's an eight page per minute engine)



Andrew Wright takes a look at the leading edge of laser technology, in the shape of Hewlett Packard's new LaserJet 4

range of several commonly used point sizes.

Compo already have a beta test version of its That's Write LaserJet 4 driver up and running. I've tested it and things look very good indeed.

Although it doesn't use the scalable outlines, it can handle matching screen fonts and 600dpi bitmap fonts, created using the CFont accessory, as well as the standard monospaced Courier (equivalent to That's Write's Pica).

The print quality is excellent though some of the characters will need a little tidying up – at 600dpi, flawed characters show up very quickly. Happily That's Write 2 comes with its own font editor.

The driver can also be used with Composit to get 600dpi PostScript output from Timeworks, PageStream and Didot Professional. It works well but it's obviously a slow option.

I tried out every program I could think of with the LaserJet 4 and HP's claim of complete backward compatibility with the earlier LaserJet models certainly seems to stand up.

Using ordinary LaserJet drivers I managed to print out quite happily from PageStream, Timeworks, Didot Professional, Calamus and Easy Text Professional, although as these DTP programs print in graphics mode, the output is restricted to 300dpi.

Having said that, the Resolution Enhancement Technology still produces excellent results. Wordprocessors were

no problem either although the standard Firstword Plus driver needed some tweaking before it worked. I also tried Protect and Redacteur (in text mode only) and tests showed printing to be between 20 and 60 per cent faster than the Ricoh LP1200 (the other obvious choice for an ST user) at 300dpi, and 10 to 30 per cent faster at 600dpi, which isn't bad when you consider it's doing four times the work.

At 600dpi, using internal fonts, the quality of the text really has to be seen to be believed!

In terms of size it's about twice the overall bulk of the LaserJet 3 though the footprint – the space it takes up on the desktop – is about the same and the paper feed is very neat.

It weighs some 37lbs (16.8kg) so don't expect to move it around too much!

It comes with 2Mb of memory as standard so DTP pages will print out in full. The 250 sheet paper tray is internal for neatness and there's a second multipurpose tray for letterheads and envelopes.

It will also print labels and transparencies with ease. Running costs shouldn't be too bad as the £100 toner cartridge lasts for 6,000 pages (depending on use).

UPSIDE-DOWN

The LaserJet 4 is a direct replacement for the LaserJet 3. To appreciate what an advance the LaserJet 4 is, and how it has turned the printer market upside down, it has to be pointed out that even the obsolete LaserJet 3 still knocks spots off most of the competition! If you can pick one of those up cheap, you're unlikely to regret it.

The 600dpi print quality is a giant step forward but we ST users will be struggling to use it until dedicated drivers are produced. It's small comfort that wordprocessors can print at 600dpi – they're unlikely to need it. It's the DTP packages that benefit most and it's just not possible at the moment.

On the hand, if you want a laser, it's still an unbeatable buy. Even at 300dpi, the output is clear and sharp.

Right on the laser's edge

and there are no less than 45 scalable typefaces built into the printer itself.

The main question for ST users though, must be whether it hooks up to the ST and whether the extra features can be accessed and used. The scalable typefaces are a problem, of course. There are few enough ST applications that support the LaserJet 3's internal typefaces so what chance have we of getting at those in the LaserJet 4?

The answer, unfortunately, is none – there aren't any ST programs that provide drivers as yet, although two companies are working on them. Anor are developing a dedicated LaserJet 4 printer driver for Protect which should access the scalable fonts though I doubt it will actually let the user scale them. The new driver will probably offer a

BOTTOM LINE

FEATURES

Superb quality – shame about the lack of drivers.

Excellent
Good
Average
Bad
Appalling

EASE OF USE

Documentation isn't up to HP's usual standards but is OK.

Excellent
Good
Average
Bad
Appalling

VALUE FOR MONEY

Superb quality and speed – a new standard.

Excellent
Good
Average
Bad
Appalling

Product: LaserJet 4
Supplier: Hewlett Packard, Gains Road, Bracknell RG12 1HN
Telephone: 0344 369369
Price: £1,749
Configuration: All ST/STE models, all resolutions

Music for nothing

One very interesting and welcome trend you may have spotted over the last year or so is that of manufacturers releasing PD editors for their equipment.

Yamaha are currently leading the field with librarians/editors for the QY10 (Sqrrel) the FX900 Effects unit (ST-Eff) and the RY30 drum machine.

Their latest release is an editor/librarian for the TG100 called Tony. And whyever not? I may have a closer look at it next month.

