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ATARI ST REVIEW

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ST Review issue 13

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Our lead feature looks at sound on the Falcon with D2D's 4T/FX and Compo Soft's MUSICOM programs, reviews starting on page 18.

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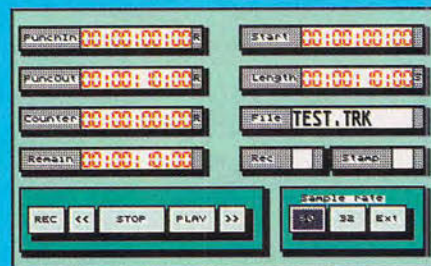
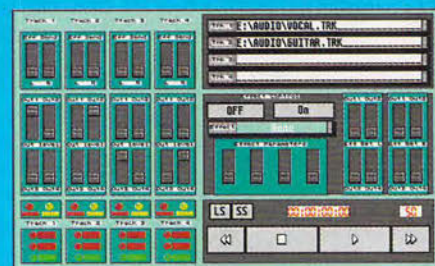
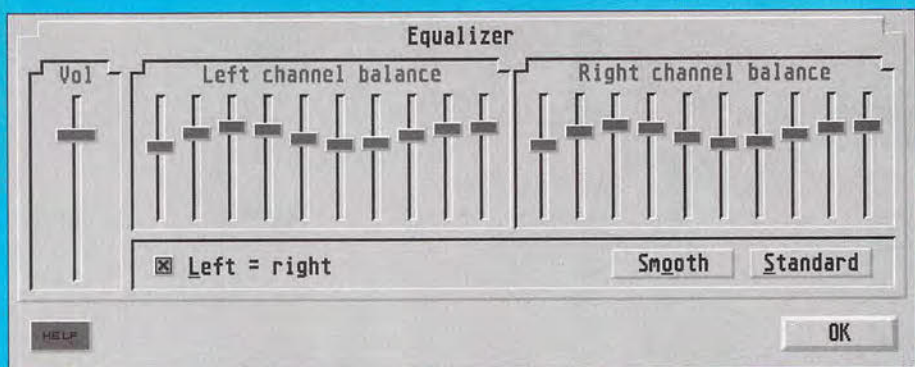
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Printed by Passmore International (Maidstone)



Left: Silmarils presents the sequel to Ishar, Messengers of Doom on page 56.



Right: "We'll fight them on the beaches". D-Day is previewed on page 59.

ON THIS MONTH'S COVERDISK

Write ON

A word processor with functions that put most professional packages to shame! No problems running in half a meg of memory, Write ON includes a built-in installation utility and even allows you to back up your master disk. You can use up to 20 fonts per document, import pictures and output to most printers. Write ON also has powerful style features that allow you to format your documents quickly and easily. What are you waiting for? Turn to page 12 for the installation procedure and your first document...



TRECH

A desk accessory, full-featured programmers' and scientific calculator that works particularly well with Write On.

IDLE

The ultimate screen saver that you can configure for your system.

FEATURES

18 MUSIC TO YOUR EARS

So the Falcon has a Digital Signal Processor – what's the big deal? Quality digital sound recorded direct to hard drive, that's what! Read the in-depth review of D2D's 4T/FX and Edit programs, the first serious digital audio packages on the Falcon.

22 PLAY IT AGAIN...

Digital sound doesn't necessarily mean expensive as Compo's MusiCom program shows. Direct-to-disk recording, real-time echoes and even the dreaded Karaoke – all for less than £50...

25 PICTURE THIS!

ST-owners have had to put up with second-rate graphics programs for too long. Enter DA's Vector, a quality vector graphics package that seems likely to take the market by storm. Quick 'n slick, read our full review...

28 THANKS FOR THE MEMORY

One of the major drawbacks of the ST is the maximum memory limitation of 4 megabytes, especially now that MultiTOS has appeared. Fancy increasing your total memory to 12 megabytes? Just think about all the programs you could have in memory at the same time... Interested? We present you with the full information and one of our famed step-by-steps!

32 A CLEARER VIEW

With ST-compatible mono monitors becoming rarer by the week, an ST-user's fancy turns to... VGA-converted monitors! Three of these go under our thorough scrutiny. How do they compare with a standard mono monitor? We give you all the facts...

36 BIGGER AND BETTER

What use is the large black border around the edge of your screen? None at all... unless you happen to be using OverScan! See for yourself...

38 INTO THE JUNGLE!

If you're using your ST for anything other than games, you're likely to want a printer sooner or later. Don't know a dot matrix from an inkjet? No problem – leave it to ST Review to give you all the advice you need!

44 ONE MAN & HIS ST

The first in a new series that looks at how professionals use their ST. Glen Tilbrook of top pop band Squeeze tells all...

REGULARS

6 NEWS

All the latest product news from the Hanover CeBIT Show and hot news from Atari.

10 COVERDISKS

We must be crazy to be giving you the full version of *Write ON* this month along with an excellent scientific calculator desk accessory! Installation, a run through your first document and a list of all the features awaits your eager gaze...

46 MIDI MONTHLY

Back in the colour pages! This month we bring you the lowdown on a couple of sound modules, a visual editor for Roland's Sound Canvas and a MIDI File that thinks it's a guitarist...

53 SCREEN SCENE

Our usual mixed bag of reviews, previews and VFM budget games are featured this month. We kick off with reviews of *Chaos Engine*, *AV-8B Harrier Assault* and *Arcade Sports*. Previewed this issue are *Ishar II - Messengers of Doom* from Silmaril, sequel to the highly successful *Legend of the Fortress*, and *D-Day*, the Normandy Landings revisited courtesy of US Gold. Keeping the war theme, there's *1943* in the budget section complimented by *Arcade Fruit Machine* and *International Truck Racing*.

64 PD ZONE

To go with this month's cover disk, we've got reviews of the best PD games, utilities and STE-only programs currently available, as well as our usual set of coupons to make your buying that little bit easier.

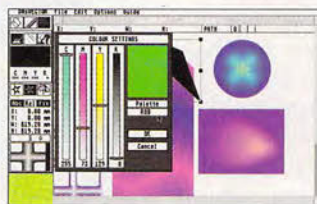
77 PROBLEM SOLVED

The latest in our series aimed at helping you to get the best from your ST. This month we look at replacement file selectors. Worth having or simply hype? A couple of step-by-steps should help you to make up your own mind...

WIN A
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MULTI-GYM!
TURN TO PAGE
57 NOW!

WIN AN
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UPGRADE!
SEE PAGE 31!

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SEE PAGE 16 FOR
DETAILS...



Create the most
amazing graphics
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the latest quality
program to come
out of Germany.

SCREEN SCENE

Time for a spot of entertainment in the frivolous bit...

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ST BUYER

Everything for the ST enthusiast in one section...

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Hit rock bottom with Peavey's Spectrum Bass sound module – review on page 46.

NEWS

HAN'OVER

HAVE MAG, WILL TRAVEL...

It's been an interesting six weeks since the last issue of *ST Review* appeared. Those of you who successfully peeled off the sticky label covering my editorial in issue #12 will be aware that *ST Review's* run had come to a premature end. This was indeed so... until Europress Enterprise decided to give the magazine a new lease of life. And here we are again!

With average monthly sales of over 30,000, it may be difficult to understand why the previous publisher decided to scrap *ST Review*. As you can imagine, politics of this nature are beyond the control of the editorial staff. All I can say is that Europress have saved the best current *ST* magazine from a fate it certainly didn't deserve.

Tony Kaye, the technical editor, is still with us as are all the main freelancers whose writings have graced these pages – Ofir Gal, Andrew Wright, Maurice Collins, Nial Grimes and John Mallinson to name but a few.

Very little has changed about the mag – and any changes have certainly been for the better. For instance, the "blues" pages are still blue, but in colour only. The paper quality is now the same as for the rest of the magazine which should make that particular section far more legible than previously.

You've probably noticed that the cover price has come down to £3.50 and we've lost a cover disk. But we've given you the full version of *Write ON* and the offer to upgrade to *That's Write! 1.5* for just £24.99 – that's a saving of £40! We've even thrown in *TRech*, a desk accessory that has previously cost £14.99! You can look forward to more commercial software in the months to come.

A new feature starts in this issue. *One Man & His ST* will be looking at how professionals use the *ST* in their line of work. *DTP*, graphics, music... you know the kind of thing. In this issue, Glen Tilbrook of top pop band *Squeeze* takes his place in the hot seat.

Enough has been written about the *Falcon's* potential; it's time you started to read about the reality. This month, *ST Review* dedicates five pages to a couple of programs that record sound directly to the *Falcon's* hard drive. More to the point, they're on sale in the shops NOW! As the month's go by, we'll continue to bring you in-depth reviews of *Falcon* software as and when it's available.

Of course, we'll also continue to support the *ST* fully in its various guises. For instance, this issue gives you in-depth reviews of *DA Vector*, *VGA monitors* and *OverScan*, all the advice you'll ever need if you're buying a printer, *Screen Scene*, *MIDI Monthly*, *PD Zone*...

Enough of the chat - turn the page and see for yourself that the phoenix has truly risen...

Vic Lennard,
Editor.



Over half a million visitors, 5,000 exhibitors and, as every year, Atari in hall 7...

Hanover – a town that understands exhibitions.... Half the town go on holiday and let their houses, the other half work in the restaurants and bars! Even then, visitors consider it normal to stay in hotels up to 60 kilometres away!

Atari had its usual large stand – at least five times the size of Amstrad and twice the size of Compaq. For Atari this show is serious business.

For the full eight days the Atari stand was buzzing with people and activity. The *Falcon* was causing a stir, not only on the stand but also among press and exhibitors as one of the features of the show. A huge video wall on the edge of the stand had visitors enthralled in an excellent presentation of the *Falcon's* appeal as a computer for music and video. After each show another wave of new visitors streamed on, many to see the *Falcon* for the first time.

On the stand were a host of software houses with new applications for the *Falcon*. The general standard of all the new hardware and software was remarkable considering that most developers have had machines for only six to nine months before the show.



Atari's impressive stand including the dome first seen in Dusseldorf.

HOT FAVOURITES

Flying the lone UK flag was HiSoft with *True Paint*, the first colour painting program on sale for the *Falcon*, a new release of *DevPak* now up to version 3, and *Lattice C 5.5*.

The many painting and graphics programs included the extensive features (and expensive price tag) of *Chagall* from German company Trade It and a more reasonably-priced true colour retouching program in *Studio Photo* from French company, Eurosoft.

If one program stole the show it was *MusiCom* from COMPO. Heavily featured as part of the video wall presentation, *MusiCom* karaoke'd away with the presenter's voice replacing Elton John singing *Your Song*. Perhaps the adjacent stands were none too pleased but the audience loved it! On sale in the UK now at £49.

Other music programs represented included a *Falcon*-compatible version of Steinberg's *Cubase Audio*. The much talked about *D2D Edit* (reviewed in this issue) wasn't represented although space was reserved on the stand for *D2D* – a sad state for a UK company at the forefront of *Falcon* development.

Video was another area which developers have latched onto. German firm *OverScan* had a *Genlock* on show along with a video titling program called *Overlay*. Various *Amiga* owners were seen cooing about its features and left devastated by the low price – expect it in the UK at about £50.

Matrix, famous for their high power graphics cards, were showing *Matrix Grabber*, a 24-bit colour video digitiser and the excellent *DA's Vector* from German firm *Digital Arts* drew the crowds with its vector and bit map combinations and animation capabilities – see the review on page 25.

THE CASH AND CE-BITS OF THE SHOW!

WELL-FANCIED

Kodak are supporting Photo-CD on the Falcon. Shops in Germany are currently swamped with work, printing pictures from Photo-CD which can be recorded onto more than once if the CD Player supports "multi session". If you are about to buy, get it right...

Blackmail from Digital Optical Analog Inc, USA. Voice mail may be all the rage in the US but the UK, with its adversity to speaking to an answering machine, is unlikely to pick up on it so fast! Still it was nice to see US developers behind the Falcon. Rumours are that other US companies including the creative CodeHead team are beavering away...

The excellent *NVDI* from Bella systems is available in Falcon form. However fast the machine it will never be fast enough! *NVDI* is now firmly established in Germany as an absolute must...

Data Light 2 from Logilex gives on-the-fly data compression, sure to make a big impact particularly when an uncompressed three minute stereo sound sample can take over 30 megabytes of hard disk space before compression...

From Atari, *Speedo GDOS* was expected to be in new Falcons very soon, with *MultiTOS* (on disk) taking a little longer... *ScreenBlaster*, another wow product from OverScan, adds more pixels to the Falcon's screen - 1152 x 832 at maximum. OverScan expect to make their first shipments in April with a UK price under £100.

Falcon Speed was on show from PC emulator specialist Sack electronics. The developer, Hans Jorg Sack, made an interesting comment on the merits of using a 286: "It is quite possible to put a 386SX on the board, it would just run slower, or a 386DX which would run just a little faster." He continued by adding "a 386 would only add to the price. To increase speed you need to run the board at a faster clock speed than the existing 16MHz, which would also add a further requirement for a cache memory buffer because the Falcon's internal memory runs at 16MHz. Our priority is to produce a reliable new board for the Falcon and then develop from there." he said.

And not quite there yet... *Falcon GCR*.



A giant video wall show a rolling demo of the Falcon and its functions.



Interest in the Falcon was intense and the machines were in demand.

THE FUTURE?

Developers were all raving about the Falcon's DSP and talking about what they were going to use it for. They will be helped greatly by the now shipping DSP Debugger from French developer, Brainstorm.

And what was not on show but the subject of active rumours? More Genlocks, more painting, more retouching, accelerator cards, memory cards, graphics adaptors... get the picture?

Apart from HiSoft, UK companies sending representatives included Atari Workshop, CGS, COMPO UK and SDL. Judging by the speed DA's *Vector*, *Cubase Audio* and *MusiCom* have appeared in the UK we can expect a lot of these new products over very soon after they ship in Germany.

And what from Atari? Gone was the talk of a new case and no rumours about an 040 machine. The fact that a brand new colour brochure on the current Falcon has just been printed in seven European languages including English was a testament to a change of mood in Atari.

They were a company who believe that they have a hot product and their mood was that the current Falcon was what they were going to produce and market for the foreseeable future. This Falcon is here to stay - now could just be the right time to buy one...

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Hot news from Atari starts the news round-up this month...



An ST for £159 – a real computer for the price of a console.

CONSOLE BUSTERS!

You can now buy a fully-functional computer for the price of a games console!

Atari have announced the re-launch of the 520 STFM computer for just £159. The machine will have the same specification as the last STMs to be released – TOS 1.04, Blitter and double-sided disk drive along with four games. This makes it very attractive to anyone considering buying a console, but would like to be able to do more than just play games.

The only drawback of the latest STFM is the fact that the chips are soldered on to the motherboard and not socketed as with other models. This makes upgrading the memory slightly more difficult, but not impossible.

The STFM will be sold alongside the current range of computers including the STE, MEGA, TT and Falcon and provides a new entry level. Atari are aiming to sell 100,000 STs in 1993, proving that there is still a commitment to the machine. There are no plans to drop any of the current range as far as we know.

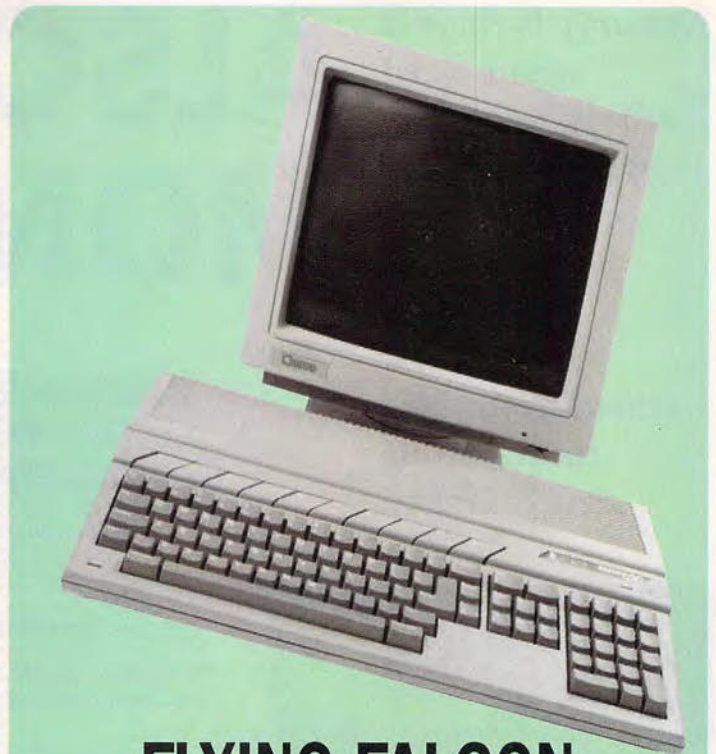
It is hoped that the re-release will help to kick-start the ST software market. With commercial games selling for as little as £7.99 or even less and a full range of public domain and shareware available, the situation compares very favourably with console games that are sold for upwards of £35 each.

Insiders in the industry are pleased with the move and see it as a positive step. "Although the socketed boards makes upgrading slightly more difficult, we are working on a way to simplify the process" said one major developer.

There is still a very good base of half-megabyte games available and certainly enough to tempt the beginner.

WIZARD GAMES

Last month, we carried a report about Wizard Games and have been asked to point out that this refers to Wizard Games of Olney, Buckinghamshire and no other company with the same name in other locations. Our apologies to any companies affected by our previous article.



FLYING FALCON

The Falcon has landed and is in the shops now with three configurations to choose from. The entry level machine has one megabyte of RAM and a recommended price of £599; the four megabyte system is available with or without a 65 megabyte hard drive for £999 or £799 respectively. At the time of writing, the machine is fitted with TOS 4.02, but MultiTOS is currently not being shipped with it.

Last issue, Darryl Still, Marketing Manager of Atari (UK), was misquoted regarding which machine to buy. The Falcon in the existing STE casing has some ports that may be missing from the consumer-cased version. For this reason, some users may find it advantageous to buy from the current model range. If, however, you want to wait, the re-cased version should be available later in the year.



Now your mouse mat can match your T-shirt!

HOT MICE!

How hot is your mouse? A new mouse mat from Lightwave may tell you!

The Rainbow Pad has a heat responsive Liquid Crystal layer underneath its hard surface that changes colour according to temperature. Size is 8"x10" and Lightwave are to be found at Units 17 and 18, Wirral Business Centre, Dock Road, Birkenhead, Merseyside L41 1JW. Telephone: 051-630 6237

Not only is there a great word processor on this month's packed cover disk, but we've also squeezed a scientific calculator and a configurable screen saver...

ALSO ON THIS MONTH'S DISK



Idle, not being idle! This is what it looks like in action.

IDLE

IDLE • SCREEN SAVER ACCESSORY • ANY RESOLUTION

Don't allow your screen to "burn out". Use this utility to extend its life...

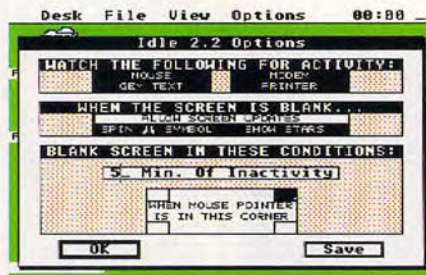
The quickest way to kill a monitor or television is to leave it switched on! If the same image is displayed for a long period of time, the phosphor

WHAT TO DO IF YOU HAVE PROBLEMS WITH YOUR COVER DISKS

DON'T PANIC

In the unlikely event that your cover disk won't load or gives you any other problems at all, cartridges and peripherals and try again. Please note that to restart the computer, you must SWITCH IT OFF for at least five to 10 seconds to clear all traces of resident programs before continuing.

If this doesn't solve your problem, return your disk, with a stamped addressed envelope to P.C. Wise Ltd., Dowlais Top Business Park, Dowlais, Merthyr Tydfil, Mik Glamorgan, CF48 2YY. PC Wise will test the disk and send a replacement as soon as possible. You can contact the PC Wise Helpline with any urgent problems. Please note that PC Wise will deal with faulty disks only and not general enquiries. PC Wise can be contacted by telephone on 0685 350505 between 10.30 and 12.30 on weekdays.



Hold down the left shift key while selecting Idle to enter set-up mode.

dots on the screen remember the image and burn it into the screen. The image can still be seen after the program has been changed or even when the monitor is turned off!

To avoid this, you need a program that changes the screen around. Idle replaces your screen with a very pleasant starfield and the Atari Fuji symbol rotating merrily away.

To use Idle, place it in the root directory of your boot disk (see TRech text) and reboot your computer. It's configured to switch on after five minutes of inactivity. You can change this by selecting the file from the menu while pressing the left shift key to enter set-up mode. To see the saver in action, move the mouse to the top, right-hand corner of the screen and leave it there.

TRECH

TRECH • CALCULATOR DESK ACCESSORY • ANY RESOLUTION

The perfect partner for Write On, TRech is a fully-functional scientific calculator desk accessory.

As computers work with numbers, it's only logical to have a calculator available. TRech is probably the best scientific "adding machine" available for your ST!

To load TRech, simply place the file TRECH.ACC in the root directory of your boot drive (the first window of the disk in the drive when you switch on) and turn the computer on. The accessory is now available from the Desk menu on the desktop.

You can work in various different bases; Floating point (the normal calculator type), Decimal (base 10), Hex (16), Octal (8) or Binary (2). The mode button gives you access to degrees, radians and gradients as needed. The functions of the calculator itself vary depending

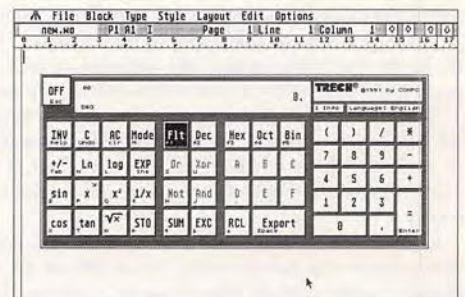
on the mode and type selected. Using the Export button, you can paste the finished calculation directly into your Write On document. The text can be set to appear before or after the total and you can also decide when you want the results pasted. Selecting "Always", for example, will insert the result each time you make a calculation.

XACC protocol, used by Write On and other Compo products is a new system of interactive accessory controls allowing them to communicate with your applications.

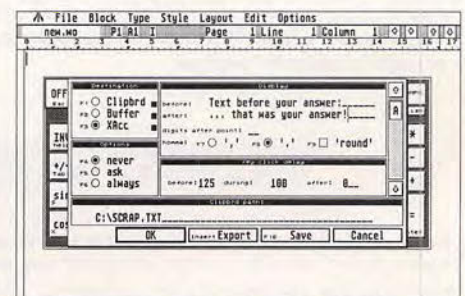
It will not work with all programs, so trial and error is the order of the day - don't forget to save your work before experimenting! Use the Buffer option to ask TRech to simulate key-presses in order to insert the result in the current application. This can be fine-tuned using the Key Click Delay controls. Compo warn that this method cannot be guaranteed to work with every application.

TRech settings can be stored using the slider bar: up to 8 sets, labelled A to H, can be saved and you can switch between them by clicking on the scroll arrows. Use Save to store these settings to disk for future use - TRech will load them automatically whenever you use it.

Because TRech supports XACC, you can call it up from the keyboard when using Write On. Press Control I n, where n is the number of the slot occupied by TRech in the Atari menu (not counting the Write ON option). If you have a number marked as a block when you run TRech in this way, the number in the block will automatically be placed in TRech.



A large range of functions and features at your fingertips in TRech.



Paste the results into your Write On document using the Export command.

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RIGHT ON!

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with our superb
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takes you through
those difficult
first moments...*

Write ON is a cracking good word processor. Why? For starters, there are multiple fonts and graphics. Write ON will handle up to 20 different fonts in one document, more than enough for creative and good-looking layouts. Write ON also makes excellent use of paragraph layouts, making it easy to use all those fonts and styles and to design clear, consistent documents. Not to mention macros and the ability to have two documents open at once. And despite all these DTP-like features you don't need a TT or a Falcon to run Write ON - even a 520 ST with a single floppy is enough. Don't miss TRech either, Compo's full-featured programmers' and scientific calculator. Read on to learn how to make the most of

our outstanding cover disk giveaway.

INSTALLATION

Follow these simple steps for a trouble-free Write ON installation.

1. If you are installing to hard disk, you need a partition with at least 1.5MB free space. For floppy disk systems, you will need two spare double-sided disks. Format one of them, and label it "Write ON working copy". The other, which needn't be formatted, should be labelled "Write ON master disk backup."

2. With the Write ON cover disk in drive A, run the program called WO_HELP.PRG. The first option in the File menu is called "Copy disk".

Choose this option to make a backup of the master disk, using a blank disk which will be reformatted for extra space by WO_HELP. Don't try and backup the cover disk from the desktop - the files will not fit on a disk formatted in the normal way.

3. Now for the installation. Choose the "Installation" option from the File menu, and you will see a dialogue box. Select the appropriate type of disk: double-sided, or hard disk. If you are installing to hard disk, you can edit the Path line to a partition and directory of your choice. Floppy disk systems should always install to drive A. Next, scroll through the list of printers to find your printer, or one that is closely compatible. Click on OK and wait

*Choose the correct
printer for your
setup from this
scrolling list.*



TROUBLESHOOTING

Having problems? Here are some common difficulties and their solutions. Some of them refer to features explained elsewhere in this guide.

• **Error message, "Screen too narrow."** This means you have a TV or colour monitor and need to switch to medium resolution using the ST desktop "Set Preferences" option.

• **Unable to find STANDARD KEY** If you get this message, delete the file called WRITE_ON.INF and try running Write ON again.

• **A message says "Font xxx missing, corrupted or too large"**

By too large, Write ON means that the font won't fit into memory.

Try removing some fonts from the document, or splitting a long document into shorter sections. You could also try a new Write ON installation in case a corrupt file was caused by a disk error during installation.

• **You get a corrupt printout** If you have a clock program that displays the time on screen, this will cause problems. Some accelerator programs are also incompatible. Disable them before running Write ON.

Try removing any desk accessories or programs in the AUTO folder (apart from the ones supplied with Write ON) to see if that

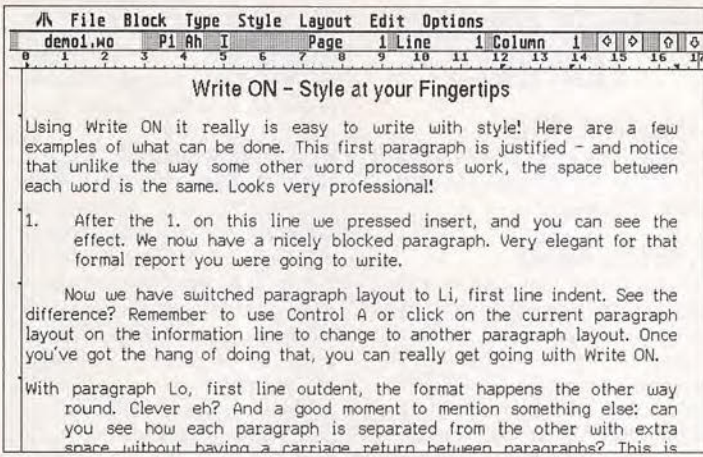
fixes the problem.

• **Printing justified text is very slow** Some dot matrix printers may be very slow when printing justified text. Try using a graphic font like Tim11, or set the paragraph justification to left-aligned.

• **A message says "Out of memory"** Write ON in half a megabyte of memory is a tight squeeze. You can make more memory available by disabling any unnecessary desk accessories and auto programs.

Short documents with few fonts installed use the least memory. If you still have problems, consider upgrading your memory to 1 megabyte or more.

Write ON Cover Disk Tutorial



The document DEMO1.WO is provided on the cover disk.

while the necessary files are copied. The installation program will ask you to insert Master Disk 2. For this cover disk, everything has been squashed onto one disk, so simply ensure the cover disk is in drive A and click on OK. Finally, when installation is complete choose Quit from the File menu to return to the desktop.

4. Now you need to complete the installation. Write ON is supplied with a couple of small programs to overcome problems with certain TOS versions. These are in the AUTO folder on the cover disk.

If you have TOS 1.04 you must copy POOLFIX.PRG to the AUTO folder on your boot disk. Look at the dates in the About dialog box on the ST desktop. If they are "1985, 86, 87, 88, 89" then you have TOS 1.04.

If your TOS is very early ("1985" or earlier in the About dialog box) then you need to copy the program called LA.PRG into the AUTO folder on your boot disk.

Next, copy the programs TSNAP.ACC and TRECH.ACC to your boot disk. These are optional desk accessories, so you can run Write ON without them if you wish.

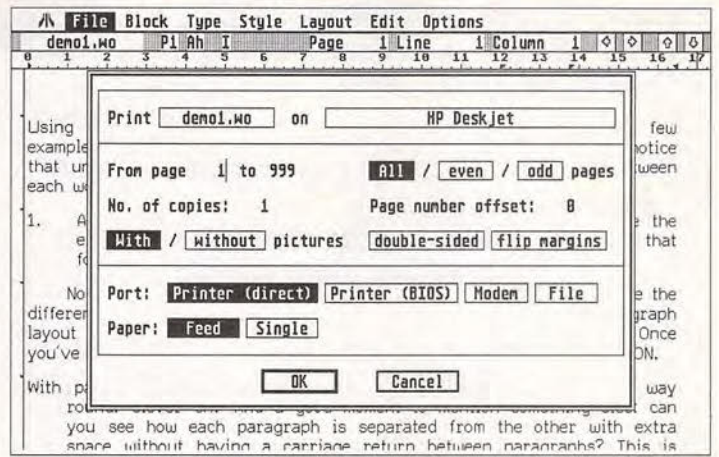
There are also two documents to help you get started: DEMO1.WO and DEMO2.WO. If you have a hard disk, copy these to your Write ON

directory, or otherwise onto a blank floppy disk which you can use for Write ON documents. If you have a separate external "B" disk drive, put the document disk in there. Reboot your ST to install the desk accessories and the program in the AUTO folder if needed. Now you can run Write ON by double-clicking the program called WRITE_ON.PRG. When the program has loaded, go to the File menu and choose Open. You're going to load the document called DEMO1.WO. Hard disk users will not need to worry, but if you're running from floppies, then when the file selector appears click on the "B" button.

Single drive systems will then see a message saying, "Insert disk B in drive A." That's when you should put your document disk into the drive, and not before. (Similarly, don't replace the master disk until the ST asks for disk A again.) Choose the file called DEMO1.WO and click OK.

Want to see something on paper? Make sure your printer is set up and ready to go. Now choose Print from the File menu. The name of your chosen printer should appear in the dialogue box. Click OK, and Write ON will print the demo document.

If you want to print a document of more than one page, you need to check the page layout settings explained below.



Printing is controlled from this dialogue box. Note the special features for printing double-sided pages.

CREATING A DOCUMENT

When you load up Write ON, a cursor winks at you inviting you to type a document. Here's where we try it out, step-by-step!

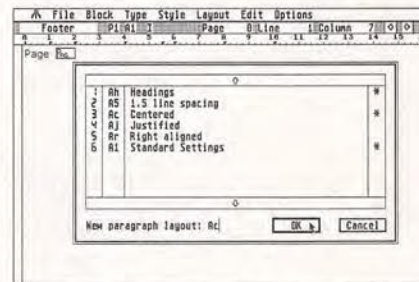
1. If you have the demo document on the screen, you can clear it by choosing New from the File menu. Then, type a line - how about "I wish I had a Falcon", and press Return. Notice that when you pressed Return, a small blip appeared in the left margin. That indicates the end of a paragraph. It's only at paragraph ends that you should press Return, not at the end of every line.

What if you wanted a word in bold? Type "I really wish I had a Falcon," but before you type "really", choose Bold from the Style menu. At the end of the word, choose Normal. Write ON shows the word in bold type. You can type in other styles including italic, underlined, superscript and subscript using the same technique.

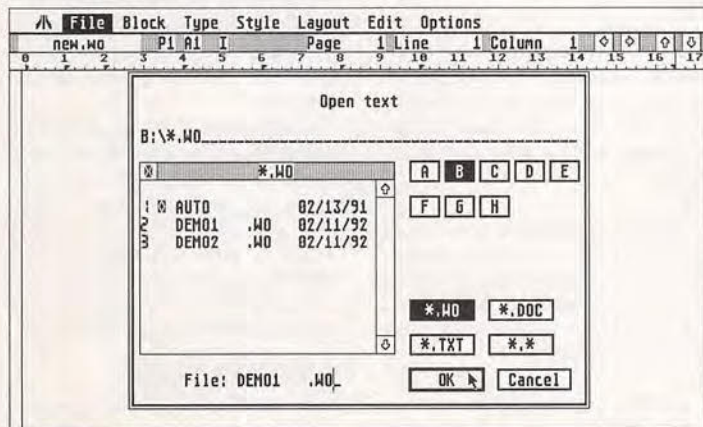
2. How about a heading for the document? Move the cursor to the beginning by pressing Control and Up Arrow together. Type "Dreams and wishes" and press Return. But headings should be in large type and perhaps centred. Time to use Write ON's font and style features. First,

drop down the Type menu. It may well only show one font, Pica 10cpi. If the font called HelBo 14 is not shown there, choose Load Font. From the file selector that appears, select the font called SHEL14.FNT and choose OK. Now, the font appears in the list.

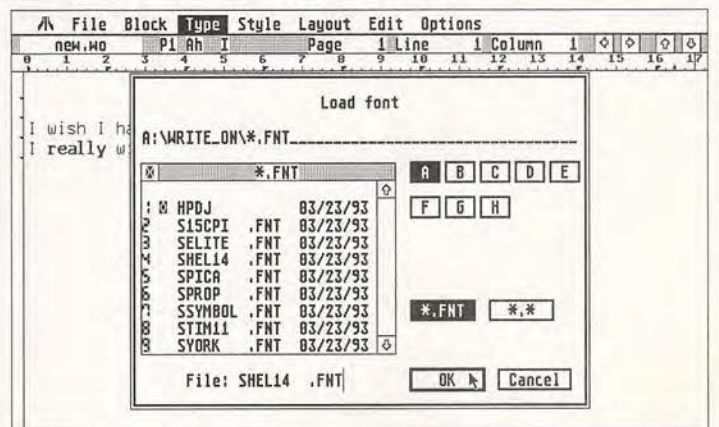
3. You could type immediately in the new font, but there's a better way. Use the Up Arrow or click with the mouse to put the cursor on your heading. Now, click on the letters A1 on the information bar. When the New Paragraph dialogue box appears, type "h" and press Return. This selects a paragraph layout called



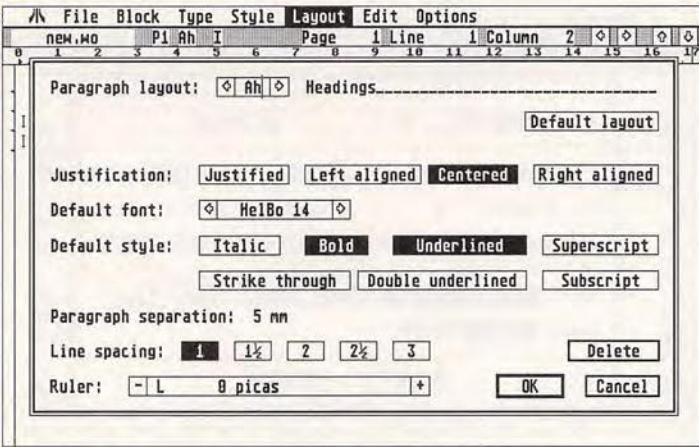
Click on the paragraph layout name in the information bar - usually A1 when you load Write ON - to bring up this dialogue box for choosing or creating a new paragraph layout.



Loading a document into Write ON. Single drive owners should be careful to load from logical drive B.



Using Load Font from the Type menu, up to 20 fonts can be used in a Write ON document - but only if you have plenty of RAM. Large fonts take up lots of memory.



Who said paragraph tags were just for DTP? Write ON makes excellent use of paragraph layouts for creating good-looking and consistent documents.

"Ah", or creates one if it does not yet exist. If this is a default Write ON setup, you'll find your heading is now centred, bold and underlined. But you wanted it in large type, so choose Paragraph layout from the Layout menu. Write ON also opens this dialogue box automatically if you create a new paragraph layout.

From here, you can set a number of options for your headings. To get the large font, click on the right arrow by Default font until HelBo 14 appears there. Click on the boxes that say Bold and Centred, unless they are already highlighted. Then, choose OK. Now, your heading is in the new, larger font, centred in bold.

Whenever you want another heading in the same style, you don't need to go through this process again. Simply click on the paragraph layout button (usually A1 for normal text), and choose the "Ah" layout to put the paragraph where the cursor is into that style. Better still, if you change your mind and decide that headings should not be in bold after all, you can open up the paragraph layout dialogue box and click on bold to deselect it. All the paragraphs marked with that layout will automatically change.

4. What about a footer with the page number? Choose Page layout from the Layout menu. Click on Footer. A new editing window opens. Type "Page", followed by a space, and then choose the Edit menu and select Page Number, choosing Current from the dialogue box which follows. A symbol is shown, indicating that this is to be replaced on printing with the actual page number.

Page numbers look good centred. Choose the paragraph layout called "Ac", or create it if needed, and choose Centred from the paragraph layout dialogue box. Your footer will automatically be centred as required. Go back to the main text of your document by choosing Main Text from the Edit menu.

To save your new document, choose Save as from the File menu, and type in a name of your choice. All Write ON documents are saved with a .WO extension. That's it - you've used multiple fonts and paragraph layouts in a Write ON document.

WRITE ON KEY FEATURES

THE ATARI MENU

Choose Write ON from the Atari menu for a word count and other document details.

THE FILE MENU

Here's where you load and save documents from disk. If you use Insert rather than Open, the loaded document will be merged into the current one at the cursor position. Write ON will load documents in First Word Plus or ASCII format as well as its own files, and will automatically recognise which format it is.

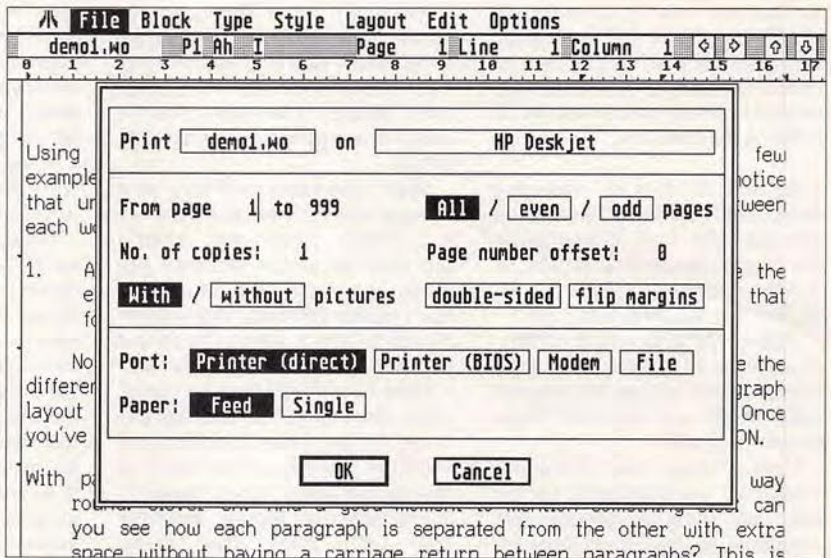
The File menu also contains the all-important printing commands. When you installed Write ON, the program was set up for the printer you chose, so you may not need the Printer Type option at all. If you do have more than one printer installed, or a separate driver for letter-quality and draft modes, use Printer Type to select the appropriate .WOP file. The Print command brings up the

ST's standard, slower routines internally, which can sometimes solve compatibility problems. Modem selects the serial port; and File sends printer-ready output to a disk file.

THE BLOCK MENU

Write ON has excellent block features for moving text around your document. You can define a block by clicking-and-dragging with the mouse, or by using the Start and End commands to mark the block at the cursor position. Once defined, a block can be copied temporarily to an internal buffer using the Cut command. Choose from one of 4 buffer spaces - this means you can have several blocks in memory at the same time - how many other word processors allow this? Then, you can Paste the text exactly where you want it. Other options are Save, which saves a block as a separate document, Hide, which removes the block marking, and Copy, which copies the currently marked block at the cursor position.

The D buffer is a special one. Blocks you delete are automatically placed here, so you can undo mistakes.



Write ON's Print dialog box.

Print dialog box: This is mostly self-explanatory, but note the following:

- Click on double-sided if you have created a special left footer and left header in the Page layout dialogue box. Otherwise, the same header and footer will be printed on all the pages.
- Click on flip margins if you want the left and right margins reversed on even numbered pages. Handy for double-sided printing, as it means you can leave a wide margin at the left edge for binding.
- The Port options determine where the ST sends the output. The normal setting is Printer (direct). The Printer (BIOS) option is similar, but uses the

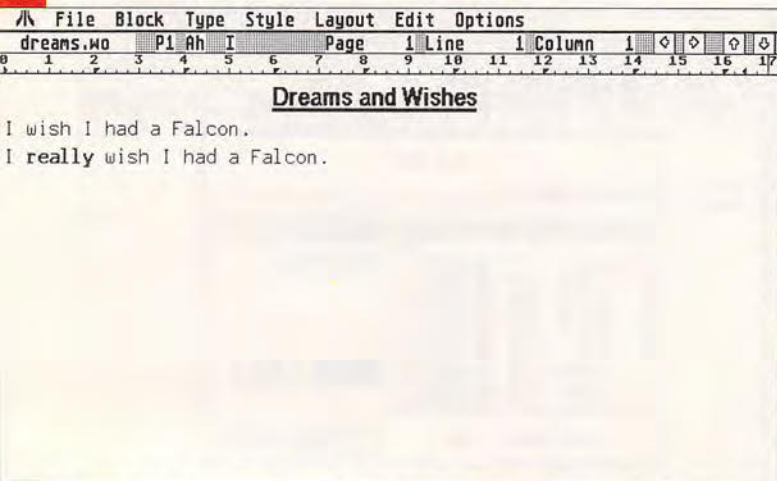
THE TYPE MENU

This is for loading, removing or displaying fonts. Only load fonts with a filename beginning S, like SPICA or SSYMBOL. Write ON automatically finds the matching printer fonts at print time.