Meanwhile, I thought it would be a good idea to see how much PD and shareware support there is for musical instruments so I've collected together a short list of programs which you may find useful.

MUSIC BBS

I got the list from Sounds Digital (091-284 6019), one of my favourite music bulletin boards, but most of the files should also be available from good PD libraries.

I haven't checked out all the programs - I don't have all the necessary musical instruments for one thing - but I did have problems with one or two of the files I tried to check out. Some didn't want to unarchive on my ST and some wouldn't run.

I ascribe the non-running problem to TOS 1.4 which I have in my machine (although there could be something else about my setup or TSR programs they didn't like). It's quite possible that some of the programs were written for an earlier version.

There are three types of archiver used on most ST BBS - Zip, Arc and LHarc. Just to confuse matters even more, some files compressed with early versions of the archivers

Public domain synthesizer utilities

Name	File size	Date	Description
Yamaha			
590DUMP.ZIP	69824	07.10.91	SysEx dump utility for the Yamaha PSS590
790DUMP.LZH	66554	29.08.91	SysEx dump utility for the Yamaha PSS790
PSSDUMP.ZIP	93367	07.10.91	Combined SysEx dump utility for the Yamaha PSS4/5/6/7/80
PSSED.ZIP	36175	13.07.91	Sound editor for the Yamaha PSS series of keyboards
PSSPATCH.ZIP	30464	08.10.91	Patch librarian for the Yamaha PSS range
PSSRYTHM.LZH	79616	11.10.91	Rhythm Master for the Yamaha PSS series
DX7LIB1.ZIP	153840	15.09.91	Sound library for the Yamaha DX7 with ST loader
DX7CAT1.ZIP	15175	15.09.91	Catalogue of sounds for DX7 (needs DX7LIB1)
FB01EDIT.ZIP	34157	01.07.91	Voice editor/librarian for Yamaha FB-01 expander
SQYREL.ZIP	67508	13.09.92	Yamaha QY10 manager (mono only) from Yamaha
TX81ZPERF.MIX	6806	10.11.91	TX81Z performance editor for Cubase Midi Manager (requires Cubase)
TX81Z.MIX	6904	10.11.91	TX81Z voice editor for Cubase Midi Manager (requires Cubase)
Casio			
CZPHONIX.LZH	42624	29.09.91	Editor/librarian for Casio's CZ101/1000 synths
CZSOUNDS.ZIP	29640	28.08.91	Upload and download sounds to and from a CZ101/1000 via Midi
Roland			
D110EDIT.LZH	45644	23.06.91	Tone editor for the Roland D110
D110XTRA.LZH	14581	23.06.91	Extras for the D110EDIT program
D50_LIB.ARC	41728	21.04.92	D50 Patch librarian (requires mono monitor)
GR50.TOS	9667	12.03.92	Editing profiles for the Roland GR50 guitar synth
MTSS.ZIP	35210	14.07.92	Sounds for the Roland MT-32 in Cakewalk format
Emu Proteus			
EDU5063.LZH	56797	24.05.92	Beta version of a shareware editor/librarian for the Proteus
P2VECTOR.LZH	38746	20.09.92	Bank of vector synthesis type sounds for the Emu Proteus2
Ensoniq			
EPS_WIZ.ARC	113280	18.04.92	Shareware program which allows the copying of Ensoniq EPS disks
Miscellaneous			
SATELITE.LZH	23276	23.06.91	Steinberg's free patch librarian

won't unarchive with later ones. Possibly for this reason, most sysops keep a confusing range of the same archivers on their BBS.

It's a good idea to arm yourself with all of them before you start

downloading files - there's nothing more frustrating than having a zipped file you can't unzip. In case of difficulty use the mailbox to leave a message for the sysop - most are very helpful.

The list includes the filename and the extension which indicates the type of archive it is (LZH is the LHarc extension). This is followed by the size of the compressed file in bytes so you can work out how long it will take to download.

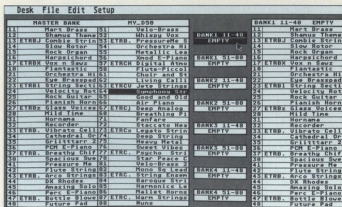
Then there's the date in case you need an earlier version of the unar-

chiver. It's actually the date it was put on the BBS and they're not always completely accurate and should be taken as a guide only.

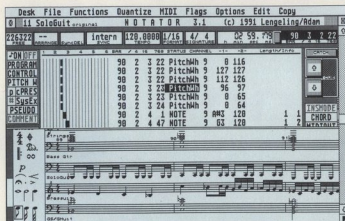
This is a representative selection only and by no means complete. There are many more utilities for the CZ101/1000, for example.