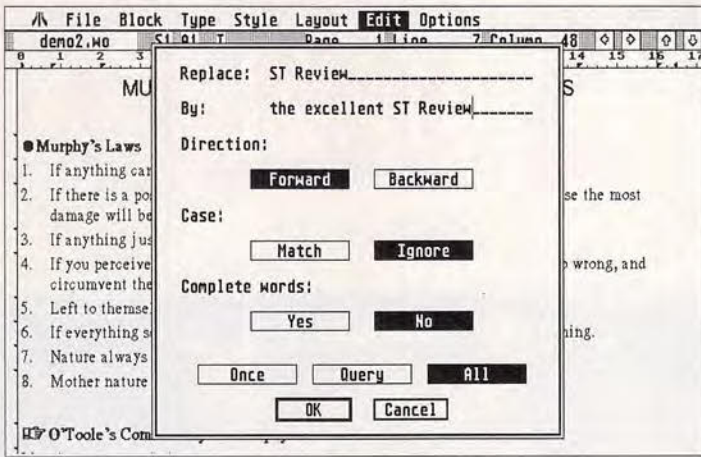
Want new fonts for Write ON? PD libraries can supply new fonts, or you can convert or design your own using a font utility like Fontkit Plus 4 from the ST Club (0602 410241). Make sure the fonts have been designed for use with Write ON or That's Write, as certain conditions need to be met for good results.

THE STYLE MENU

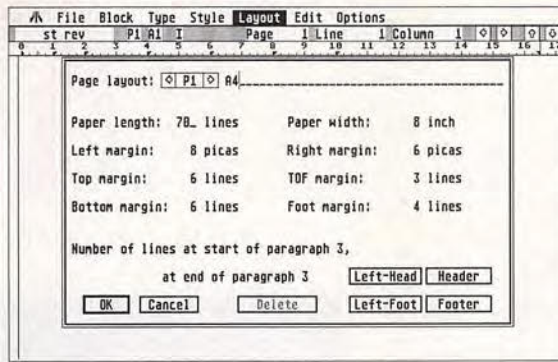
This menu sets the text style. If a block is marked, it will convert the block to the style you choose; otherwise, the next text you type will be in



The final headline and text - perhaps the text expresses the feelings of most ST owners...



Search and replace: a handy way to make global changes without typing.



Set up your basic page layout using this dialogue box. You can have more than one page layout in a document, as long as each is separated by a hard page break.

the selected style. You can also set styles using Paragraph Layouts. From Layout sets the style according to the current paragraph layout.

THE LAYOUT MENU

Layouts are the key to getting the best from Write ON. There are several different kinds:

- Paragraph Layouts.

Write ON supports paragraph tagging - a means of setting fonts and styles which will automatically apply to every paragraph you have marked with that tag or Layout. See next month's tutorial for a full explanation of how to make the most of these...

- Page Layouts.

The Page Layout option opens a dialogue box. It's important to set up your basic page layout correctly to get good results. Most important is to have the right paper length for your paper, using the paper length setting at top left of the dialogue box. The most common lengths are 11 inches for standard computer stationery, or 70 lines for A4. If it needs changing, click on the number by Paper length, and change it as

required. You may also need to click on the measurement, for example inch, until it changes to the one you want - say, lines. Choose OK to save the changes. (Note that centimetres in Write ON are not exact - they are based on 2.5 cms to an inch. A pica is 1/10th of an inch, and a line 1/6th of an inch).

You can also set margins all round the page. You must set a value for the Top and Foot margin if you have header and footer text. And be warned: the right margin set in the paragraph layout must be within the space allowed in the page layout. Otherwise your text will be cut off at the right hand edge.

- Layout files.

These are files with a .LAY extension which contain a set of page and paragraph layouts. You can create your own with Save Layout, or load a set from disk with Load Layout. A layout file called WRITE_ON.LAY, in the WRITE_ON folder, is loaded automatically whenever you run the program. When you have page layouts and paragraph layouts as you most often want them, save them to this file so they will always be available. This menu also has Format Paragraph,

Format Document and Pagination options to force Write ON to reformat your text.

THE EDIT MENU

The Edit menu has search-and-replace commands, and an Indent command which indents the next text you type at the next tab position, until you end the paragraph. Only use Indent in the first line of a paragraph.

If you are editing a header or footer, use Main Text to return to the main text of your document. Page Number inserts a page number at the cursor position.

You can also load and save pictures in .IMG format. Write ON comes with a desk accessory, called That's Snap, that you can use to capture all or part of a screen in this format. Once loaded, graphics can be dragged or resized with the mouse. Double-click

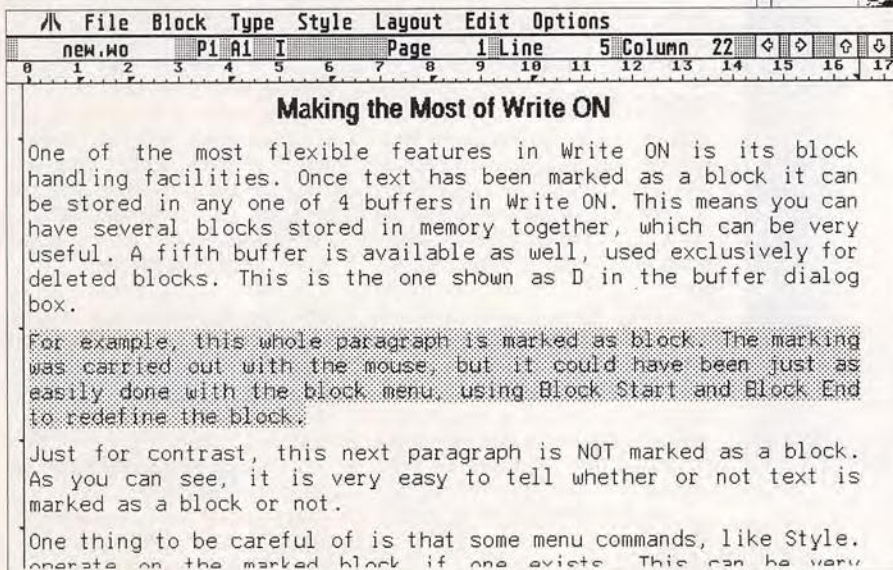
on the graphic to set an exact resolution for the picture - it's a good idea to set one in proportion with your printer resolution for best results.

THE OPTIONS MENU

Write ON can be customised using options in this menu. Automatic formatting and Pagination can be toggled on and off. This determines whether Write ON automatically reformats the document as you type, or leaves it until you request the appropriate option from the Layout menu. You can choose to show images or leave them blank for faster scrolling. Hyphenation can be controlled, and Preferences is for setting auto-save and other options. You can also load and save macro sets. These options will be fully explained in next month's tutorial.



Write ON's image handling includes the ability to load, move and resize IMG graphics.

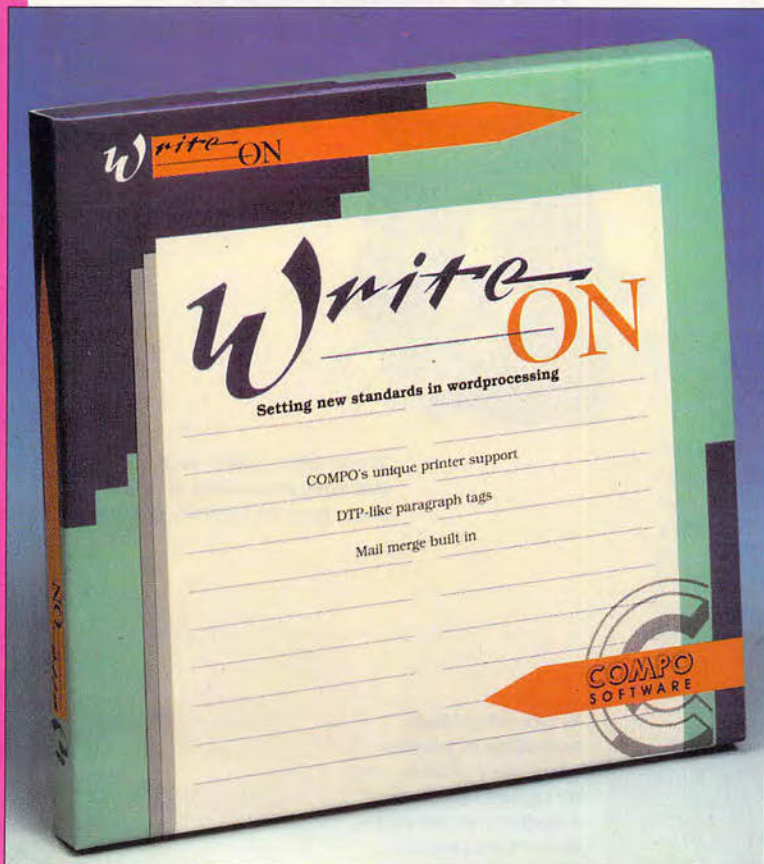


Write ON's block handling is particularly good. Blocks can be copied into one of 5 buffers, or saved to disk as a separate document.

THAT'S WRITE

Not content with just giving you a word processor, we're offering you the cheapest, fully-functional document processor there is!

The Write ON and That's Write! family - manuals, printer drivers, C-Font font converter, additional scaleable fonts... all you'll ever need in a document processor!



Write ON has a whole host of available extras to help you get the best out of your writing. Even if you only write the occasional letter, some of these goodies will prove irresistible. For those of you who want to be a bit more creative, check out the additional fonts and printer drivers. You can even get a full dictionary and spelling checker!

All these are available by mail order direct from COMPO Software, including the full *That's Write v1.51* package for just £24.99 (plus P&P).

REGISTRATION

You can get the full manual for *Write ON* for only £10 plus £3.99 for an optional high-quality ring binder. There's a special helpline number for all your installation problems (0480 891271, Monday to Friday: 6pm - 8pm), but if you would like to be able to call for help on other technical matters, lifetime support is available for a further £10.

If you want to produce more professional documents or would like a document processor with even more functions, then *Write ON* has a big brother in *That's Write*. The upgrade to this costs just £24.99 instead of the normal retail price of £64.99, a saving of a massive £40!

PRINTER DRIVERS AND FONTS

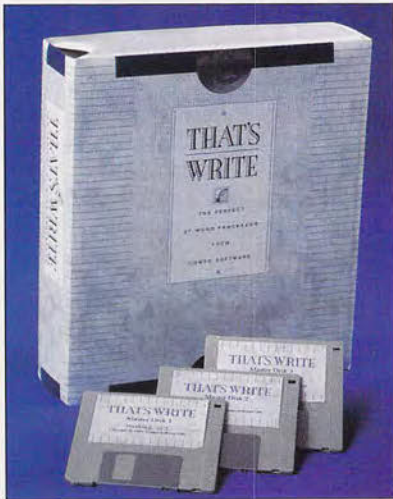
Some printers need specific files to get the most out of any package and these are available too. For just £4.99, you can get a driver for your Canon BJ10e (not required for the BJ10ex) or your Amstrad, the only 24-pin printers known to print at only 180 x 180 dpi. For £5 more (£9.99), you can drive your Ricoh LP1200 laser (300/400 dpi) or your HP Laserjet IV (300/600 dpi).

C-Font allows you to use Calamus scalable fonts with both *Write ON* and *That's Write* documents and comes complete with five fonts for just £9.99. Sans, Serif, Display and Italics font packs (with 11 fonts per pack) for C-Font are available for £14.99 each or you can buy all four plus C-Font for just £34.99.

To make full use of the internal fonts that your printer has to offer, there are disks available for the HP Deskjet 500, Epson and NEC "P" series printers. The second two are £9.99 each and the HP disk, which includes CG Times and Letter Gothic fonts allowing fully proportional and justified text, is £14.99.

Further details are available from Compo on 0480 891819.

FOR JUST £24.99!



Get That's Write! 1.51 for just £24.99 with our exclusive upgrade offer.

Please send me the items I have ticked. I include payment plus £1 for any quantity of items.

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All orders will be processed as quickly as possible, but please allow up to 28 days for delivery.

Please read this carefully and make sure everything is fully completed to avoid delay.

I enclose a cheque/PO* for £..... made payable to Compo Software. Please rush the above order to me.

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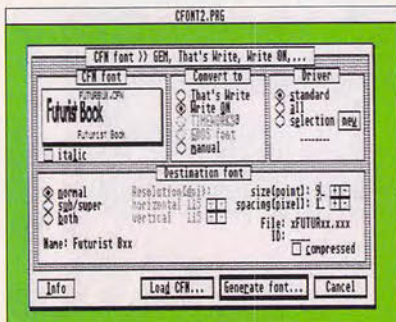
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C-Font, the COMPO font converter, can be yours for just £9.99...

Exit the hype,
enter the reviews!
The Falcon hits
back with a
couple of sound
products...

MUSIC TO YOUR EARS

Digital – the buzzword used by the electronics industry to describe anything that is supposed to produce a high quality output! Digital audio finally arrived in the domestic marketplace courtesy of CD, recently followed up by MiniDisc and DCC (Digital Compact Cassette), offering you the first affordable digital recorders. However, these are primarily designed for stereo recordings much like the good old compact cassette.

Digital recording systems are extremely expensive and well out of the reach of us mere mortals. But, in recent years, systems have been developed enabling computer users to record audio directly onto a hard disk and edit it.

Although these are much cheaper than a professional digital recording system, they still cost several thousands of pounds at best. Even then, you still need a powerful computer to run them on and the Atari ST is simply not up to the job.

All this has changed with the arrival of the Falcon. Uniquely, it has all the necessary components for digital recording built in – all you need is the software to access it. Indeed, inside the Falcon is the same DSP chip that is used in many professional digital audio systems. The first program to utilise these

unmatched capabilities of the Falcon is D2D Systems' 4T/FX.

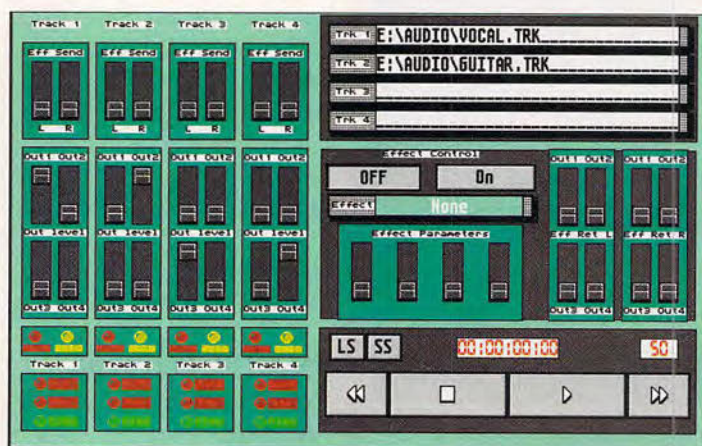
OVERVIEW

The package consists of two programs (D2D Edit and 4T/FX), a 40-page manual and a copy-protection dongle. This plugs into the printer port and has a thru connector so that you can also plug in your printer.

D2D Edit is a stereo digital recorder/editor while 4T/FX is a digital four-track portastudio with a built-in mixer and effects unit that can be loaded either as a desk accessory or a stand-alone program. The accessory version enables you to run the four-track recorder along with Cubase, but more of this later.

Both programs work by converting the incoming audio into digital data and storing it on a hard disk. Like all direct-to-disk recorders, the programs are disk hungry and even the built in 65 megabyte drive has only enough capacity to store ten track-minutes.

If you want to record to all four tracks, this figure has to be divided by four although the program does have the flexibility of a built-in cue sheet. In addition, the programs need all the memory they can get so



you really need 4 megabytes of RAM or more.

RECORDING

Anyone who has ever used a four-track cassette recorder will feel at home with 4T/FX. The layout is straightforward, the only difference being that tracks have to be named before you can start recording. Clicking on the track name opens a file selector where you can choose the path and file name for that track although, without additional hardware, it is only possible to record up to two tracks at a time. Once in record mode you can adjust the recording level via the control panel sound module or at source – the program lacks an input level indicator, a regrettable omission. This problem

4T/FX can run as a desk accessory. The integrated four-track recorder, mixer and effects unit are all accessible from a single window.

will be addressed in the next update.

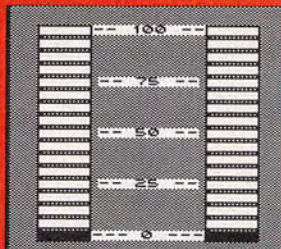
Recording starts by clicking the Play button or hitting the "0" key on the numeric keypad and unless manually stopped, recording continues until the allocated drive runs out of space. Since each track can be set to individually play or record, you can record onto track 2, for example, while listening to the play-back of a previous recording on track 1. By using the mixer section it is possible to change the output level of each track with separate controls for the left and right channels allowing you

STEP BY STEP

RECORDING WITH D2D EDIT



1 The Tools window is displayed on loading D2D Edit for quick access to most functions. A click on the meter icon opens the input level meter window.



2 Before recording, the optimum level must be set. The sampling process is most unforgiving and setting too high a level results in buzzing noises.



3 Name the file and set its length and sampling rate. Standard tape transport controls are used for play, record, fast-forward and rewind. You can also set "punch-in" and "punch-out" points.



4 Recordings can be time-stamped by the internal or external clock to ensure accurate synchronisation when compiling a Cue Sheet.

...in next month's easy-to-enter competition.

No, this isn't an April Fool and we're not joking either!

You could be the proud owner of a brand spanking new Falcon with 4 Mb of memory and a 65 megabyte hard drive. We're even throwing in *MultiTOS* and *SpeedoGDOS* to give you one of the most muscle-bound personal computers currently available. Just think about what you could do with all that power under your fingertips.

FLY HIGH WITH A FALCON - FREE!

AND THAT'S NOT ALL...



We're also including a superb colour monitor from System Solutions to do justice to the Falcon's graphics, Screenblaster hardware to get the best out of the screen and oodles of software including HiSoft's *True Paint* and COMPO's *That's Write 2* and *MUSICOM*.

With a total value of nearly £2000, this has to be the greatest prize ever offered by an Atari magazine!

DON'T MISS THE NEXT ISSUE OF *Atari ST Review*, ON SALE 27TH MAY!

DIGITAL AUDIO

The usual assumption is that digital audio equates to high quality sound, but what exactly does digital audio mean? Examination of sound has shown that the only factor that differentiates between the sound of a trumpet from that of a piano, or even a barking dog, is the change of amplitude over time. In other words, fluctuations of sound intensity or level. Sampling is a process where the intensity of the sound is measured a certain number of times per second and translated into numbers by a device called an Analogue to Digital (A/D) converter.

These numbers can then be saved on a storage device, typically a hard disk. Playing back a sample is simply a case of reversing the process which is carried out by a Digital to Analogue (D/A) converter. The higher the sampling rate, the better the quality, but the trade-off is that more data is generated so requiring more disk space. Another important factor is the sampling resolution, which determines the accuracy of each sample. An 8-bit sample has only 256 values available to describe the sound level, while a 16-bit sample has over 64,000 positions as is the case with the Falcon.

to set the stereo pan of tracks. In addition, each track has an effect send with separate faders for the left and right levels.

It's quite easy to "bounce" tracks which is when you record the output of two or three tracks onto the fourth track. Since this is all carried out digitally, there is no loss of quality.

EFFECTS

The effects section can be switched on and off at will and has its own output level control. There is a choice between stereo reverb, digital delay, stereo chorus and flanger. Depending on the current effect, up to four parameters can be adjusted such as delay feedback or modulation depth making the effects section very flexible to use.

The program can run as a desk accessory alongside Steinberg's Cubase sequencer with a special driver being provided to enable Cubase to trigger play-back.

Better recording facilities are provided by D2D Edit which include input level meters (but no input level control) as well as accurate "punch-in" and "punch-out" functions. Using the Transport Control window, a track is named, the length of recording specified and the recording started by simply hitting the record button.

Recording is always in stereo and the counter and time remaining displays are continually updated. Punch in and punch out points can be specified by typing in the times in the appropriate boxes and it's also possible to punch out by pressing the stop button although you can't punch in on the fly.

EDITING

Sound editing can only be performed when using D2D Edit, but a conversion facility is provided to allow you to import audio files from 4T/FX for editing and then export them back. Opening the edit window displays the waveform and this

JARGON BUSTER

Sampling - The process of converting sound to a series of numbers.

Digital Audio - Sampled sound that is stored as bytes on tape or disk. Has the advantage that direct clones can be made without loss of quality and that data can be manipulated via software.

A/D - Abbreviation for Analogue to Digital Converter. Used when sampling to convert incoming audio to digital data.

D/A - Short for Digital to Analogue Converter. This converts digitally stored sound into analogue waveforms which are in turn amplified and played back via speakers.

Scrubbing - This is a nickname given to the process of playing back a section of digital audio by clicking and dragging the mouse over a screen image of the waveform.

Sampling rate - The number of samples taken of a sound per second. High sampling rates produce a more accurate frequency response. It is widely accepted that a rate of at least 40 kHz is required to cover the human hearing range.

Sampling Resolution - Determines the dynamic range of the digital sound. Higher resolutions have more values to describe the position of each sample and so result in better overall quality. The Falcon, like CD players, supports 16-bit resolution.

window can be freely resized. If there is insufficient room to display the entire waveform, you can scroll through the file or zoom in/out. The Tools window can be opened simultaneously to allow quick access to most functions; for instance, the speaker icon plays the selected segment of the file while the various magnifying glass icons zoom in to the beginning or end of a segment

or zoom on the y axis for editing quiet sections of the music. A scrub facility is also included, where clicking the mouse and dragging it over a section of the waveform plays it back.

A key feature is the ability to define up to eight markers and this can be done in several ways. Using the mouse, click where you want a segment to start and drag the mouse

DISK SPACE REQUIREMENTS

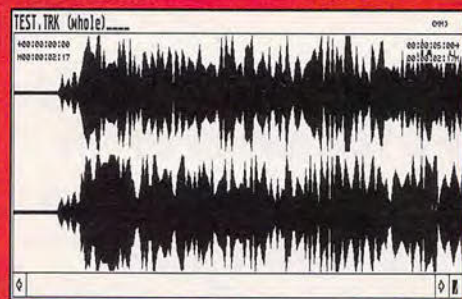
Each sample on the Falcon is 16 bits long which translates to 2 bytes of disk space. Sampling at 50 kHz generates 50,000 such samples a second which means that one second of audio occupies 100 kilobytes of disk space. Double that for stereo recording and again for four tracks. In addition, a sample cannot cross over from one partition to the next so D2D Edit is capable of recording 100 seconds of stereo sound on each 16 megabyte partition of a hard drive.

Sample files must also be physically continuous on the drive to allow the program to read them at the required speed without the read head having to jump across the disk. 4T/FX does not provide any defragmentation options and a disk optimiser such as Diamond Edge is invaluable.

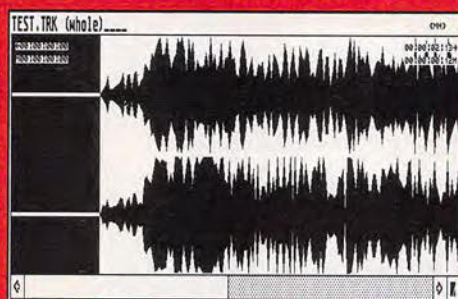
STEP BY STEP



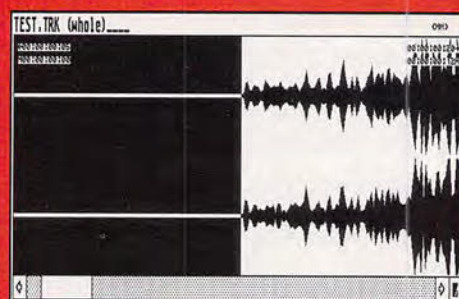
EDITING WITH D2D EDIT



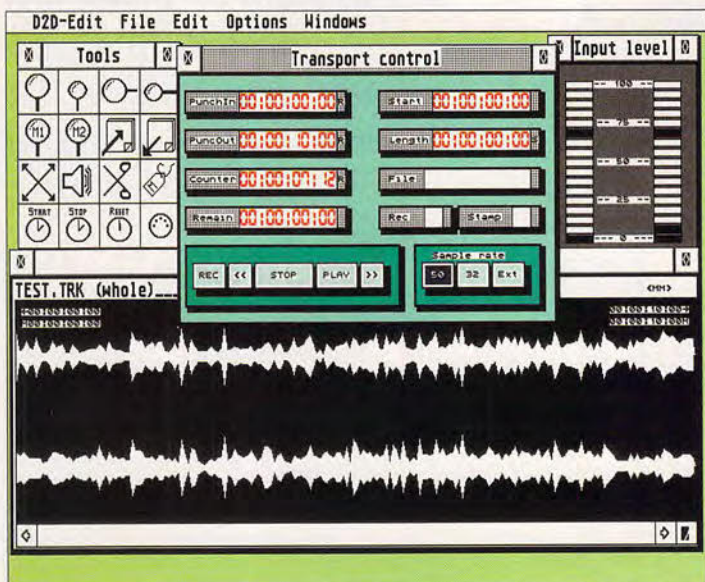
1 Once a recording has been completed, the edit window can be used for viewing and editing. Here, a silent section appears at the beginning of the sample.



2 Click and drag the mouse over the unwanted section. The selection is displayed in inverted colours.



3 To zoom in on the end point of the section, click on the Marker 2 zoom tool. Each click magnifies the section by a factor of two while keeping the marker point in view.



All functions for D2D Edit are located in windows which can be freely moved around the screen.

over the window to where you want it to end. The Marker window displays all defined markers in hours, minutes, seconds and frames; the segment's start and end can be further adjusted here. In addition, markers can be defined "on-the-fly" by hitting the space bar while the music is playing. Each hit on the space bar is registered as a marker and, again, up to eight markers can be defined.

Once a segment is set, it can be cut, copied, pasted or saved to disk. Hitting the Help key plays the selected segment and if you hold the left or right Shift keys while pressing Help, only the beginning or end of the segment is played.

D2D Edit also features a cue sheet where segments can be freely arranged so conserving disk space as segment files only contain pointers to the locations of the original file which must remain intact. The advantage of this is the non-destructive nature of the cue sheet – the

original recording is still there and you are free to move segments around as well as deleting unwanted segments.

Needless to say, a segment may be used more than once in the cue sheet and there is no limit on the number of cue sheets which can be saved to, and loaded from, disk. Any editing of segments is automatically carried through to the cue sheet, although the times in the cue sheet have to be adjusted manually. Finally a cue sheet may be synchronised to a sequencer or even a tape recorder via MIDI Time Code (MTC).

CONCLUSION

This integration of MIDI and direct-to-disk audio recording without the need for any additional hardware is a first. The recording quality is extremely high and is similar to what you would expect from a mid-priced CD player. Running the program alongside Cubase or synchronising it

THE FALCON AND DIGITAL AUDIO

The Falcon was designed with high quality sound in mind. It contains both D/A and A/D converters as well as stereo input and output sockets. Additionally, the Falcon incorporates a Digital Signal Processor (DSP), which is very similar to the processors found in digital synths and samplers. The DSP is an extremely fast processor that can manipulate digital audio in real-time for sampling or generating effects, leaving the main processor free to handle the rest of the system.

So there is no slowing down of screen updates or disk access even though the system is handling large chunks of data at very high speeds. The Falcon also features a DSP port that allows for direct access to the chip, enabling future additional hardware for eight-track systems and beyond. Using this port, it is also possible to bypass the internal converters which opens up the possibility of top quality digital audio recording via additional hardware.

A wealth of features.
Can run as a
desk accessory

PROS AND CONS

Better integration of
the two programs
is needed

via time code is an exciting prospect to many musicians and songwriters.

The software, however, is lacking in certain respects and better integration of the two programs is required – having to convert files back and forth is a waste of time and consumes more disk space than should be necessary. Cue sheets created in D2D Edit cannot be played back on 4T/FX but D2D are currently working on better integration of the two programs. With that in mind, this system is going to have many satisfied users.

"Low cost digital
direct-to-disk
recording is here!
Including real-time
effects"

NAME: D2D 4T/FX
COMPANY: D2D SYSTEMS
CONTACT: 0223-421107

PRICE: £299 OR £150 FOR
D2D EDIT ONLY

RELEASE DATE: OUT NOW

MIN MEMORY: 4MB

SYSTEM: FALCON WITH HARD
DISK

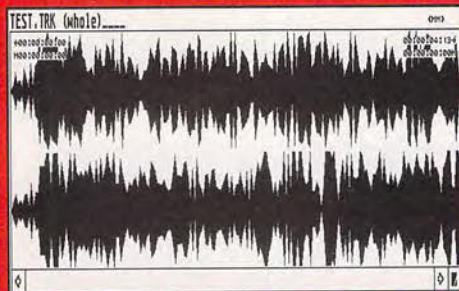
EASE OF USE ★★★★★

DOCUMENTATION ★★★★★

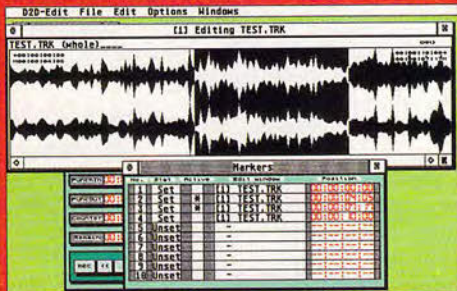
EFFECTIVENESS ★★★★★

VALUE FOR MONEY ★★★★★

OVERALL **80%**



4 Select the Cut item in the Edit menu to remove the unwanted section. The display will be updated to show the change.



5 Up to ten markers can be set. Each segment can be saved for use in the Cue Sheet or cut, copied and pasted.



6 Recordings and segments can be listed in the Cue Sheet. Each entry has a start and end time as well as left and right levels.

PLAY IT AGAIN...

So you want to spend less than £50 getting into digital sound on the Falcon? Vic Lennard has a peek at MusiCom...

ATARI ST
REVIEW
ESSENTIAL BUY

MusiCom's main screen. Notice the level meters – these ensure you don't overload the Falcon's input circuitry.

You've probably got the idea by now that the Falcon is hot where music is concerned. And we're not talking MIDI either. Digital audio on the Falcon is all about recording music and sound directly to a hard disk, hence the phrase "direct-to-disk".

There's another side to the DSP, the special chip inside the Falcon. If you examine any effect unit that can create reverb, delays and such like, you'll find a DSP lurking somewhere inside. If you've read the review of D2D 4T/FX over the last few pages, it may have crossed your mind that it would be nice to have the effects without the price and that's exactly where *MusiCom* comes in.

RECORDING TO DISK

MusiCom will record any sound source you care to plug into the Audio In socket on the rear of the Falcon – tape recorder, microphone or whatever. The Input levels have to be set so that the meters register high enough to ensure a lack of background hiss but don't crash into the top of their travel, otherwise distortion occurs. You can then set the on-screen Output faders to taste accord-

MUSICOM 2

Hot off the presses! A preview version of *MusiCom 2* seen at Hanover includes some rather tasty new features, the most important of which is the visual display of the waveform which can now be edited as well – quiet sections of a sound can be removed as with *D2D Edit*. It appears to be a more professional product as it sports an overbub mode where you can make a first recording and then mix in a second one – perfect for vocal overlays and jingles. *MusiCom 2* also supports digital inputs and outputs from a third-party interface to get around the Falcon's inferior converters.



ing to what you're using to listen to the sound.

Three sample types and eight sampling rates are on offer. At this point it pays to remember that stereo samples take up twice as much room as mono ones and that the higher the sampling rate the better the quality, but the more disk space required.

A click on "Record" brings up the file selector. Name your sample file, click with the left mouse button and you're away. A bar along the bottom screen shows how much space is still left on your hard disk and a swift click on the right button stops the process. Play-back is practically an identical procedure and if the "Keep Sample" box on the main screen is active, the last sample is played automatically. I tried recording a demo from a MIDI sound module and was extremely impressed with the sound quality. A little harsh at the top end perhaps, but eminently useable.

On play-back, there is also the option of talking or singing over the pre-recorded sample allowing you to warble along with the music – something you might usually reserve for the bathroom!

USING EFFECTS

The central feature of *MusiCom* is its ability to generate effects in real-time, while recording or on play-

back. Five different effects are on offer, each having a "Help" button in case you get stuck. First off there's Delay which is great for the typical echo effect you hear on most pop records.

The delay time can be altered as can the feedback level – the higher the value for this, the longer the delays keep coming back, back, back... Simplicity is the name of the game – no numbers, just obvious terms like MIN(imum) and MAX(imum), and the change in effect occurs the moment you move the fader. That's the advantage of having an on-board DSP.

Next up is Equalizer, a ten-band graphic job that lets you change the tone of the sound quite significantly. The "Smooth" function evens out any hefty changes from one fader to

the next and you can lock together the right and left sides to equalise a stereo sound.

Then there's Harmonizer, my personal favourite, where you can change the pitch of the sound by up to an octave for right and left channels independently. Stick your voice through this and you sound like anything from Pinky 'n' Perky to the giant from Jack and the Beanstalk! A nice touch is the inclusion of MIDI keyboard control over the two intervals.

Flanger gives sound a rather spacious quality with control over the frequency the effect is centred at – perhaps an odd choice as the Chorus effect for creating choir-style sounds tends to be more popular, but the effect sounds very good.

Finally, there's the ubiquitous (or should I say dreaded) Karaoke. The

Recording and play-back entail pressing either the right or left mouse buttons – it's that simple.



PROGRAMMING THE DSP

You might think that direct-to-disk recording is a complicated affair. True, but programming the Falcon's DSP is relatively straight forward. A memory buffer is set up into which the digitised audio is recorded while a second set of commands then transfers this to the hard drive. Programs such as *HiSoft BASIC 2.0* will have a DSP library making such programming very simple to accomplish – expect to see various public domain programs appearing such as *WinRec* from Germany.

The actual effects are not built in which means that someone has to create the algorithms to generate a particular effect. The most difficult of these is reverb which has to be incredibly smooth to be effective, possibly the reason why it is a notable omission from *MusiCom*. Three modes are

available (8-bit mono, 16-bit mono and 16-bit stereo) along with eight basic sampling rates, all of which *MusiCom* supports. In order to use other sampling rates, such as the CD rate of 44.1 kHz, an external timer is required.

Up to four tracks can be recorded and played back via operating system calls and each track can be listened to – a kind of simple mixer if you like.

In fact, the entire system can work in interrupt mode so that recording can occur in the background without the need for *MULTOS*.



WinRec, a PD direct-to-disk program. Basic, but functional.

way this works is to remove any sounds that are common to the left and right stereo channels by setting one channel to a positive value and the other to an equivalent negative one. As vocals are usually in the centre of a mix, these partially disappear so that you can sing along with a recorded song. In one fell swoop, *MusiCom* opens up a pub-market for the Falcon – two pints of lager, a packet of crisps and "My Way" please...

As a direct-to-disk recording can be made via the effects, you can record some music with one effect and use a totally different one on play-back. For instance, you could boost the bottom end of a song while slapping it down onto the hard drive, use the Karaoke effect on play-back to remove the main vocals and sing over it via a microphone. For a piece of software costing £50, this is

one hell of an achievement.

GO FOR IT!

Just think about it. What can you buy for £50 that will give you as much creative fun as *MusiCom*? It's more than just a throw-away program that you load in one day and forget about the next and has the potential of being a wow at parties – check out the CeBIT Show report in the News pages to see how it went down in Hanover. Even the Falcon's bog-standard 65 megabyte internal drive can record around eight minutes of digitised stereo sound at 33.9 kHz. If you're buying a Falcon, put *MusiCom* at the top of your "I want it now" list.

"It's cheap, it works well and it's a must for all Falcon owners"

NAME: MUSICOM
COMPANY: COMPO SOFTWARE LTD
CONTACT: 0480 891819

PRICE: £49.99
RELEASE DATE: OUT NOW
MACHINE: FALCON
MIN MEMORY: 1MB

EASE OF USE ★★★★★
DOCUMENTATION ★★★★★
EFFECTIVENESS ★★★★★
VALUE FOR MONEY ★★★★★

OVERALL **92%**

Easy to use
Records direct-to-disk
Five useable effects
Instant Karaoke!

PROS AND CONS

Limited control over effects
Instant Karaoke!

Effects Menu

- Delay
- Equalizer
- Harmonizer
- Flanger
- Karaoke
- No effect

Options

Five different real-time effects are on offer.

Time for some echo, echo, echo...

Delay Parameter

LEVEL FEEDBACK DELAY-TIME

MAX MIN MAX MIN

OK

...or a radical change of tone!

Equalizer

Vol Left channel balance Right channel balance

Left = right Smooth Standard

Flanger Parameter

LEVEL FREQUENCY

MAX MIN

HELP OK

Harmonizer Parameter

ORIGINAL CHANNEL 1 CHANNEL 2

MAX MIN MAX MIN MAX MIN

MIDI keyboard
Semitone

HELP OK

...while Harmoniser can seriously affect your voice!

Love it or loathe it, you can't ignore Karaoke!

Karaoke Parameter

LEFT RIGHT

+1.0
+0.5
0.0
-0.5
-1.0

HELP OK

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(Requires 1 Meg)

RRP £149.95 OUR PRICE £105.00

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OUR PRICE £29.95

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MJC PRICE
£29.95

VIDI ST

Vidi ST & Vidi-Chrome CALL
Rombo RGB Splitter £49.95
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ADI - Maths for 13/14 years

ADI - Maths for 14/15 years

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SUPERBASE PROFESSIONAL

A fully relational database that can take graphic files as well as text.

91% Rating in ST Review October 1992

OUR PRICE £74.95

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PICTURE THIS!

ATARI ST REVIEW
ESSENTIAL BUY

Maurice Collins gets his hands on the very first UK copy of DA's Vector – the German multimedia vector graphics program that looks set to take the market by storm.



For some years now, ST users have had to make do with second best in terms of graphics programs. There are some pretty powerful tools on the PC and Mac, Adobe *Illustrator* and *CorelDRAW* being prime examples. Didot *Lineart* came close but it didn't have charting facilities and its colour handling wasn't quite up to the mark.

In the last few months, though, a new program from Germany has turned the market upside down and helped the ST to take a giant leap forward. Not only does DA's *Vector* have comprehensive vector graphic facilities, it also has 3D charting, autotracing of greyscale and colour images, hinted PostScript font handling and keyframe animation too. What's more, it's all in glorious 24-bit colour, a unique combination on the ST.

DA's *Vector* comes from the German programmers responsible for Didot *Lineart* and Didot *Professional*, something that will be pretty obvious to existing users as the interface is almost identical. It will run on any ST/STE with 2 megabytes or more of memory, though experience shows 4 megabytes to be a practical minimum if colour is to be used to the full. It will also work on the TT and Falcon.

It requires a minimum resolution of 640 by 400 pixels so it won't work in low or medium resolution on the ST – you'll need a monochrome monitor or a colour graphics card and specialised monitor to run it on a standard ST. You'll also need a hard drive with plenty of free space – true colour graphic files are measured in megabytes, not kilobytes!

The program comes neatly packaged in a smart box with an 80-page ringbound A5 manual and four disks. If the low page count worries you, you'll feel better when I tell you that one of the disks contains the online manual. It's a special desk accessory, called DA's *Knowhow*, that loads the 200K or so of text information and displays it on screen. It is also a context sensitive help facility – press Help and you get a text screen popping up relating to whatever icon or menu your mouse is currently pointing to.

There's no installation program, unfortunately, so you have to copy most of the files onto the hard drive yourself and then de-archive them by double clicking on them. Altogether you'll need around 3.1 megabytes of hard disk space just for the program and sample files, and 300 kilobytes on your boot disk or partition for the help accessory.

Actually, copying the files onto the chosen partition isn't the end of the

installation process – the README file reveals that you'll need the services of a text editor to remove a few German menu items and change the default path in the configuration file. It's a minor irritation though, nothing more.

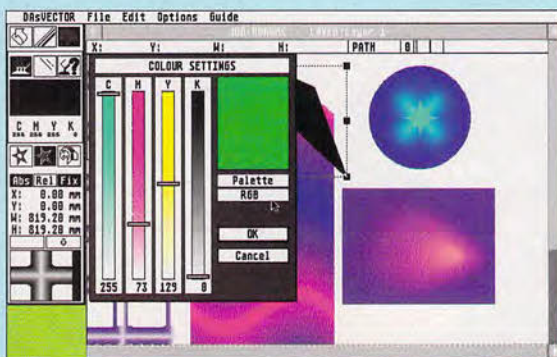
VECTOR GRAPHICS

The heart of DA's *Vector*, not surprisingly, is its vector graphics tools. In many ways it is identical to Didot *Lineart* in that graphics are made up of individual vector objects, either lines or Bezier curves, then given various fills or colours. They can also be distorted in any plane, skewed, stretched or resized at will.