If you have a useful PD program which isn't listed here, drop me a line so we can tell other readers about it. Equally, if you've picked up any dogs, let's warn fellow readers, too.

Ian Waugh on a new trend of free software for your equipment, plus some encouragement for struggling musicians



The D-50 Patch Librarian lets you organise your sound by dragging them between banks



The guitar widdies in Pro Music's Sololist file, The Final Countdown

Guitar grooves

Midi generally seems to be the prerogative of keyboard players and one instrument which is notoriously difficult to emulate authentically is the guitar. Pro Music has now released a set of Midi files featuring guitar parts which were recorded by a guitarist and a Midi guitar. Scan through the data and you can see lots of pitch bend, widdled like only a guitarist knows how.

The files are configured to Roland's GS standard and they really sound excellent through a Sound Canvas. My only gripe is the lack of a melody line in the tunes.

There are over 40 pieces in the collection - far too many to list here so get in touch with Pro Music for more information. The files come with details of Midi channels and the sounds which you'll need if you don't have a GS instrument.

They're available in Steinberg and C-Lab formats as well as Standard Midi files format.

The Sololist files cost £4.95 each (minimum order of four). More from: Pro Music, 80 Meeting House Lane, London SE15 2TX. Tel: 071-252 8573.



So you think you have problems?

If you're having trouble making it as a musician, you're in good company. Beethoven, who wrote some of the most inspiring music of the Romantic period, was deaf when he wrote many of his greatest works. He was an ill-tempered person, given to drinking, and died of dropsy.

Mozart lived a mere 36 years yet was a prodigious composer. He composed complete movements in his head before writing them down. He died a pauper of an undiagnosed illness and was buried in an unmarked grave.

Johann Sebastian Bach, one of the greatest composers of all time, was considered to be over-elaborate and old-fashioned by his contemporaries. He lived to the ripe old age (at that time) of 66 and had 20 children, ten of whom died in infancy or at birth.

Tchaikovsky, probably the most famous of all Russian composers, was a confirmed homosexual yet married a nymphomaniac. The marriage didn't last long. He committed suicide by drinking a glass of contaminated water and died a few days later of cholera.

Sid Vicious, probably the most accomplished singer of the Punk era, died of an overdose. Then again, you'd have to stretch your definition of "musician" to include our note-perfect hero in this list.

Converting to GM

Like it or not General Midi is here to stay. For a good while at least. We had a major feature on it last month so I won't go into any detail again other than to say that all GM instruments have the same sounds in the same program number slots so any piece of GM music played through any GM instrument will sound the same.

GM is really coming into its own in with Midi files. It's all very well having a file containing the right notes in the right order but if the sounds don't match your equipment it can sound like the LDO (Les Dawson Orchestra) on a bad day!

Most Midi file producers are now mapping to the GM standard which is fine, but what if you don't have a GM instrument? Well in the first place, the tracks will be named according to the GM instrument so you should certainly be able to select a sound from the same family.

In fact, with a little effort you could probably create a bank of sounds which corresponds roughly to the GM sound layout for any instrument.

GM is derived quite heavily from the Roland MT-32 and the D-series of instruments so if you have one of those you're half way there. But before you expend any effort on the job, Westec have beaten you to it.

The company has produced a range of System Exclusive files for Roland's MT-32, CM-32, CM-64 and D-110/10/20 which organise the instruments' sounds into a GM configuration.

They are available on ST disk in Midi file format and will load into any sequencer which supports Midi files and SysEx data (one or two sequencers won't load SysEx data).

They files don't redefine the sounds, they simply re-order them. The disk contains a standard GM drum kit plus Room, Power, Electric, TR808 and Brush kits.

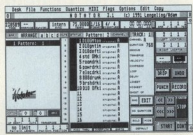
There are separate timbre, tone and drum kits files plus one file containing separate tracks of all the SysEx dumps. To set up a D110, for example, you would mute all the tracks and send, one at a time, the timbre track, your selected drum kit track followed by the Tone data track. The Tone data contains the drum sounds and uses internal memories one to 35.

You could also create special startup files containing a variety of setups by putting the necessary data on one track in the required order. Two text files on disk show the drum and GM tone maps and can be printed out. You are warned to save any setting you may have already created in the instrument before you give it the SysEx data and, thoughtfully, there are default files on disk to return your instrument to the factory startup state.