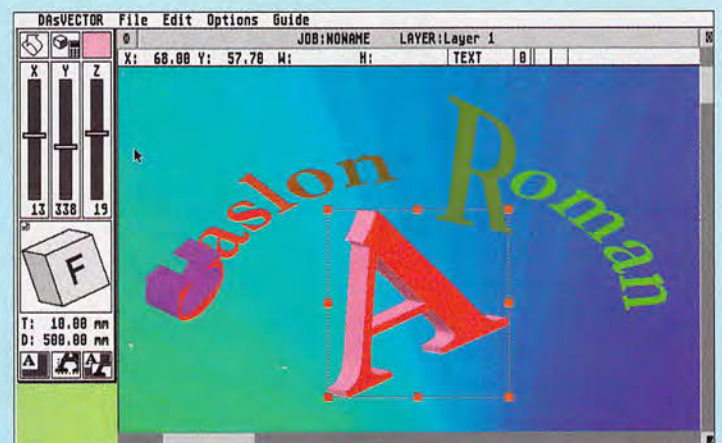
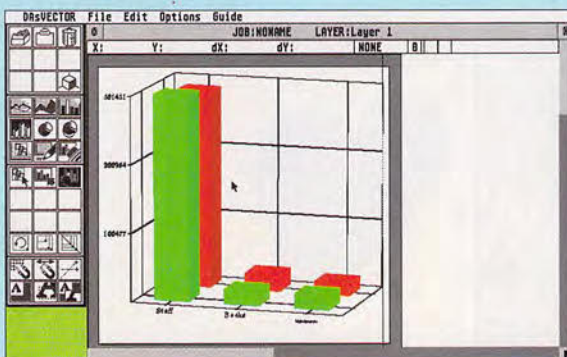
The idiosyncratic but surprisingly ergonomic Didot-style interface has been retained to some extent although DA's *Vector* is a big improvement. Desk accessories can be called directly and the GEM scroll bars are present to compliment the unusual marquee zoom system. The program has five modes – Vectorisation for autotracing images, Vector Path for constructing basic objects, Vector Graphics for manipulating entire graphics, along with Charting and Animation modes.

The mainstay of the program is the Vector Graphics mode with its various editing and transformation func-

DA's Vector's colour handling is beautifully simple.



Will DA's Vector top the Atari charts?



3D and full colour combine to create some superb text effects.

Saving an animation – although only shown in mono, the ball is a gradient filled object that is slowly moving frame by frame.

tions. Once objects have been created, they can be given colours from a choice of 16.7 million (using the colour settings dialogue) or transformed in a variety of ways. The multicopy facility is particularly impressive – instead of just duplicating objects several times over, it can be used to create a series of copies, each one increasing or decreasing in size, rotating a few degrees or changing colour – or all three at once. It makes it easy to create objects with colour gradients, made up of a number of offset copies.

Text handling is good too - DA's Vector can import and use Calamus or PostScript Type 1 fonts (the latter's hinting is supported too) and convert them into vector objects to transform and fill. Some superb 3D effects can be obtained using the 3D extrusion function.

The secret of DA's Vector lies in its ability to treat the screen display separately from the graphic itself – the program works in 16.7 million colours all the time but what you see depends on your screen display and system configuration. Even in mono though, you can create colour graphics or logos and export them into DTP programs or print them as colour separations.

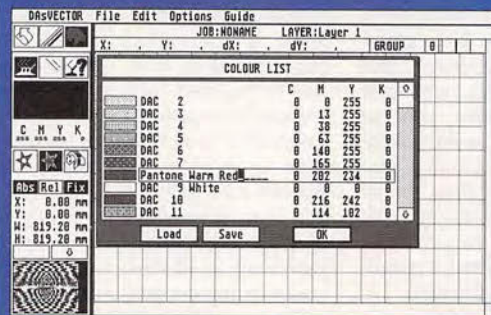
Only a handful of printers are supported, including the HP Laserjet II, Canon CLC10, NEC P6/7 and the Atari laser. However, output can also be directed to IMG or TIFF files (TIC, TIH or TIF v5.0) and in this way included in most other programs such as Pagestream and Timeworks. They tend to be rather large however, between 5 and 20 megabytes in size, so you'll need that bigger hard disk you've had

COLOUR HANDLING

Time for a quick dip into the world of physics. "White" light is a combination of all the colours of the spectrum and it can be broken down into just three primary colours, red, green and blue, otherwise known as additive primary colours because they are added together to make white. Other combinations are possible – red and green makes yellow, for example – and this is known as the RGB colour model.

The subtractive primary colours, cyan, magenta, and yellow are combined with black to give us the CMYK model. DA's Vector can handle and convert between either though as most commercial printing is carried out with inks made up of the subtractive colours, CMYK, it makes sense to stick to this one.

And the 16.7 million? DA's Vector treats each object as being made up of different levels of red, green and blue. There are 256 levels of each giving rise to 256 x 256 x 256 – in other words 16,777,216 – different shades. You can also save frequently used colours to save looking them up.



Storing colours for re-use.

your eye on... While DA's Vector does have its own file formats depending on which mode you're in, it allows direct import and export of vector objects in Calamus Vector Graphics (CVG), Didot Vector Graphics (DIG) or GEM file format. An EPS export module is under development which should improve file exchange with other computers.

OTHER FEATURES

The autotracing tool lets you import greyscale or colour images in TIC or TIH format and turn them into vector graphics. TIC and TIH are variations of the industry standard TIFF format understood only by Didot Professional, Retouche and now DA's Vector. Single bit images (TIF, IMG, STAD, CRG, TGA or Degas) have to

be converted first, using the appropriate utility (or service program) which can be run on its own or directly from DA's Vector itself.

Tracing greyscales may seem odd but in fact it offers considerable control over the final result and, once mastered, it is a very powerful facility. I did have some trouble though, occasionally running out of memory on my 4 MB ST when tracing greyscales and colour files. Roll on the Falcon (...and 14 MB – Ed).

CHARTING SUCCESS

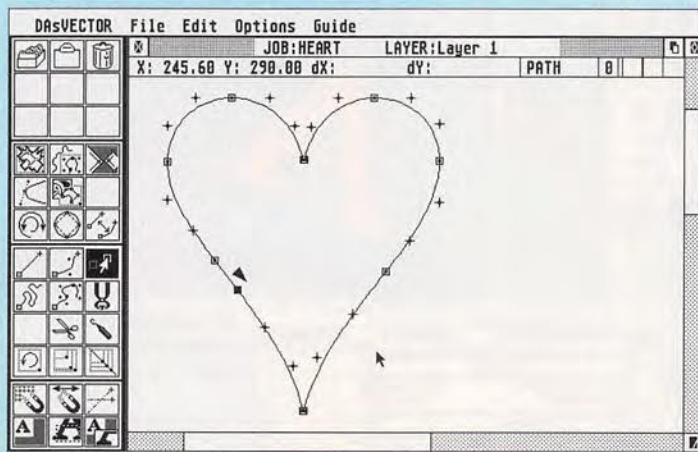
We've needed a good charting program on the ST for years - businesses are increasingly turning to presentation graphics to get the message across and it can be a tedious task creating charts in standard graphics or DTP packages. DA's Vector can produce charts in six basic predefined forms – graphs, area graphs, bar charts, 3D bar charts, pie charts and 3D pie charts. It also lets you use graphic objects instead of traditional standing columns so you can really let your creativity take hold. Tables of up to 8 columns and 32 rows can be used and imported or saved in ASCII format. Two sliders are provided so you can view the 3D charts and pies from any angle and there is also a movable light source for shading.

Plenty of packages claim animation features but in fact they're more like slide shows – they simply display scores of pictures one after the other. True computer animation is something else and vector graphics is the ideal way forward.

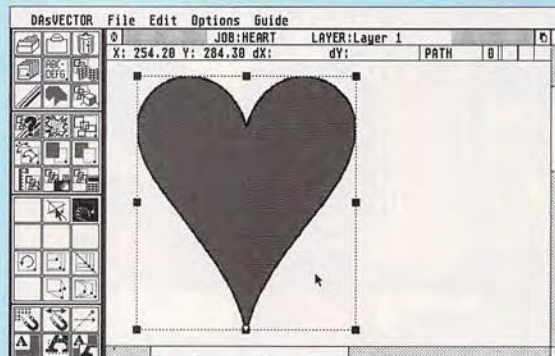
DA's Vector can be used to generate sequences with up to 10,000 frames - if you've got the hard disk space. However you don't need to

VECTOR OBJECTS

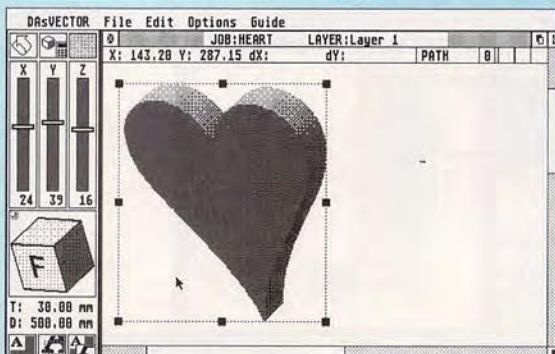
Just a few of the tricks up DA's sleeve...



A basic vector object made up of Bezier curves, shown in Vector Path mode.



The same object turned into a graphic with a colour fill and border.



Extrusion - using the three sliders for the x, y and z axes plus the movable light source (next to the cube), the heart can be turned into a pseudo-3D object.

draw this many pictures – a film can be produced by creating a handful of keyframes and letting the program do the rest. It's dead easy – you insert a vector object in the first frame and another in, say, the fiftieth and the program extrapolates the intermediate frames and produces as many as are needed. Pressing play will see your first object turn gradually into the second!

There can even be several objects all moving in different directions at once as any object can have up to 65,000 layers. There are almost infinite possibilities for the animation – not only can you create films but you can put all the frames on screen at once to create smooth blended objects. How about an animated chart that changes shape and viewpoint with successive year's figures? No problem!

Once your film is complete, you can record it for posterity in a format that anyone can play and watch by using a separate (public domain) viewing program. It is also perfectly possible to create animations in full colour on a mono system and save them as such for playback on a colour machine like a Falcon.

CONCLUSION

Despite the occasional crash when trying to create extremely complex graphics and reservations over memory handling and output, DA's Vector is a tremendously exciting program with endless possibilities.

It could do with more documentation – the help accessory just isn't good enough – but a tutorial section is currently being translated.

The animation features are particularly exciting on a colour system like

the Falcon. New modules are under development to add 16-bit sound to animations and a genlock should be available soon for overlaying text and graphics on videos. It's programs like this that should help to ensure the Falcon's success – along with the commitment of companies like HiSoft, to whom many thanks are due for kindly allowing us the use of an extremely well-equipped Falcon. Incidentally, the colour screenshots of the Falcon's high resolution true colour mode were converted using HiSoft's TruePaint, the only program that can handle and convert 24-bit

colour images such as these. If you're not planning on getting a Falcon, though, don't worry. Provided you've got a monochrome monitor, a hard disk and enough RAM, you can use DA's Vector quite happily. Calculation and redraw speed is quite acceptable on a base model ST, although use of colour starts to slow things down very quickly.

DA's Vector is priced at the right level to make it a worthwhile buy just for its vector graphics capabilities. Put quite simply, we're talking about the best vector graphics package I've ever come across on an ST.

VECTORISATION

Vectorisation or autotracing as it is more often called, is, on the face of it, a simple process of conversion from one format to another. It's anything but simple though – it involves taking a bitmapped graphic made up of pixels or greyscales into a vector object composed of lines and Bezier curves.

There are several advantages. A vector file will often take up less space – perhaps a tenth of its original size. It can also be distorted or resized without the dreaded jaggies appearing as they would if the equivalent bitmap were manipulated in the same way.

DA's Vector will only convert TIH or TIC files but a conversion utility lets you import images in Degas, IMG or any kind of TIFF file in a two step process.



DA's Vector's image converter.

PostScript font handling
Autotracing of bitmaps
Keen price

PROS AND CONS

Awkward Interface
Poor documentation
Transfer problems

"Stunning colour and special effects – quite simply the best vector graphics creation tool on the ST."

NAME: DA VECTOR

COMPANY: CGS

CONTACT: 081 686 8121

PRICE: £149

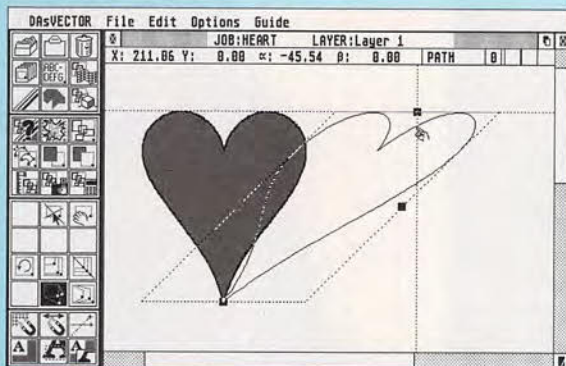
EASE OF USE ★★★★★

DOCUMENTATION ★★★★★

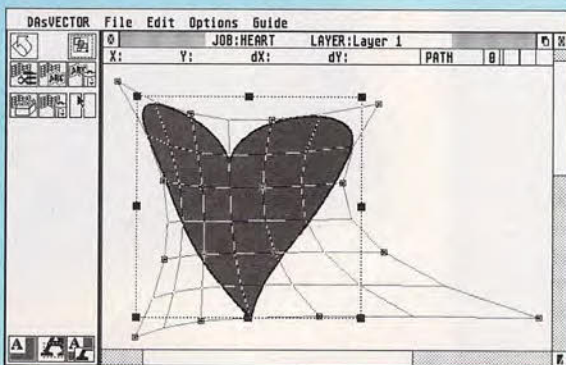
EFFECTIVENESS ★★★★★

VALUE FOR MONEY ★★★★★

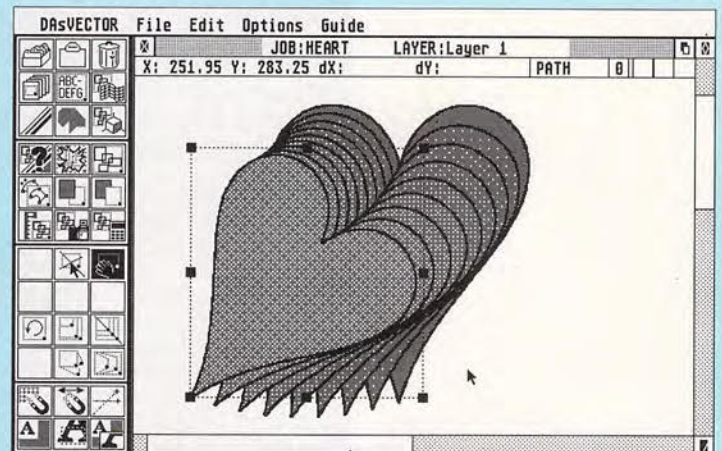
OVERALL **91%**



It can also be distorted in any one of a dozen ways...



...projected onto a 3D grid...



...or copied several times to create a blend of different shapes with different fills.

THANKS FOR

The dreaded "Out Of Memory" message has happened to all of us at one stage or another.

Tony Kaye trekked across the Yorkshire Moors to find a solution...

One of the most annoying things that happens when working on a computer is an out of memory error. For most of us, a simple upgrade is the answer. Games players rarely need more than one or two megabytes, but serious users such as colour DTP or music can require more.

Until now, the ST has only been able to address up to four megabytes giving most people enough memory to work with. But multi-tasking operations using *MultiTOS* (which does run on the ST) require large amounts of memory. A new board from Marpet Developments allows you to add another eight megabytes of RAM which should be enough for any serious application you want to run.

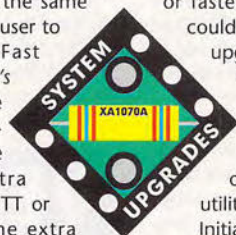
The board is a simple plug-in fit on the STE, Mega ST and Mega STE. As

yet, it's not available for the earlier machines. A small patch program in the AUTO folder permits addressing to the extra memory in the same way that the TT allows a user to add and make use of Fast RAM. Programs like *That's Write 2* will work quite happily, as will any program designed to take advantage of the extra memory capacity of the TT or Falcon. You can use the extra memory as a large RAMdisk or storage of any kind. It makes moving large DTP documents around quick and easy, but it must always be remembered that if a RAMdisk holds information when the machine is switched off, this data is lost.

All three versions of the board are available in either unpopulated or

fully populated forms and accept one megabyte SIMMs. These only need to be rated at 120ns (nanoseconds) or faster, which means that you could add four megabytes and upgrade to the full eight later on. A test program is provided to check the memory, written by the same person who wrote the original RAM checking utility, André Willey.

Initially, all machines will need to have TOS 2.06 installed to use the extra memory. In the Mega ST a switcher is required, such as the Compo board shown in the Step-by-Step guide. In the STE, the chips can be swapped for the new ROMs although compatibility with TOS 1.62 will be lost. Marpet are currently working closely with Analogic



DEVELOPING NEW PRODUCTS

What goes into developing a new product for the ST? We spoke to Marpet's designer to find out...

John Cornelius is an independent consultant with a vast knowledge of computers. In a nutshell, he solves problems. Using an accelerated 486-based PC system, John can usually find a solution to most challenges thrown at him, be it a half megabyte memory upgrade – or a huge twelve megs!

Back in the mists of time, John was called in by Frontier Software to develop the original XtraRAM board. If you recall, this was the first memory board that allowed the 1040 STF and STFM to go beyond the supplied one megabyte of RAM. The original board allowed a user to upgrade to a massive two and a half megabytes, certainly a big deal at the time.

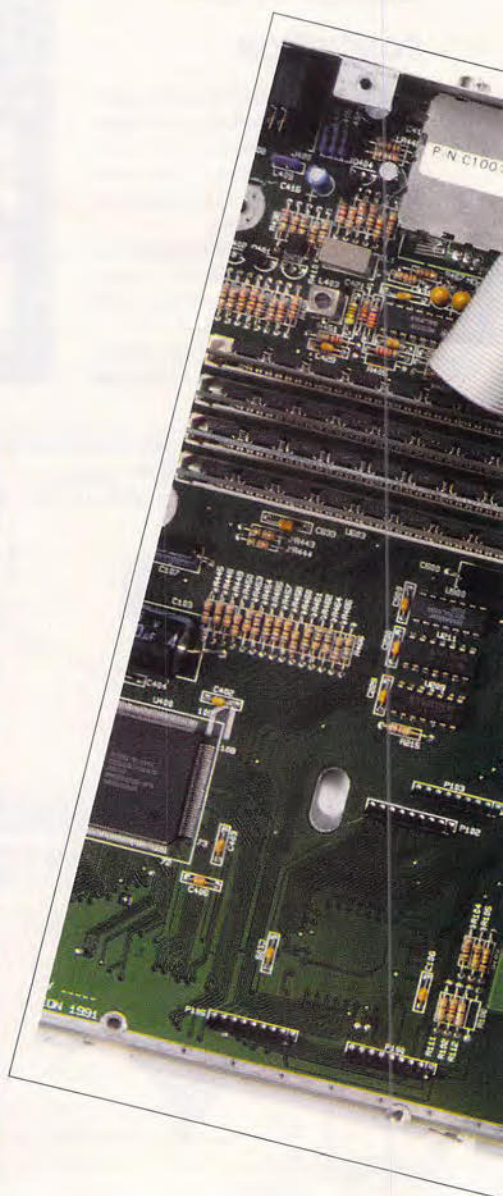
The success of the XtraRAM board led to the development of the Deluxe version. Using one megabyte SIMMs, this board has the capacity to take the machine to four megabytes. However, this is still not enough for some people, hence the current project.

BACKGROUND HISTORY

John has a 40-year history in research and development and was Senior Engineer with Thorn Electrical Industries where he designed TV aerials, telephone answering and recording machines, communications equipment, alarm systems, closed circuit TV (CCTV) and cable television distribution hardware. He has also worked in the development of audio amplifiers, car radio/cassette units, fax hardware, satellite picture processing and data communications using telephone lines and fibre optics.

John is presently busy designing alarm units, computer interfaces and many other projects too numerous to mention without this turning into a hefty list of achievements!

Marpet are currently working with John to produce hardware peripherals for the Commodore CDTV range, Amiga 600 and 1200 machines and memory management for the Falcon/ST computers. Oh, and one or two other things that we can't mention...



THE MEMORY

Computers in Kingston-Upon-Thames to produce a re-designed TOS Switcher board that will fit in the machine and give you both versions of TOS when needed (although the extra memory won't be available with TOS 1.62).

STE VERSION

The board plugs into the expansion port in the Mega machines and has a further expansion socket for other add-ons. For the STE another method had to be found and so the board is piggy-backed onto the 68000 processor chip. If this chip is in a socket, it's just a simple plug-in fit. If not, Marpet offer a fitting service.

When we visited the Marpet offices - an old turkey house on a farm in North Yorkshire! - the STE version was being changed from surface mounted RAM chips to SIMMs. This allows them to be sold unpopulated in the same way as the Mega machine versions, priced at £149.99.

WHAT THE PROFESSIONALS SAY...

We asked people in the know what they thought the advantages of the extra memory would mean to the user. Here's what they said:

"For DTP, the more memory the better so it would benefit Timeworks users tremendously."

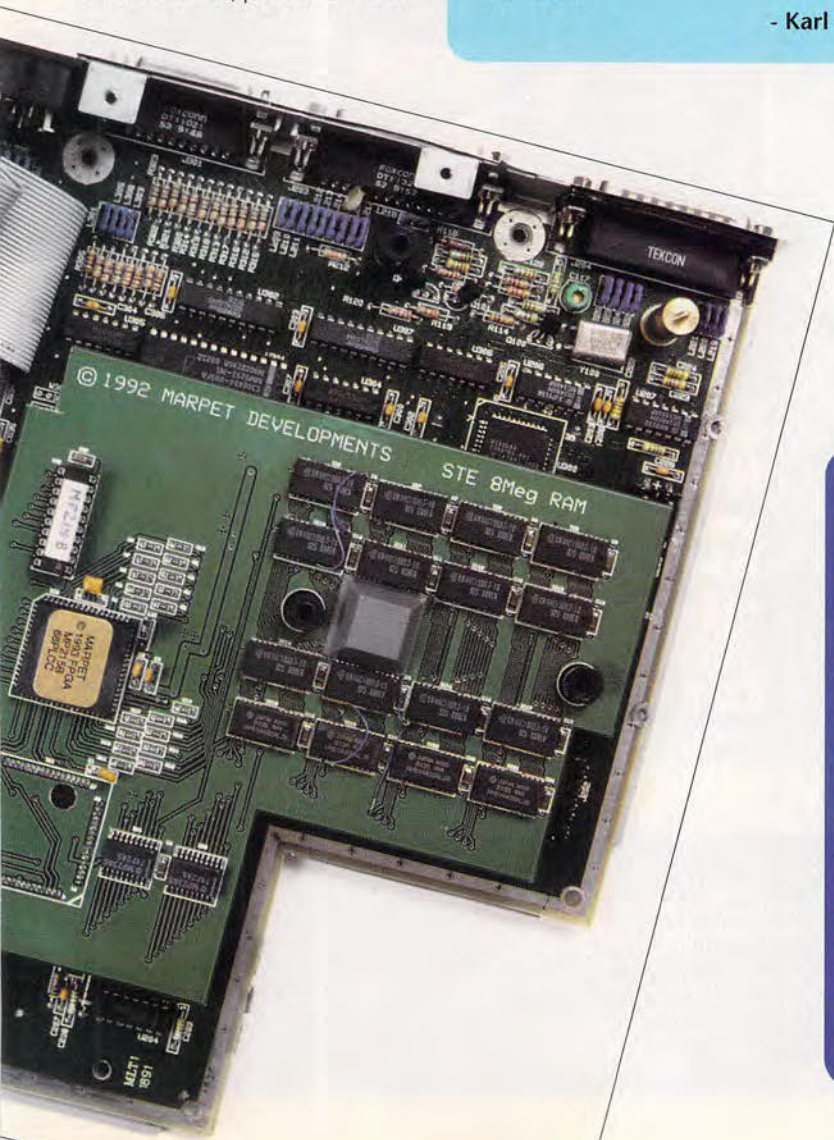
- David Yeneralski, GST Software.

"It's great to see products like this appearing. It ensures a bright and rosy future for the ST range."

- Darryl Still, Atari Corp. (UK).

"It will improve multi-tasking operations and, with colour scans taking as much as six to ten megabytes, aid colour DTP work."

- Karl Brandt, System Solutions.



WHY SO MUCH?

Ask any serious professional user of the ST if they could use this amount of memory and the answer is almost certain to be "Yes!" The extra RAM can be used for storing large documents. Colour scans used for publishing are often measured in tens of megabytes!

The other big advantage of so much memory is the facility to use MultiTOS or MINT to maximum advantage. They will both run on the ST, although it's advisable to fit some kind of accelerator to speed things up. With this amount of RAM available, you could run all the programs you need without worrying about the memory situation.

INSIDE INFO

Frontier Software went into liquidation in 1992 with two of the employees, Martin Walsh and Peter Franklin, facing the dole queue with no savings between them.

After a visit to the bank manager, they came away with a loan to buy the product rights and goodwill from

Fron-tier's liquidator.

With just three members of staff to start with (Martin, Peter and Gary Wilkinson, a technician from the old company), the company has now

grown to 12 personnel and the turnover is rapidly approaching the magic million mark.

The offices of Marpet take the form of a converted turkey house on a farm, several hundred yards away from the nearest neighbour.

Even the local pub is only a half mile, ten minute downhill stroll (and a two-hour stagger back... Ed). Future plans include the development

of a large ground floor assembly area that will be next door to the calf house (still in seasonal use!).

From being an Atari-only company, Martin and Peter felt the need to diversify to survive.

Apart from the ST upgrades, they now support the Amiga and are soon to launch a range of products for the Falcon.

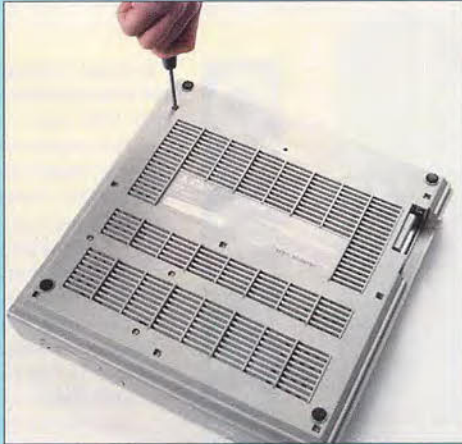
Diversification? Their latest project, which is almost finished, is a device that tells farmers when an animal is about to give birth using electronic sensors and transmitters.

This has attracted a lot of attention from the agricultural trade and almost won them a place on the Tomorrow's World "Prince Of Wales" Innovation Awards programme.

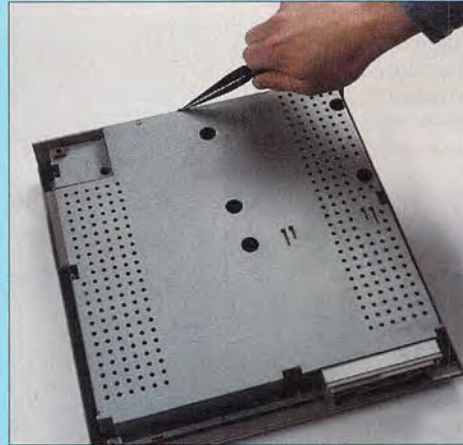
STEP BY STEP



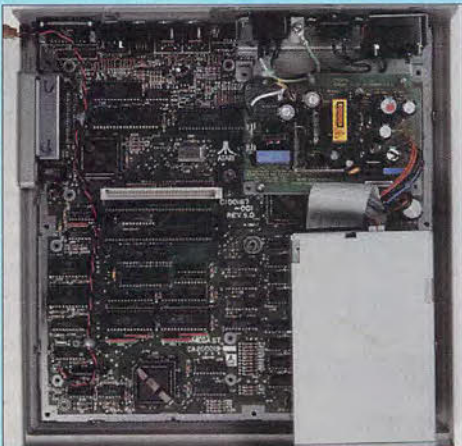
Installation of the Marpet 8MB upgrade is simplicity itself. We installed it into a Mega 4 but it's just as easy to put it into an STE or a Mega STE...



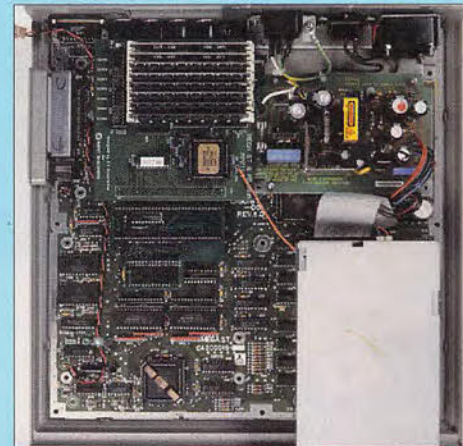
1 Remove the keyboard and all leads from the main CPU box. Then take out the screws holding the case together. These are identified by the square holes and there should be eight in all.



2 Using a thin pair of pliers, straighten the twisted retainers that hold the screen in place. Be careful with these - many Mega owners have removed the screen altogether and now have monitor problems!



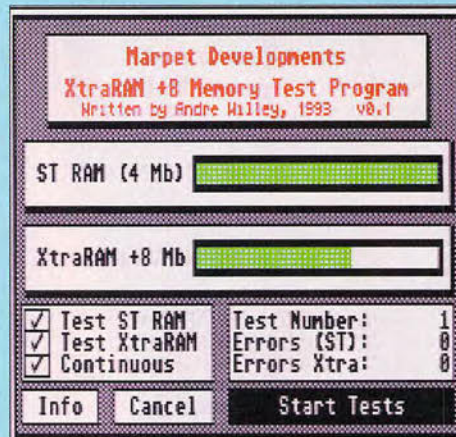
3 To run the upgrade, you need TOS 2.06. This is quite a technical upgrade and requires soldering to your 68000 CPU chip. If you're unsure of your own abilities, you are advised to have this installed by a professional.



4 Install the memory board by plugging it into the expansion port as shown. Up to eight one megabyte SIMMs can be fitted giving you a total of 12 MB of available RAM. As long as the SIMMs are rated at 120ns or faster and are all the same size, the actual configuration can vary but they all work just as well.

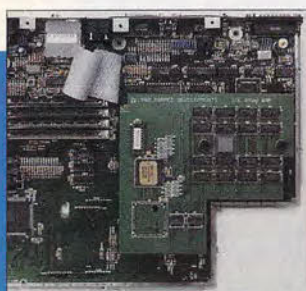


5 Before re-assembling the computer, carefully plug the keyboard in and power up. Place the patch program in the AUTO folder and test the RAM using the program provided. If it is all working correctly, unplug and put the screen and casing back on. The machine is now ready to use.



6 When everything is connected and working, you can test the memory using the program provided. This is an extension of the checking program supplied with the original memory upgrades, but it has been completely rewritten and updated.

The prototype STE version of the board. The commercial version will have slots for SIMMs.



THE STE VERSION

The STE version plugs onto the 68000 directly as shown in the picture and clever design allows the board to fit over the supports for the disk drive.

The upgrade board in the picture shows the memory as chips in place. If you order from Marpet, they will supply you with a board that will take SIMMs as in the Mega computers and this means that you can buy an unpopulated upgrade and add the RAM at a later date if you want to.

WIN AN 8MHZ UPGRADE - FREE!

You've read all about it, now here's your chance to win an upgrade for your STE or Mega...

In the last three pages, we've been extolling the virtues of the new Marpet +8 memory boards. Now we can offer you the opportunity to own one and find out how useful it is firsthand!

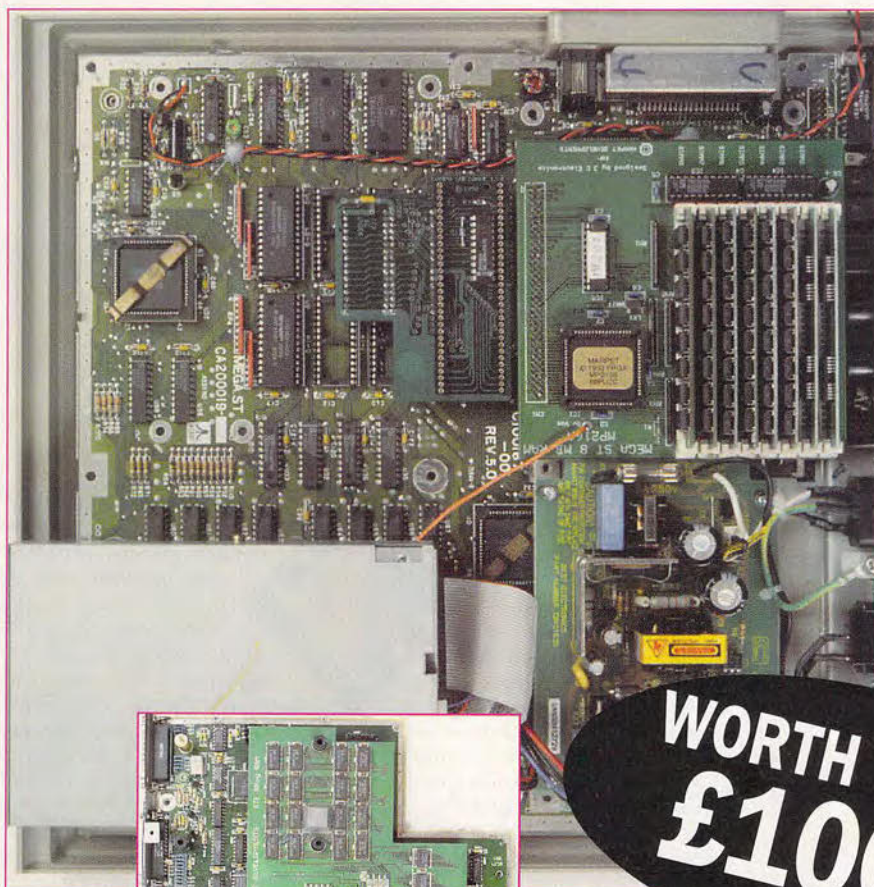
All you have to do is answer the three simple questions below and send your entries to us before the closing date and you could be a winner.

First prize is a fully populated upgrade and there are five runners-up prizes of unpopulated boards for either the STE, Mega ST or Mega STE computers. To use the board with a Mega ST or an STE, you will need to upgrade the operating system to TOS 2.06.

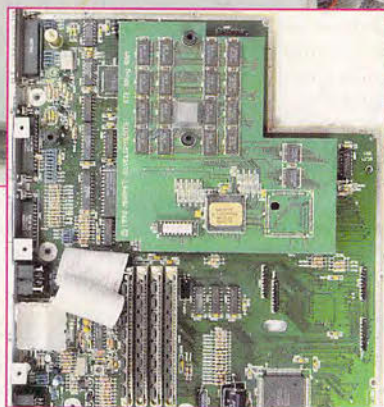
SWITCHABLE UPGRADE

This is not included in the prize. You can buy the Mega ST switchable upgrade and the TOS 2.06 ROMs for the STE from Compo Software for £39.99. At the time of writing, there is no switchable upgrade available for the STE that will fit in the computer with the memory upgrade. Analogic Computing are currently working on resolving this problem.

Please note that at present, there is no eight megabyte upgrade board for the STFM or other earlier boards.



Plug in an extra eight megabytes, free!



**WORTH OVER
£1000**

Mega owners can have switchable TOS too!

RULES

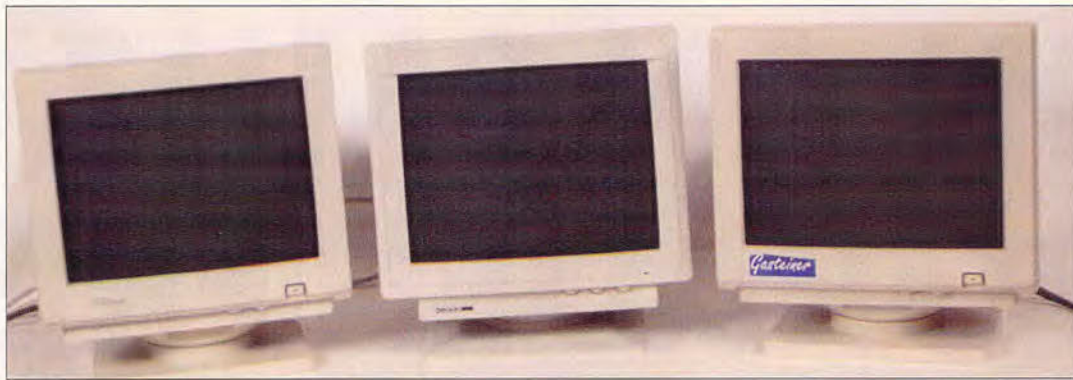
Multiple entries won't win – they'll find their way into the nearest furnace! The winner will be the first correct entry drawn after the closing date. The next five names drawn will each win an unpopulated upgrade board as specified on their entry. The editor's decision is final and no correspondence will be entered into. TOS 2.06 is not provided in the prize package and is required to use the extra memory. Winners are advised that they will have to make their own provisions for this.

HOW TO ENTER

All you need to do to win one of these great prizes is answer the following questions:-

1. Which model of ST did we use for our step-by-step guide?
2. What is the total maximum RAM available now?
3. Which TOS version is required to drive the upgrade?

That wasn't too bad, was it? Now write your answers on a postcard or the back of a sealed envelope and send it to "Sweet Memories" Competition, Atari ST Review, Europa House, Adlington Park, Macclesfield, SK10 4NP, to reach us no later than 27th May 1993. Don't forget to tell us which type of ST you have.



One of the ST's main selling points is that no special monitor is required to run games and many programs, just a simple connection to any TV set. But there are serious drawbacks to such use for extended periods as TVs are not designed to be viewed at a close distance and the flicker can be tiring on the eyes. The normal solution is to buy a colour monitor such as the Atari SC1224 or some other brand and use this instead. The scan frequency (or number of times a screen refreshes each second) can then be changed from 50Hz to 60Hz, substantially reducing the flicker.

The ST supports two colour modes or resolutions. Low resolution can display 16 colours on screen (8 on PRESTEs) at a resolution of 320*200 pixels and is mainly used for games and paint packages.

Medium resolution has only 4 colours but at a higher resolution of 640*200 and so is used with applications such as word processors and desktop publishers. The increased resolution allows for the display of 80 letters per line which is compatible with most printers.

SERIOUS WORK

If colour is unimportant, a monochrome monitor is the best choice for any "serious" work on the ST. The display is limited to black and white

A CLEARER VIEW

With the scarcity of ST-compatible mono monitors, VGA screens have led to the creation of a new market. Ofir Gal preaches of the conversion...

but there is a considerable gain in resolution and clarity of picture and many graphics, music and DTP programs benefit greatly.

In fact, many packages will simply refuse to work in any other mode. The frame frequency is set at 70Hz to produce minimal flickering and the number of pixels is doubled to 640*400. This gives more desktop space for icons and the Control Panel, for example, no longer occupies the whole screen. Any program incorporating fonts is much easier to work with.

The standard mono monitor for some years has been the Atari

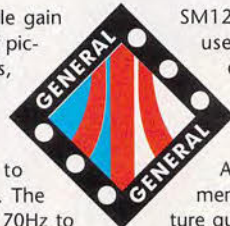
SM124, a popular buy with ST users. The image is of good quality and the unit represents excellent value for money. Around the launch of the Mega STE, Atari introduced a replacement in the SM144 but its picture quality did not match that of its predecessor and it was discontinued. Atari then became pre-occupied with the ST's successor, the Falcon, and the long awaited SM146 failed to materialise.

With the demand for monochrome monitors steadily growing, the lack of availability has been a source of frustration to users and dealers alike. Third party companies started to look

for other alternatives and found a way of modifying a standard monochrome VGA monitor, usually associated with the PC, to work with the ST.

There are several difficulties in achieving such a conversion. Simply plugging a VGA monitor into the ST's 13-pin DIN socket doesn't work as the ST uses a non-standard sync rate which can damage the monitor.

Also, VGA monitors do not have a built-in speaker so one has to be installed. Three companies have now managed to find solutions to these problems and this month we look at their monitors and compare them with the original Atari SM124.



GASTEINER GM148

The GM148 is a 14" FST (Flat Square Tube) monitor with a detachable tilt and swivel stand. Pale grey in colour, it has a slim, lightweight design with a built-in speaker and adjustable volume control. The volume knob was added by Gasteiner and is, quite frankly, a bit of a kludge as it protrudes about an inch on the right side of the monitor. A shorter knob would have done the job as this one is prone to break if you transport the monitor unboxed.

The first monitor to arrive didn't work properly because the magnetic interference from the speaker caused the picture to lose sync or, in other words, to go haywire. This problem was resolved and the second monitor worked perfectly.

Picture quality is very good - much better than the Atari SM series and, needless to say, miles ahead of any colour monitor. The image is pin-sharp and stable although there are very minor interferences when the hard disk is accessed. There is a slight smearing effect towards the edges of the screen; this is hardly noticeable but it's worth

noting that the screen is flat with a glossy finish that can contribute to reflections. The power switch, contrast and brightness controls are located at the front of the monitor while the two controls at the rear adjust vertical size and horizontal phase. Sound quality is also very good.