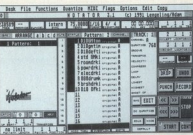
The results are really very good. The documentation admits that not all the sounds match exactly. The D-110, for example, simply just doesn't have some of the GM sound effects and some of the vocal and synth sounds aren't quite right. It works best with instruments sounds - which is, after all, where GM is most used - and it played a range of GM files I threw at it quite convincingly.

You may need to tweak volume levels, reverb and so on, and some of the sounds could be improved if they were edited. The packaging and documentation is rather basic, too, but at only £7.95 you're not going to get a cheaper GM instrument that this! If you want to play GM files, it's well worth the investment.

State your instrument and the sequencer format you prefer when ordering, or for more details contact Westec Sound Services, 30 Fish Street, Goldhanger, Maldon CM9 8AT. Tel: 0621 88466.



These tracks contain SysEx data which can turn your D-110 into a GM module



It may look like nothing to you but it's a GM module to a D-100

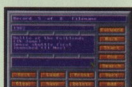
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Universal icons

Last month we saw how ResEdit can be used to give infinite variety and a personal note to your Macintosh desktop icons. It may not do much for your productivity, but it is certainly great fun to customise your working environment with all kinds of weird and wonderful pictorial symbols.

If you own a PC emulator running Windows 3, you will no doubt be unhappy with the limited, GEM-like standard icons offered by the Program Manager, so this month I am going to show you how to have a go at prettifying Windows 3 icons.

To do this, you need one of several icon editor utilities available in most public domain and shareware libraries, bulletin boards and on-line conferencing systems such as CIX and CompuServe. The most widespread, and simplest, is Philip Eskelin's IconDraw.

This is shareware, so you ought to send the suggested contribution of \$15 to its author if you intend to use the program.

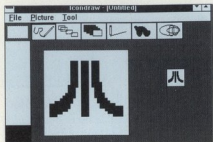
PROPERTIES

Windows makes it very easy to change the icon associated with a filename in the Program Manager. One of the items in the File menu is Properties, and if you select an existing Program manager icon and then click on Properties, you are offered a dialogue with a button labelled "Change Icon..."

You can either cycle through the existing choice of icons to re-assign the item to a different pictorial symbol, or enter the directory path and file name of a specific icon file created and saved to disk by yourself, using IconDraw. Such files have the extension .ICO and are small 32 by 32 pixel pictures.

To create such an .ICO file, run IconDraw and click on Open to load an existing icon to be modified, or on New to start with a blank piece of "paper". The unregistered version of IconDraw is very basic indeed and does not even offer a grid, but for your first attempts you can manage without.

There is a toolbox icon bar offering various drawing modes, and a colour selection box on the left the contents of which will depend on your screen mode - the screenshot on this page shows black and white only as I use Windows in VGA mono mode.



A grid would have been nice, but the drawing tools are very responsive to mouse movements and offer lines, fills, circles and ellipses to simplify icon design.

all your different working environments, but how do you go about exchanging icons between the ST, the Mac and the PC given the different file formats used?

This is much easier than it sounds because, in essence, all icons across the different platforms are bitmaps consisting of 32 by 32 pixels.

CUT AND PASTE

Transferring such bitmaps from one application to another is greatly facilitated by the cut-and-paste facilities built into both the Mac Finder and Windows 3, but unfortunately the ST does not, as yet, offer this extremely handy feature so you will have to take some detours to convert ST icons into file formats acceptable to the other systems.

First take a screen snapshot of the icons from your ST icon editor or straight from the Desktop and save this as a Degas picture.

This can then be converted into either the PCX format understood by the Windows Paintbrush accessory, or MacPaint using something like the freebie PicSwitch or the

commercial TouchUp program.

Once exported into the Mac or PC Windows environment, you load the icons into any paint program and, from there, cut and paste them via the clipboard into ResEdit or IconDraw. The same route can be followed in reverse, of course!

There is no reason, now, why your Calamus DTP on the ST cannot be represented by the Quark XPress icon or why Word for Windows cannot be assigned the First Word Plus or Protex icon. For copyright reasons I'd be careful about copying the icons provided with commercial software, though; it is much more satisfying to stick with your own, home-brew icons anyway, isn't it?

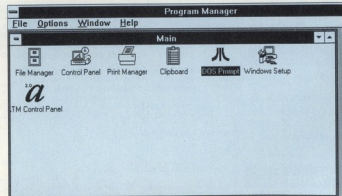
Dawn of a new era?

One of the most frequently asked questions about emulators concerns their support for colour and hi-res screen modes. There has been a considerable evolution of display standards in the Mac and PC worlds over the last few years and I am sorry to say that, by and large, the emulators have failed to keep up with the new standards.

This is not their fault, though, as they are constricted by the hardware of the popular ST and STE machines which simply cannot emulate colour SVGA or colour QuickDraw. So for the time being, I'm afraid it's strictly mono with Spectre GCR and the rather tedious, scrolling VGA imitations of the PC emulators.

This may soon change, however. Ward from Atari's headquarters in Sunnyvale, California, has it that emulation is seen as a key component in their marketing strategy for the imminent Falcon, and that several developers are working very closely with Atari on both Mac and PC emulation based offering advanced, multicolour screen modes and 68030 and 386, perhaps even 486, processor speeds.

Can't you? Well, nor can I, and I assure you that as soon as more details can be teased out of the secrecy shrouding such plans at present, this page will be the first to tell you. A Falcon with Windows in enhanced mode and colour QuickDraw could be a real world beater, no doubt.



The Atari Fuji symbol sketched in IconDraw installed to replace the DOS Prompt icon in Program Manager

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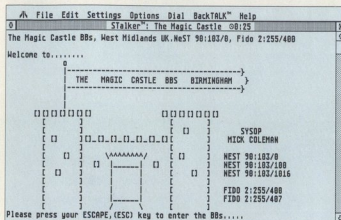
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Logging on to The Magic Castle, Birmingham's NeST Bulletin Board

Entering the NeST

In previous issues we've looked at international computer communications via the massive academic and scientific network known as Internet.

However, there are other smaller networks linking computers around the world, including one dedicated to our very own Atari ST computers.

Network ST (NeST for short) consists of a web of local bulletin boards, spanning most of the world and linked to each other by modem every evening.

A message posted to your local bulletin board could be read by an ST enthusiast in deepest Russia, and his reply might arrive back at your local site within a couple of days. And all this is for the price of a local telephone call.

SUBJECTS

All of the NeST boards can have their own local discussion topics, but there is also a wide range of internationally echoed subjects. All the major echoes are in English, but there are some local community echoes available in specific countries in their local languages. Want to brush up on your German? Fine, start reading the N_ATARI.GER echo.

As with any bulletin board, there are also plenty of files available for downloading, but using FileEcho, recently uploaded files can be made available throughout the whole network. There's even

an online worldwide game, Space Empire Elite, in which your actions can interact with game play in America, Europe, Australia or even Russia.

The NeST network, which is based on established FidoNet technology, is made up of a series of nodes, several of which communicate with a hub bulletin board. Above these hubs are a series of host co-ordinators, and finally each country has a regional co-ordinator. Mail and files are sent from node to hub and so on around the world.

If you think about it, there's actually one other level of the network - the individual users themselves. If you download the appro-

UK NeST-affiliated bulletin boards

Board Name	Location	Synop	Phone No	Speed/Modem type	Unavailable times
System ST BBS	Leicester	Mark Maths	0332 413443	9600,NRP	22:00-07:00
Desktop BBS	Stoke on Trent	Alan Woodcock	0782 241265	2400	21:00-08:30
Aspects	Manchester	Dave Gosali	061-792-0260	9600,V23ba/V42ba	
Queens NE	Gateshead	Derek Stewart	091-477-5472	2400	19:30-16:00
TGM	Bradford	Paul Simmons	0274 666670	9600,V23ba/V42ba	
Quest ST	CBMS Support	John Carlin	0422 881164	9600,V23	
Rescue CBMS	Crewe	Steve Caple	0270 582287	9600,VST/V23/V42ba	
Magnus BBS	Bradford	Keyo Terry	0274 547066	2400	
D-TERRA BBS	Hereford	David McGarry	0794 79877	2400,V23	22:00-07:00
Track 83	Notwich	James Parmer	0953 851251	9600,VST/V23ba/V42ba	
Skull BBS	Dis, Norfolk	Ian Coates	0279 740972	9600,VST	
Fortress	Plumstead, London	Kevin Osborne	981-317 3158	9600,VST/V23ba/V42ba	
Adventis-UK	Mitcham, Surrey	Laurence Holborn	981-715 6477	2400,NRP	21:00-07:00
The Hobbit's Burrow	Oxfordford	Andy Styles	0345 338667	9600,V23ba/V42ba	
New Age BBS	Southend on Sea	Henry Doyle	070 2 715055	9600,V23ba/V42ba/NRP	
The Tavern	London	Paul Baker	981-446 6514	9600,VST/V23ba/V42ba	
The Library BBS	Dagenham	Henry Gregory	981-598 0869	9600,VST/V23ba/NRP	
The Cypri	Derby	Paul Carroll	0602 443207	9600,VST/V23ba/V42ba	
The Dream Machine	Cardiff	David Thomas	0222 241713	9600,VST/V23	
The Magic Castle	Birmingham	Mike Coleman	021-438 2761	9600,VST/V23	
The Torture Chamber	Hatfield	Steven Cox	0707 270943	9600	
The SouthB BBS	Bath	Paul Williams	0225 480103	9600,VST/V23/V42ba	
Ston2 BBS	Edinburgh	Kevin Norman	031-556 9734	9600,V23ba/V42ba	
Black Cat Penarth BBS	Penarth	Mark Baker	0222 707239	9600,VST/V23ba/V42ba/NRP	
The Hobnob	Bristol	Dave Heald	0454 317047	2400,V42ba	
Falkstone CBMS	Falkstone	Robert Darling	0302 262020	9600,V23ba/V42ba	21:00-08:00
The Aviator BBS	Norfolk	David Woodbridge	0603 808633	9600,V23ba/V42ba	20:30-08:30