A flat 14" screen with a sharp image but the reflective surface may prove a problem in some situations

"Picture quality is very good but watch out for the protruding volume knob"

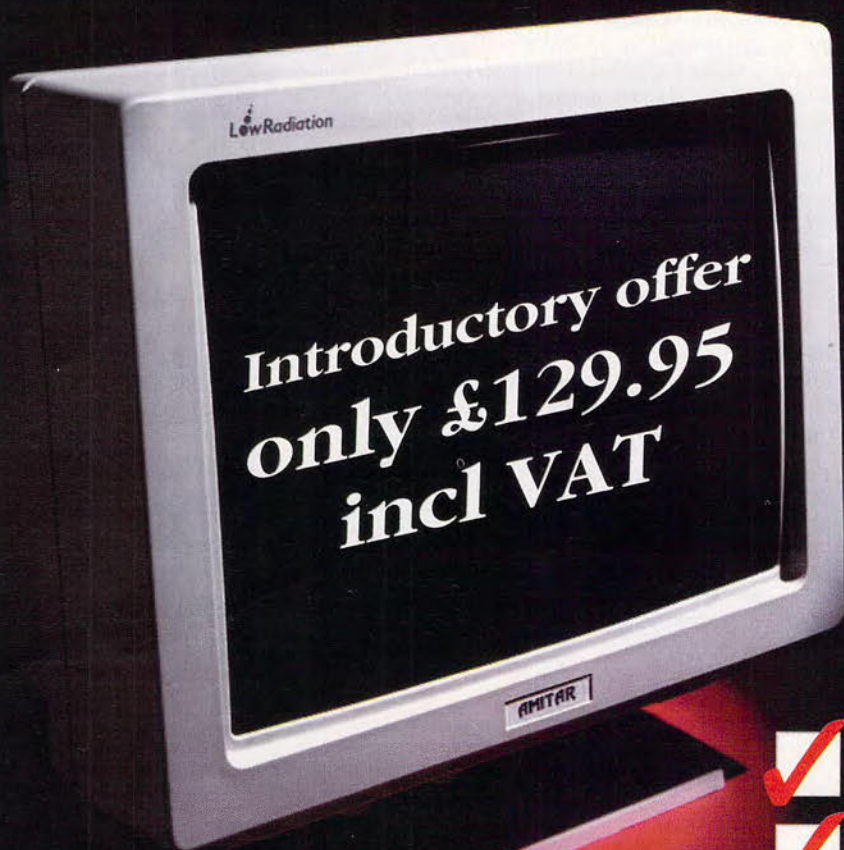
NAME: GM148
COMPANY: GASTEINER
CONTACT: 081-365 1151
PRICE: £149.95

CLARITY ☆☆☆☆☆
SOUND ☆☆☆☆☆
MODIFICATION ☆☆☆☆☆

OVERALL **85%**

AMITAR

MONOCHROME MONITOR FOR ATARI



Please Ring
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ANALOGIC
ANALOGIC
ANALOGIC

INSIDE INFO

The ST supports three screen resolutions. While the high resolution was designed specifically for word processing and DTP, it has also become a standard with MIDI users.

On the ST, screen memory is always 32000 bytes regardless of resolution. In

hi-res there are 640*400 pixels on screen, each being either black or white. This means that only one bit is required to describe the pixel state: if a bit is set the pixel is black, if it's clear the pixel is white. Each

byte is made up of 8 bits, so a byte can contain the state of eight pixels. As there are 256,000 pixels on-screen, this requires 32,000 bytes in total.

Four colours are displayed in medium resolution requiring two bits per pixel. This halves the number of pixels that can be displayed and so the resolution is reduced to 640*200 to maintain the 32,000 byte limit. To enable display of a reasonable number of text lines, the screen font is changed to 8*8 pixels per character as opposed to the 16*8 pixels in hi-res. This is why GDOS fonts don't look as clear in medium resolution.

Up to 16 colours can be displayed in low resolution which means that four bits are now needed for each screen pixel. This halves the number of available pixels again to 320*200.

There is no special screen font for low-res, so it is only possible to display up to 40 characters per line of text. Needless to say, this resolution is not much use for word processing or DTP.

WHAT IS A VGA MONITOR?

VGA is a term taken from the world of PC-compatibles and is used to describe the graphic capabilities of the computer rather than the monitor. The PC started out with a monochrome display and Colour Graphic Adaptors (CGA) were later introduced to enable limited use of colour. These were then followed by EGA (Enhanced Graphics Adaptor) and VGA (Video Graphics Adaptor), the latter being defined by IBM as a device that is capable of displaying a resolution of 640*480 with 16 colours. The increasingly popular SVGA (Super VGA) standard specifies a minimum resolution of 640*480 with 256 colours.

SYSTEM SOLUTIONS MONO MONITOR

This is another 14" FST monochrome VGA monitor with a detachable tilt and swivel stand and comes in two varieties: with or without a speaker. To provide volume control on the built-in speaker version, System Solutions have used the image contrast knob which means that the screen's contrast cannot be adjusted without opening up the monitor casing. While connection to the ST is via a standard ST monitor plug, System Solutions supply both VGA and ST adaptors on request.

Image quality is outstanding with no interference whatsoever. The image is crystal clear and while the contrast doesn't appear to need adjusting, some other solution would have been preferable rather than simply disabling the control. Like the GM148, this monitor has a very flat and glossy screen that is a little prone to reflections. Sound quality is very good (slightly better than the GM148). The power switch, volume and brightness controls are located at the front of the monitor with just two controls at the rear for vertical size and horizontal phase adjustment.

System Solutions provide a special image adjustment service, so that optimum picture size and linearity can be achieved for users of OverScan or the Reflex graphics cards. They can also increase picture size to fill the screen, and while this doesn't increase resolution, it does make it easier to read smaller font sizes - recommended for DTP work. This service is available free of charge with the speaker version.

Similar, but not identical to the GM148. This monitor has the best image quality and sound, but lacks image contrast control.



LADBROKE DM1480

You guessed - yet another 14" FST monochrome VGA monitor although this one is rather different from the other two as the screen is not as flat and so less reflective. The monitor has a somewhat bulkier design with a fixed tilt and swivel base.

The power switch is located at the rear along with vertical size and sync controls while three knobs at the front of the monitor provide control for contrast, brightness and horizontal phase. It has a standard VGA plug and Ladbroke supply an ST-compatible adaptor with the monitor.

Ladbroke's solution to the sound problem is certainly original and gets full marks. A small adaptor is inserted into the monitor port of the ST and includes a tiny speaker measuring about half an inch in diameter, a mini-jack socket and a VGA connector for the actual monitor lead.

The audio quality is surprisingly good, considering the size of the speaker and while I wouldn't recommend it for sample playback or for programs such as Breakthru, it is perfectly adequate for the standard beeps and blips. If you do need better sound quality, you can plug an amplified speaker into the mini socket.

Picture quality is good, but not as clear as the other two monitors. The picture appears slightly off-centre towards the top half of the screen, but is otherwise stable and linear.



This monitor has an anti-glare screen to stop reflections but the image is not as sharp as the other two.

ATARI ST REVIEW
ESSENTIAL BUY

"Outstanding image quality but no external contrast control"

NAME: SYSTEM SOLUTIONS MONO MONITOR

COMPANY: SYSTEM SOLUTIONS

CONTACT: 081-693 3355

PRICE: £149.95 WITHOUT SPEAKER, £169.95 WITH SPEAKER

CLARITY ★★★★★

SOUND ★★★★★

MODIFICATION ★★★★★

OVERALL **90%**

"Ingenious solution to the speaker problem although the picture could be clearer"

NAME: DM1480

COMPANY: LADBROKE COMPUTING

CONTACT: 0772 203 166

PRICE: £149.95

CLARITY ★★★★★

SOUND ★★★★★

MODIFICATION ★★★★★

OVERALL **80%**

GASTEINER

Unit 2, Millmead
Business Centre
Millmead Road
London N17 9QU
Tel: 081 365 1151
Fax: 081 885 1953



ICD POWER ATARI

ATARI COMPUTERS

520 STE 1/2Mb.....	£209.00
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520 STE 2Mb.....	£265.00
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FALCON HARD DRIVES

40 Mb.....	POA	65 Mb.....	POA
120 Mb.....	POA	240 Mb.....	POA

NEW GASTEINER SPARE SHOP

Power Supply (ST, STF, STFM, STE) ..	£32.95
Atari Internal Drive.....	£45.00
Keyboard STFM and STE.....	£59.00
STE Mother Board No RAM.....	£149.00
DMA Chip.....	POA
TOS 2.06 STE/STFM.....	£59.00
1/2Mb STFM Mother Board.....	£149.00
Outer Casing STE.....	£39.00
Atari Original Mouse.....	£8.00

MONITORS

SVGA Monitor for Falcon.....	£239.00
Atari SC1435.....	£199.00
Multisync Monitor.....	£399.00
Gasteiner Mono High Res.....	£149.00

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Citizen Swift 9 Colour.....	£179.00
Citizen Swift 240 Colour.....	£279.00
Citizen Swift 200 Colour.....	£219.00
HP 500.....	£309.00
HP 500 Colour.....	£439.00
HP 550 Colour.....	£550.00

RAM

8 Mb RAM for STE, Mega ST/STE (COMING SOON).....	POA
Marpet XRAM Deluxe Simms Upgrade For ST, STF, STFM and Mega ST	
0Mb.....	£30.00
1/2Mb.....	£39.00
2Mb.....	£85.00
4Mb.....	£139.00
Gasteiner STE and Mega STE Upgrade	
1/2Mb.....	£6.99
2Mb.....	£59.00
4Mb.....	£109.00

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Scanner + OCR Software.....	£179.00
Full OCR Software.....	£165.00
OCR Upgrade for any GoldenImage or Alfadata Scanner only.....	£69.00

HARD DRIVES

GASTEINER ? DRIVE FOR ST, STE, MEGA ST, MEGA STE
* High performance drive
* Supports up to 7 extra SCSI devices
* Autobooting * DMA throughput * Autoparking
* Accept a second Internal drive * Optional battery backed clock
* 12 Months back to base warranty
* Comprehensive manual * Fast SCSI drive
* High quality metal casing * Internal PSU

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50Mb (24Ms) Seagate.....	£289.00
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240Mb (14Ms) Conner.....	£569.00
330Mb - 1.2 Giga byte.....	POA
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Floptical 20Mb Disks.....	£24.00
Optional Clock for above.....	£15.00

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* Case.....	£35.00	* Host Adaptor.....	£59.00
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* SCSI Cable.....	£6.00	* The Link.....	£79.00
* Power Cable.....	£5.00	* ICD Host Adaptor.....	£69.00
* ICD Host Adaptor (with clock).....	£79.00	* Cleanup ST.....	£29.00

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120Mb Conner.....	£299.00	105Mb LPS Quantum.....	£299
170Mb Conner.....	£329.00	85Mb Conner.....	£229
170Mb Quantum.....	£349.00	52Mb LPP Quantum.....	£279

MEGA STE HARD DRIVE

With Official Atari MEGA STE KIT
Atari Host Adaptor and Formatting Software

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Kit + 50Mb Hard Drive.....	£219.00
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Multisync Switch Box.....	£29.95
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Modem Cable.....	£6.00
Null Cable.....	£6.00
Serial Cable.....	£6.00
Philips/Atari Cable.....	£10.00
Scart Cable.....	£10.00
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3.5" 1.44 External Drive for Mega STE/TT.....	£99.00
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Ad Speed STE.....	£165.00
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400 DPI Mark 2 Mouse.....	£14.95

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Pagestream V2.2.....	£149.00
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Calamus SL.....	£339.00
OCR Software.....	£165.00
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3D Font 1.....	£10.00
CAD 3D.....	£10.00
CAD 3D Developers Disk.....	£10.00
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Cubase.....	£150.00
Cubase.....	£279.00
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New service centre/repair for most Atari computers. We offer a quotation service of £10 for which we will examine your computer and report back with an exact quotation price for the repair. If the repair is carried out the £10 is then deducted from your bill.

PLEASE PHONE IN
FOR REPAIRS ON ST

DELIVERY CHARGES: Small consumables & software items. Other items, except lasers Offshore and Highlands IN ADDITION WE OFFER THE FOLLOWING EXPRESS SERVICES Saturday deliveries AM next day

UK MAINLAND (not Highlands) Despatched by post please check charges when ordering Next day courier service, £10 per box Please enquire

NORMAL RATE PLUS £15 + VAT PER BOX
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True Paint running with and without OverScan in low-res.
Pictures speak louder than words...

BIGGER AND

Want to make use of the black area around your screen? In that case, you need OverScan...



The OverScan Utilities desk accessory provides a corner clock and an animated screen saver.

The ST is well-suited to word processing, art and desktop publishing with a vast selection of programs available to cater for all needs. One major problem facing users is the inability to view anywhere near a full page on a standard screen. Most programs provide various page preview facilities and you can always scroll up and down but this is a rather slow process even with the aid of screen accelerators, like NVDI, or faster processors. A large monitor and a graphics card is a possible option but the high cost is prohibitive to most.

Autoswitch OverScan is a clever hardware modification that removes the large border around the image on your monitor. This is not the same as simply enlarging the display as it actually increases the screen resolution so giving you more work space. Adverts claim up to a 40% increase and a high degree of compatibility with most programs at a fraction of the cost of a large monitor.

OVERVIEW

OverScan consists of a tiny circuit board, a single floppy disk and a 66-page manual. Installation is tricky to

say the least and unless you are confident with a soldering iron, you're better off leaving it to the experts. The manual takes you through the installation and includes no fewer than 14 circuit diagrams to cover all possible versions of STF, STM, STFM and Mega STs. OverScan doesn't work on the STE or MegaSTE as some of the components that OverScan needs to access have been integrated into a single chip, preventing modification of the necessary signals. Depending on the specific model, between 9 and 12 soldering points are required and two or three PCB tracks have to be cut.

Once the hardware has been installed, the system is re-booted with the OverScan driver in the auto folder. While the file size is around 30 kilobytes, only 10 kilobytes of RAM is actually used by the driver program. Pressing the Shift key while booting reveals the setup screen from which the image height, width and position on screen can be adjusted. Other setup options include changing border colours, 50/60Hz toggle for colour monitors and switching resolutions. Settings

are easily saved to disk and different settings can be kept for each of the three resolutions.

The effectiveness of OverScan depends on the monitor (see table 1), but expect a minimum resolution of 672*480 on a monochrome monitor, 752*280 in med-res and 384*280 in low-res - over 25% extra pixels in mono and over 60% in colour. OverScan is even more effective when using a VGA monochrome monitor with 752*480 pixels, an increase in work area of 40%.

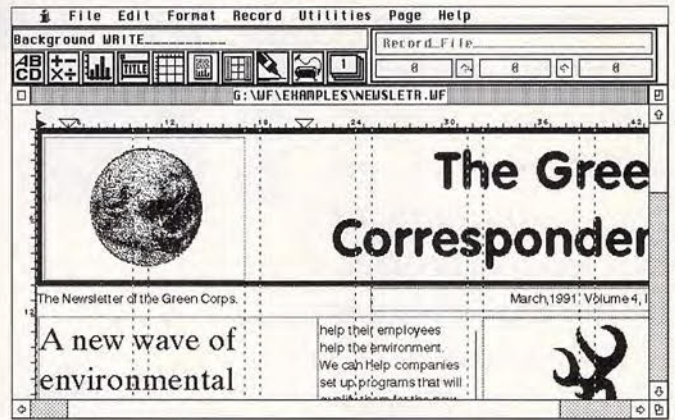
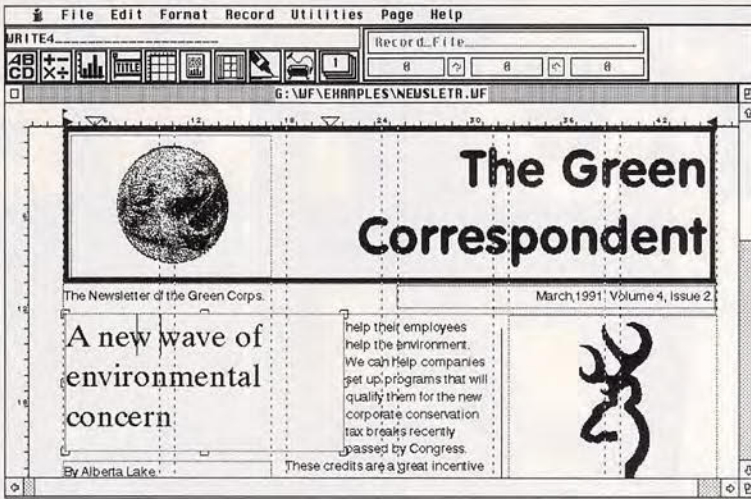
The manual warns about possible incompatibilities with some programs and the OverScan driver is clever enough to clean up the "mess" if a program is not fully operational in OverScan mode. In addition, a simple text file can be placed in the Auto folder listing any programs which do not work correctly with OverScan. Loading such a program causes OverScan to temporarily cease but automatically reverts to an active state upon quitting.

IN USE

As with any hardware modification, users (myself included) are always concerned about any incompatibilities with existing software. There isn't much point in going to the trouble and expense of enhancing your ST if your favourite programs won't work correctly. Surprisingly, most programs function extremely well and the extra screen space is very convenient. Starting with the desktop, there is now more space for icons and bigger directory windows so that less scrolling is needed to view the contents of a disk. Popular programs such as First Word Plus, Timeworks, Calamus, Calligrapher, Fontkit, That's Write, Wordflair and Cubase are easier to use with this

INSIDE INFO

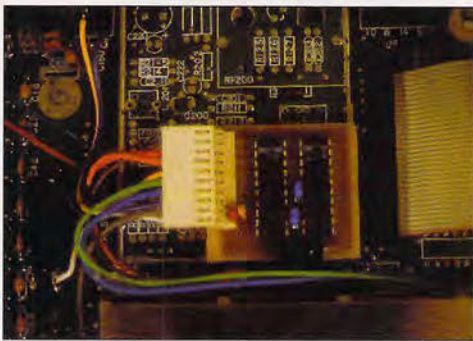
OverScan is the name of the company that was established in 1990 in Berlin, Germany to produce AutoSwitch OverScan. As a result of the popularity of the product, a version of OverScan has been produced for the TT - to the amazement of Atari who believed that such a modification was impossible. The team consists of programmers and engineers held in high regard such as Patrick Jerchel and Karsten Isakovic (who is also responsible for the excellent Chameleon accessory loader). OverScan has also produced several products for the Falcon which include Screenblaster, a special Falcon version of OverScan capable of a resolution of 880*600 in mono or colour, and Falcon Genlock which allows mixing of video pictures and computerised graphics. Also of interest is Overlay Multimedia, a new video titling and animation package for the full Atari range which can mix music samples with animation and should be available by the end of April. Finally, VRAM 030 provides much-needed virtual memory for the Falcon and TT where disk space can be used as if it were RAM - up to 2000MB!



Wordflair also works well with OverScan. The larger display area means less scrolling and easier document layout.

BETTER

ATARI ST
REVIEW
ESSENTIAL BUY



The tiny board that does the job. Installation, however, is not for the faint hearted.

extra space. There is even enough space on screen to open more than one document or use the control panel without obscuring the work area. As a small point, programmers can use OverScan to test for large screen compatibility and the manual is very helpful in its explanation of how to program for full OverScan. Even comms packages such as STalker benefit from the larger display and UIS III, the replacement file selector, can display 57 files without having to resort to a smaller font!

A small minority of programs, and many games, will not work with OverScan. These include MonST, HyperPaint, Tempus and Notator but these names can easily be added to the configuration file so that OverScan switches itself off when they are loaded. This makes the

system behave just as it would were OverScan not installed. In fact, a program that does not work correctly with OverScan will not work on a large monitor either and tends to point to poor programming or non-compliance with Atari's programming guidelines. Where software blitters are concerned, Warp9 does not work at all but NVDI does which is not surprising when you consider that one of the OverScan programmers is also credited as a member of the NVDI team! All TOS and TTP programs work because they do not rely on screen size or graphics.

OverScan was well received by Atari who generally disapprove of hardware modifications. Richard Miller, head of Atari's development division is purported to have said "A fantastic idea. Why wasn't it ours?"

while Konrad Hinsen, author of That's Write, made the comment that "everybody should have OverScan!" when he saw the improvement it made. So it is hardly surprising to find that Atari have incorporated OverScan into the Falcon.

CONCLUSION

As you've probably gathered, I can't help being enthusiastic about OverScan. It's a well designed piece of kit that can simply be installed and forgotten about with the configuration file and automatic switching adding to an already excellent product. If you use your computer for anything other than games, go for OverScan, especially when taking its low price into consideration. Unfortunately the manual was obviously written by someone for whom English isn't their first language - the text even slips into German occasionally...

There are other alternatives such as the Reflex card or Crazy Dots which give you an even higher screen resolution, but at a much higher price. Unlike other graphics cards, OverScan does not "interlace" the display to achieve the higher resolution and so produces a flicker-free and remarkably sharp image. The ST should have had OverScan as standard!

Full compatibility due to auto-switching
Great for serious programs

PROS AND CONS

Difficult installation
Documentation could be better

"A poor man's large monitor - a must for everyone who is serious about their ST"

NAME: AUTOSWITCH OVERSCAN
COMPANY: SYSTEM SOLUTIONS
CONTACT: 0625 410241
PRICE: £39.95
RELEASE DATE: OUT NOW
MIN MEMORY: 0.5 MB
SYSTEM: ST/MEGA ST

EASE OF USE ★★★★★
DOCUMENTATION ★★★★★
EFFECTIVENESS ★★★★★
VALUE FOR MONEY ★★★★★

OVERALL **95%**

Monitor	Low-res 50Hz	Low-res 60Hz	Med-res 50Hz	Med-res 60Hz	Hi-res
Atari SM124					672*480
VGA mono					752*480
Atari SC1224	384*280	384*240	752*280	752*240	
NEC multisync GS	400*280	400*240	816*280	816*240	752*480
C Amiga 1084	400*280	400*232	816*280	816*232	

If you use your ST for anything other than games, sooner or later you are going to need a printer. John Mallinson answers the inevitable questions...