appropriate software (which is, of course, available from the network) you can even automate your own machine to become a point. This makes you, in effect, a single-user site within the network. You no longer have to browse through messages and files while online to your local node, but rather your computer does all the communicating for you automatically.

LEISURE

When it has transferred all of the echoes you require, you can peruse them at your leisure later - without paying British Telecom through the nose for the privilege.

So why not give the NeST network a try? There are plenty of nodes to choose from, so pick the one closest to you and give it a

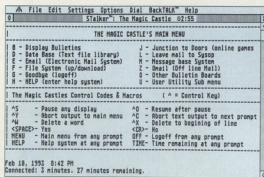
call. You'll get straight into the board, but with limited access to staff with.

Unless you're a known troublemaker, the system operator will remove that access restriction within 24 hours, and you can begin to explore the net. Have fun!

For more information, contact:

Daran Brewhead,
NeST International Association,
7 Crescent Road,
Portwood,
Stockport
SK1 2AG

Email address: 90:90/0.
0@NeST.Fin or 2:255/401.
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The main features menu of The Magic Castle

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André Willey tells you how

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500-599	Netherlands
600-699	Australia
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900-999	Austria
1000-1999	Switzerland
1100-1199	Sweden
1200-1299	Russia
1300-1399	Greece
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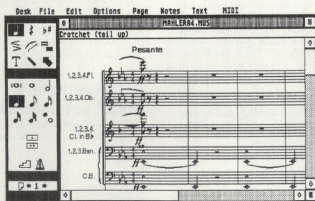
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Making a point

No, we're not into Morse Code publishing or anything like that. Dots and dashes are one of the most neglected areas of typography for the simple reason that not many people know how to handle them properly.

Take dots for instance – how many of you add two spaces after a full stop before you start the next sentence? Strictly speaking, you shouldn't do it as it's against all the best typographic conventions, and if you send material to be professionally typeset the typesetter will probably remove the extra space.

One theory as to how the habit became popular is that in the days of typewriters and monospaced fonts, the double space was needed to make the sentence break more obvious. With proportional type, it's totally unnecessary.

We're so accustomed to wysiwyg (what you see is what you get) in DTP that we often forget that what we should be getting is probably what we can't see.

Make sense? What I mean is this – for every character on your keyboard there are three or four hidden ones. Not all of them are useful, I'll grant you, but there are half a dozen which every desktop publisher should know about.

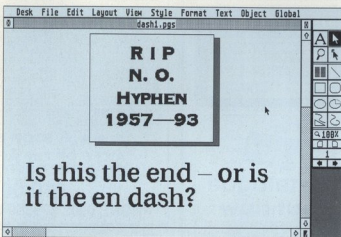
PEDANTIC

I'm talking about the en and em dashes, the opening and closing quotes and the ligatures and diphthongs. Many will feel I'm being pedantic in using them but I'm certainly not telling you you're wrong not to.

All I'm trying to say is that you can substantially improve the appearance of some documents and raise your own standards at the same time, just by knowing they're there. Let's take the dashes first. Hyphens are available from the ST's keyboard just to the right of the 0 key on the top row. They should be used to denote words that are split up onto different lines or to link closely related words (phone-book, for instance) and not to split sentences or show ranges.

Use of the en and em dashes isn't so straightforward, however, as practice varies.

Personally I prefer to use the en dash, so called because it is exactly the width of the letter n, in



The preferred way of using dashes?

places where a full stop is too strong but a comma too weak – just before this phrase is a good example. Leave a space on either side of the dash too. The longer en dash can be used in dates or times.

Oddly enough, the exact opposite usage is recommended in an Adobe magazine. Here the em dash is used to split clauses (with no spaces) and the dash for dates. I guess you can take your pick but whatever you do, be consistent.

Quotation marks are another source of disagreement but most typographers will at least agree on the usage of opening and closing

quotes rather than the plain straight up and down quote marks found on the computer keyboard.

The proper "66" and "99" style quotes look far better. Try and use real apostrophe marks too, especially in high profile text such as headlines and titles.

On the same subject, there are literally scores of odd characters in every typeface just waiting to be discovered and used. Ligatures are characters made up of two characters blended together – the combinations f/i and f/l being the most common.

These ligatures occur because of the font's design characteristics

– when an f and an i are placed next to each other, the top of the f will often touch the dot of the i. This looks ugly and hence the ligature is born.

A diphthong is a similar blend of two vowels such as a and e. Neither ligatures nor diphthongs are widely used in DTP these days though many upmarket publications still carry them.

Of course, you need to be able to access these odd characters if you're going to use them. The easiest program to use in this respect is PageStream – non-standard characters are accessed by keyboard mnemonics.

MACROS

To get an em dash involves typing Control-C followed by m, then a hyphen. Ligatures are called up in the same way. The flexible macro system means you can write short macros, for example, to replace every occurrence of fi with the ligature fi, before or after you lay out the text.

Likewise Timeworks and Easy Text Professional users can access these extended characters very easily, but more often than not GDOS fonts simply don't have the required characters.

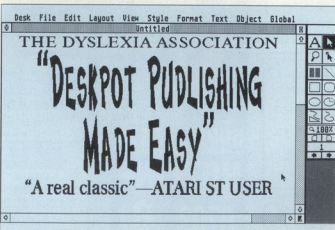
Calamus and Didot Professional are a little more awkward – you can select the characters from a view window but again, many fonts, especially the PD ones, just don't have the full character set. Time to get that font editor out again...

Timeworks users unite

A new user group for Timeworks users looks set to take off over the next month or two, with a quarterly magazine full of hints and tips. The first issue is expected to be out about now.

The project has the blessing of GST, the distributors of the program, but it is completely independent. According to co-founder of the group, Pauline Meek, half the present membership are ST owners though the group does cater for PC users, both DOS and Windows, too.

The group can offer a discount on other GST products and membership costs £23.50 per year. Contact Rob or Pauline Meek on 0708 762861. The address for postal queries is The Timeworks User Group, Harfield Villas, 24 Douglas Road, Hornchurch RM11 1AR.



You can quote me on this – the proper marks look much better

Dot, dot, dot, dash.

Andrew Wright looks at some very odd characters indeed

Keep the vital data you collect during market research activities in a database. In this example, I've used a Shareware program, Fastbase, written by Andrew Brown and available from most good PD libraries



There is still a certain degree of distrust of modern marketing methods, which is a great shame, as it really boils down to common sense and some research and planning.

We touched briefly on marketing last month and the month before, when I gave summaries of the 12 vital points to include in a business plan.

However, marketing is so important that it deserves further explanation.

To start with, look at it this way – there can't be a business unless there is a market; if there is a market, no matter how big or small, it can be researched; sensible plans can then be made to provide the market with what it wants, or perhaps what it would want if that particular product or service were available.

And with an ST plus a basic wordprocessor and database at your disposal, some of the work involved will be that much easier.

If you have a DTP package as well, so much the better, and a spreadsheet which can also produce graphs will be helpful for the reporting of some of your results.

CREATIVE

The International Dictionary of Management (published by Kogan Page) defines marketing as a "creative management function which promotes business and employment by assessing the needs of the end user of products or services, initiates research and development and produces products and services which can be profitably provided to satisfy market requirements."

As you will have gathered from that, marketing is virtually the whole story. No matter how small your business, ignoring the subject might at best mean you are disadvantaged. At worst, it could mean failure. So where do you start?

Firstly, answer the following as fully as possible – and if there's any point you're unsure of, speak

to people in your market and find the proper answers:

1. Who are your customers and what sector of the market do they come from?
2. When and why do they/would they buy your products/services?
3. Are they end users or do they sell on to someone else?
4. Who are your competitors and what is your share, and their shares, of the market?
5. What precisely sells your product – price, packaging, advertising or the product itself?
6. Have there been any changes in your market in recent times, and what changes lie ahead?
7. Do you need to make changes to your product or service?
8. Could there be a spin-off from your product or service which could be marketed profitably?

It's a mistake to think that marketing must be an expensive operation. Collation and analysis of information is bound to cost something, but you don't have to employ professionals to get the answers for you. You will find there is already lots of information available – you just need to tap the right source. For instance, for information

which you must obtain directly from your customers, write a questionnaire using your favourite (or only) wordprocessor and print sufficient copies, or use a photocopier, to ensure a big enough sample from which to produce meaningful reports.

Now, whenever you or your sales staff meet customers, or speak to them on the phone, get all the answers to the questions. If you were meeting or phoning them anyway, then your market research is costing precious little.

While there may be some who will fail to see the point of the questions, you will be amazed at the lengths some people will go to in order to help your research, and some of the suggestions may be brilliant ideas you might never have thought of yourself.

And a well-produced questionnaire, perhaps with some extra incentive to fill it in like entry into a free prize draw, is, in itself, a good public relations exercise. Your customers will get the impression that you care about them if you show interest in their likes, dislikes and problems.

CHANGE

When you have a thorough knowledge of the state of your market, including a more precise picture of your customers' preferences, your own strengths and weaknesses and those of your competitors, you may feel the need for wholesale or partial change in your products and/or the way you operate.

When you've made these changes, acting sensibly on the mass of market research you now have, you'll probably want to tell the world, or, at least, your customers and potential new customers, about it.

Promotion and advertising are

two more important aspects of marketing. Again, you would be mistaken in thinking that either of them need cost you an arm and a leg.

Consider the case of a couple who spent £7,500 advertising in a variety of publications when they began a new, single product business. The advertising gave rise to 100 leads, about 20 per cent of which eventually proved successful.

PROMOTIONAL

Six months down the line, market research indicated their product needed major changes, and they wasted no time in making them.

This time, they did not advertise, but used their ST and inkjet printer to produce promotional material, and sent copies with an accompanying press release, produced using the mail-merge feature of their wordprocessor, to trade and local press.

The publicity that this generated gave rise to 1,500 leads, with a 30 per cent success rate, plus the subsequent benefit of word-of-mouth recommendations from about 500 satisfied customers.

In the space of a few months, their business did twice as well as its previously most optimistic forecast for the next two years.

Of course, this kind of scenario is unlikely to happen to everyone in business. But it does illustrate main points of this article – that marketing is mainly common sense, need not cost the earth, and produces results when conducted properly.

Storing the vital data

Much of the information you will collect while conducting market research will be useful for the future, so why not key it into a database?

The data can be as simple as names and addresses of all the useful contacts you make, or as complex as the detailed results of a vital survey.

And the figures you obtain by way of a report from your database on, say, what percentage of people prefer to eat stripy vanilla and raspberry ice cream from a tub using a plastic spoon rather than from a cornet, can be entered into your favourite spreadsheet and a professional looking graph produced very quickly.

Going to market

One area in which many small businesses could perform better is marketing. Richard Williams tells you how to get your message across

REPLAY 16

At last, a low cost 16 bit sampling system for the Atari ST, featuring full 16 bit input and output in the same unit. The system comes complete with a sophisticated sample making/loading program, super digit Drum machine program, and a powerful MIDI keyboard emulation program which gives the user the ultimate in MIDI sample control.

HARDWARE - The 16 bit sampling unit plugs into the cartridge port of the ST. Audio connections to and from the sampler are provided via standard Phono connectors. An Input volume control is also provided.

SOFTWARE - EDITOR - The sample editor is a highly flexible 'WIMP' style program which allows conversion or editing of any sample into 8/12/16 bit, Mono or Stereo samples. Sampling rates of up to 48KHz can be used, but the program can re-synthesise samples to practically any other speed.

- Features include:
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The system runs on any ST or STE with 502K (1 Mb min is recommended), and comes complete with hardware, software and comprehensive manual.



Product	Price	Order No.
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Videomaster will work on any standard Atari ST with at least a single 1Mb floppy disk drive and a colour monitor. At least 1Mb RAM is recommended. RRP £69.95, save £15 with this offer.



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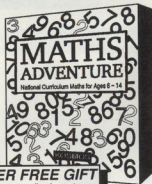
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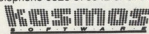
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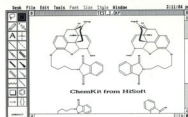
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