INTO THE



The moment you decide that you want to buy a printer you are faced with a bewildering variety of different types and competing models, so where do you start? How do they differ? How much do you need to pay? Where's the best place to buy?

These are some of the questions this piece sets out to answer. No one can choose a printer for you, but a bit more info should help you clarify what you want, need, and can afford. The rest is up to you.

Let me reassure you on two points. First there are virtually no dud printers out there. Second, although most printers are designed with the idea that they will be linked to a PC, the cabling and connections for the ST/TT/Falcon are the same, so you shouldn't have any problems setting up and printing.

HOW DO I DECIDE?

All the common printers produce their output as dots which build up to form the characters or graphic on paper. Obviously the smaller the dots, and the more of them per square inch of paper (the higher the resolution), the better-looking the copy.

Laser printers have a standard resolution of 300 dots per inch (dpi), inkjets of up to 300 or 360dpi, 24-pin dot matrix printers (DMP) of up to 360dpi, 9-pin DMPs of up to 240dpi. But resolution is not the whole story. Laser output at 300dpi is visibly superior to dot matrix output at 360dpi, largely because the laser dots are smaller. This makes the edges of lines (or characters) much smoother, and printing generally looks more delicate. For the same reason, inkjet hard copy will look better than that from a 24-pin printer. The numbers only tell part of the story - your eye is the best judge.

IS SPEED EVERYTHING?

As for speed, this is usually quoted by manufacturers in characters per second (cps) for dot matrix and inkjet printers, or as pages per minute (ppm) for lasers. Again, the figures may not be very helpful. 150cps usually translates to about 40 seconds per A4 page of text but when you actually put them to work, some 150cps machines seem to work faster than 200cps ones. To confuse things further, some machines which are pretty fast with text may print graphics rather slowly. You have to treat the figures as a rough guide. The only certain thing is that laser printers will always beat the other types.

All printers have several different typefaces built in and more fonts usually equates to more £££s. However, check that you will be able to use them before deciding that a printer with ten fonts is preferable to a model with only four. Your word processor has to send a command to the printer to switch fonts: this is one of the functions of a word processor's printer driver software. If your favourite word processor doesn't have a driver that will let you switch fonts with software commands then you will only be able to use them by manual selection from the printer's control panel. In that case you probably won't use them at all!

HOW MUCH CAN I AFFORD?

The price difference between DMPs, inkjets, and lasers is getting less and less. If your budget is limited to £100 or so then a 9-pin DMP is



Four inkjet printers costing less than £300 each: (from top left) Citizen ProJet, Fujitsu B-200, Canon BJ-300 and Hewlett Packard DeskJet 500.



The Canon BJ-200, a personal business printer for around £300.



HP DeskJet 550C, an excellent general purpose colour inkjet printer.

for you; at about £200 the choice will include 24-pin DMPs and the cheaper inkjets; at around £500 the lasers start to appear. Above this it's lasers pretty well all the way.

Just so that buying shouldn't be too simple there is a lot of price overlap. For £180 you could buy a 9- or 24-pin dot matrix or an inkjet, so you would have to choose between them for reasons other than price. At this point, you have to consider your reasons for needing a printer - and be honest with yourself. Don't buy a laser printer simply because you've been promising yourself time with the latest DTP package!

WHERE SHOULD I BUY FROM?

Most important before you go shopping: do your homework. Look through your back issues of ST Review as we've covered a lot of printers in the last year. Look in your newsagent for other magazines with printer round-ups, and at the same time look for ads with good prices.

Computer stores usually have a lot of printers that you can see and test. Their machines may not be the cheapest, but you should get good advice and after-sales support. The increasingly popular superstores will probably have the largest range and some of the keenest prices.

Mail order will usually get you the best bargains. Problem is that you are buying blind, and there may be little help if you have difficulties in using the machine when it eventually arrives. Mail order is sensible only if you know exactly what you want.

Computer shows are also good places to get bargains, but don't expect the box-shifters to demonstrate their wares or even know much about them. Shows are also a good place for haggling as you can play off one stall-holder against another.

Finally you could consider a second-hand printer. These can be found in some shops, or in the columns of computer mags or advertising vehicles such as Loot or Exchange & Mart. Obviously if you are making a private purchase you must test the machine carefully before parting with cash and it certainly doesn't hurt to ask for a three month warranty.

JUNGLE

HOW IT WORKS: DOT MATRIX PRINTER

Dot matrix printers use a very tried and tested technology. Often known as "impact printers", the print head has a vertical row of metal pins which pop out and strike an ink ribbon onto the paper. This is a rather noisy process and, on the whole, the faster the printer the noisier it will be. Most manufacturers try to quieten their machines by lining them with foam rubber, and some printers have a "quiet" mode which halves the print speed.

Most DMPs have a row of 9- or 24-pins on the head (a few have 18, but these are unusual). The text characters on 9-pin machines are built from a grid of 8x9 dots while a 22x31 grid is used on a 24-pin printer. The fact that a 24-pin machine has more, smaller dots gives correspondingly better print quality but not necessarily an increase in speed.

DMPs have a small amount of memory built into them which is principally used as a "print buffer". A page or two of data from the computer can be stored there while it's waiting to be printed, and the computer will be free for you to get back to your typing before the print job has finished.



Rather ragged but perfectly legible printout from the 9-pin Epson LX-100.

Epson's LX-100 - their newest 9-pin model with built-in sheet feeder - £120.



From the 24 pin Star LC24-100. Obviously superior to a 9-pin printout.

The Star LC24-100, an excellent low-price 24-pin costing around £150.



HORSES FOR COURSES

Of the three main species of printer (dot matrix, inkjet and laser), each is better suited to some jobs than others. Your intended use should point you towards a particular type. The following questions and answers may give you some ideas:

Q I want to print the occasional letter, Readme files from PD software and so on. What's a good type of low-cost printer?

A You don't want to spend too much, and you don't need printing perfection. A 9-pin dot matrix printer (DMP) for about £100 should do you fine.

Q What would be best for my office/home correspondence?

A Especially in an office, you will need something fairly fast which will give impressive results - have a look at a laser printer. Equally suitable, slower, but much cheaper, would be one of several inkjet models starting at about £250.

Q What's the best for our firm's invoices and other commercial output?

A For invoices and a lot of other business tasks DMPs still rule. All of them can use a tractor feed mechanism which has sprockets to move continuous perforated paper through the printer. They can also print several copies at a time using multi-part stationery. Finally they are very cheap to run (less than 1p/page) compared to other printer types (2-3p/page).

Q I'm interested in DTP and graphics - what's the most suitable for that?

A You need high print quality and speed as complex DTP or graphics pages can be pretty slow to print. If you want the best quality output, an inkjet or laser should be your choice - preferably the latter. Laser printers are usually several times faster than inkjets for DTP, but are also likely to cost several times as much to buy.

HOW IT WORKS: INKJET PRINTER

The modern type of high-quality inkjet printer has only been around for about five years. It has a print head with a closely-packed bundle of some 50 fine nozzles from which ink is spat at the paper in droplets.

There are two methods of firing the drops out of the nozzles and most inkjets use the "bubble-jet" technique pioneered by Canon and Hewlett Packard. In the wall of each nozzle is a small heating element; a pulse of current boils the ink to form a bubble of vapour in the nozzle which pushes a drop of ink out of the end. When the current is turned off the bubble collapses and the nozzle refills from an ink reservoir. Very clever and simple.

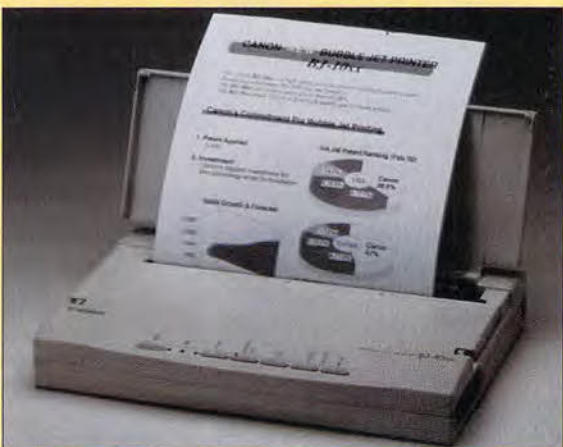
Epson have an alternative method which uses a piezo-electric crystal which is a quartz crystal that expands if a voltage is applied to it. The wall of each nozzle contains a crystal which expands into the nozzle when a current is passed, so pushing a drop of ink onto the paper.

Piezo inkjets are potentially faster than bubble-jets and are cheaper to run as you don't need to replace the print head each time it runs out of ink.

Most inkjets print at 300 or 360dpi, with no real difference to the eye, but higher resolutions should be possible in the future. At present, their output is not quite as fine as most 300dpi lasers but this will probably change in the next year or two.



Not quite laser quality from a Canon BJ10sx inkjet.



The Canon BJ10sx. The latest version of this popular inkjet sells for under £200.



Very fine print quality from a Hewlett Packard LaserJet.

HOW IT WORKS: LASER PRINTER

Laser printers are far more complicated than the other types. They use a laser beam to scan the image of the page onto an electrically charged photo-sensitive drum. The areas hit by the beam lose their charge and powdered ink, called toner, will then stick to them. Next the toner is transferred from the drum onto the paper, and finally it is fused to the paper by running it through hot rollers.

DMPs and inkjets receive their instructions from the computer on a line-by-line basis. Lasers on the other hand build up an image of the page in their internal memory before committing it to paper - for this reason, they are often known as "page printers". Two things follow from this: first, lasers need a lot of internal memory to hold the page image; second, they often seem to spend a long time sitting doing nothing before they suddenly jump into action and print out a page in double-quick time. This is in contrast with a DMP or inkjet which will start printing very soon after you click the "Print" button, but then take a lot longer than the laser to produce the page.

Lasers can print at anything up to 16 pages a minute, but their print speed depends on the sort of job that you make them do. If printing straight text, as from a word processor, they will usually approach their maximum speed; if printing complex graphics or DTP pages they will be much slower.

The 300dpi laser standard is now being challenged by 600dpi machines such as Hewlett Packard's LaserJet 4. Print quality is obviously better, but the difference is not as dramatic as you might think. It is clear that 300dpi machines will be around for some time, and one of the main effects of the new 600dpi models will be to push their prices down further.



HP LaserJet IIIIP. A 300dpi laser printer for less than £700.

HOW IT WORKS: COLOUR PRINTER

Colour on a page can raise the spirits and gladden the eye. Unfortunately we are still some way from translating gorgeous colours on screen to equally exciting and detailed colour on paper. Colour DMPs and inkjets work well and are not too expensive but can only print pictures at a fairly low resolution. Colour lasers are much too expensive to even think about.

Citizen, Panasonic and Star each have a variety of colour dot matrix models which cost little more than their black and white equivalents. Several DMPs can be bought as mono machines and then simply upgraded by adding a colour kit.

Colour DMPs use a four colour "CMYK" ribbon, the CMYK components being Cyan (blue), Magenta (red), Yellow, and Key (black) with the ribbon having a band of each throughout its length. Although adding cyan, magenta, and yellow together should give you black, it actually produces a rather mud-like colour hence the inclusion of black.

The colour printing mechanism has a motor which moves the ribbon up and down in front of the print head so that the needles strike the paper through the appropriate colour band. Colour inkjets work in a similar way to DMPs, except that they use colour ink cartridges rather than ribbons.

By printing the four basic colours over each other you can end up with seven colours - green, for instance, is produced by printing a line in yellow and then over-printing it in cyan. Colour printing is slow, and is also three or four times more expensive than printing with black ink.

You are not restricted to seven colours as thousands can effectively be produced by a process known as dithering. The colour image is broken down into spots, each of which is formed by a small collection of different coloured printer dots. This makes the image appear to have many more colours as your eye merges the dots together, but will also make it much more grainy - the more colours you try to introduce, the lower the resolution.

Colour inkjets are pretty expensive when compared with DMPs but produce brighter and sharper results. Ordinary mono inkjets can be used to print colour too. The trick is to fill separate cartridges with different coloured inks and pass the paper through the machine several times, printing one colour at a time. The useful Imagecopy program (available from the ST Club on 0602-410241) lets you do this - pretty laborious, but it works!



Colour prints from a Hewlett Packard DeskJet 550C inkjet: not exactly photo-realism, but the colours are quite similar to the original.





At around £170, the 9-pin Star LC-200 offers colour dot matrix printing.

At around £110, the Epson LX-400 is one of the cheapest 9-pin printers on the market.



WHAT TO LOOK FOR WHEN YOU BUY

So you've decided on the kind of printer you need - what else do you have to consider before buying one?

DOT MATRIX

Nine and 24-pin machines overlap considerably in price, though if you take comparable printers from the same manufacturer the 24-pin model usually costs about £50 more. 9-pin machines start at about £100, 24-pin at around £150.

There are a couple of things to look for in a DMP apart from price and speed. How many internal fonts are there? What is their quality like - check with a test printout. How noisy is it? Is there a paper feed option? Most DMPs give you the choice of using continuous paper or manually feeding single sheets: some now have a built-in sheet feeder which would otherwise cost an extra £40-£50. Single sheet loading can be one of two types: semi-automatic where the paper is positioned and a button pressed or lever pulled to advance the paper round the roller; fully automatic where the printer loads the paper when it detects that there's a sheet in the right position.

If you intend to use tractor feed for printing listings or multi-part forms there are two types to think about: push, and pull. A push tractor sits below the print head and pushes the paper past it while a pull tractor sits above the head and pulls the paper out of the printer. Pull tractors are less likely to tear or scrumple the paper, but because they are above the print head they will lose you a sheet of paper between separate print jobs. "Paper parking" is another useful facility on machines with a push tractor: this pulls the fanfold paper back from the print head at the touch of a button so that you can load single sheets, or use a sheet feeder, without having to remove the continuous paper from the machine.

Extras that you might want to consider are cut sheet paper feeders, font cards or cartridges, memory expansion cards, or a colour printing kit (usually about £45).

INKJET

Inkjet printers have become increasingly popular and much cheaper in the last four years. They are very quiet and print beautifully! On the minus side, they cost more to run than a DMP because their ink cartridges are expensive.

With most inkjets the ink reservoir and the print head, that contains the nozzles, form one unit. Some machines (Epson's Stylus 800 or Canon's BJ300 for example) have a separate ink reservoir, and the print head should last the life of the machine which reduces their running cost by nearly half.

Most machines use a water soluble ink which can run and smudge if any water gets onto the page - worth checking. Hewlett Packard supply an ink cartridge with waterproof ink for their DeskJet - you should be able to fit this to models from Olivetti, Fujitsu and Citizen.

It is possible to reduce your running costs considerably by refilling ink cartridges yourself. There are several companies that supply refill kits, or you can experiment with a bottle of ink, needle and syringe (*ST Review* accepts no responsibility if things go wrong... Ed). Most machines also have add-ons such as font or memory cartridges, additional paper trays and tractor feed units for some models - check the prices and availability.

If you want colour there are only two printers at a reasonable price: the Hewlett Packard DeskJet 500C, and the 550C which costs about £100 more. The main difference is that the 550C has two print cartridges, one for the colours and one for black, while the older 500C doesn't have a black cartridge so prints a rather murky black by mixing cyan, magenta and yellow. It is more expensive to run and not as good a general purpose printer as the 550C.

LASER

If you want speed plus the best print quality then you have to buy a laser. However they are generally expensive, large in size and heavy, although there are current models costing around £500 which are quite compact.

They can also be hard on paper, and print-outs from some machines are quite wavy - the high temperature of the fusing rollers cooks the paper which has to follow quite a winding course through the machine. All lasers are paper-unfriendly, it is just a matter of degree.

Some lasers also smell of ozone. Very high voltages are used inside the machine to "stick" the toner to the drum and then transfer it to the paper. This amount of electricity may be enough to split oxygen into ozone and give you an unpleasant whiff from time to time.

Many lasers, especially the cheaper ones, are sold with insufficient memory to be useful for DTP and graphics work. For anything other than plain text, at least 1 megabyte is needed and preferably 2 or 3 megabytes. All current models can have extra memory cards slotted in and an extra couple of megabytes should cost around £100.

Something to look for when buying a laser is "resolution enhancement" which is given various aliases by different manufacturers. This very effective method of improving print quality smoothes the outlines of characters by filling in the gaps between normal-sized dots with smaller ones. It makes 300dpi look more like 600dpi; you can see the difference.

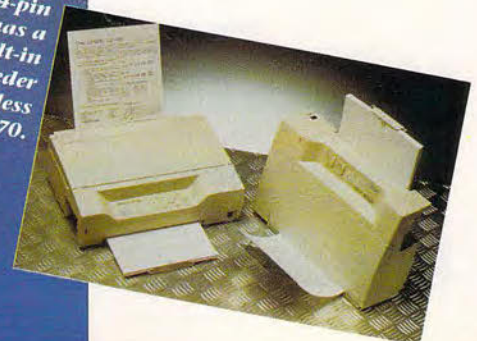
Finally, most lasers can take extra paper trays, envelope feeders, and font cards, should you require them. As before, check for availability and price.



Panasonic's KXP2180, a colour dot matrix printer for around £150.



The top-of-the-range, 600 dpi Hewlett Packard LaserJet 4.

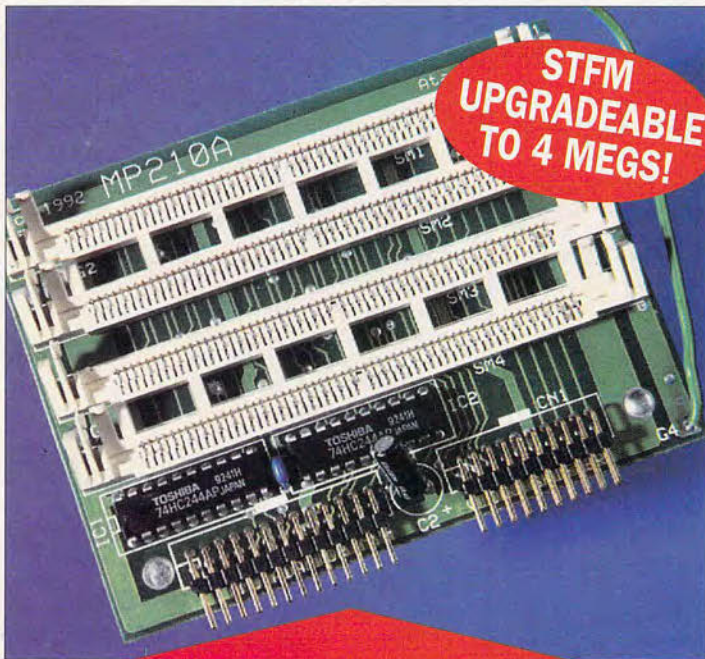


Epson's 24-pin LQ-100 has a built-in sheet-feeder for less than £170.

We've scoured the ST world to bring you products you're likely to need at prices that won't break the bank...

WHAT'S

INCREASE YOUR MEMORY!



**1 MEGABYTE UPGRADES
FROM £9.99**

ESSENTIAL INFORMATION

TECHNICAL HELP

MEMORY UPGRADES - STE 0733 63999
STFM 0423 712600

NON-RECEIPT OF GOODS

If you order goods and they do not arrive within 28 days, please ring 0480 891171

Offers open to UK residents only.

Fulfillment: Go Direct, 7 Vinegar Hill, Alconbury Weston, Huntingdon PE17 5JA

The ST Review campaign to encourage every owner of a 520 ST computer to upgrade to one megabyte continues. To this end, we still offer the cheapest memory upgrades available anywhere!

Priced at £9.99 for the STE and £34.99 for the ST/F/M range, nearly every owner of one of these machines can increase their memory without having to pay another penny!

And no soldering, although there are a small number of machines with soldered-in chips that require extra work and this may involve a small extra charge for additional parts and some soldering.

MOUSE/JOYSTICK EXTENSIONS

The mouse and joystick ports on the ST could well have been designed by the same person who invented the Reliant Robin! Continuous swapping of joysticks and mice eventually damages the ports. Cost of repair? You don't want to find out! Save yourself the hassle - buy an extension lead for just £3.99!



Choose a single lead for £3.99 or a pair for just £5.99. Prolong the life of your ST with this essential little extra.

**SAVE YOUR
JOYSTICK
PORT**

CUSTOMER CARE

At ST Review, every care is taken to bring you the highest quality products at the lowest prices. We don't just offer you anything we can lay our hands on - the products are carefully selected and we ensure that they are practical, handy and actually enhance your computer. Everything we sell is fully supported - help is just a 'phone call away.

**THE ST REVIEW GUARANTEE OF VALUE CONTINUES WITH
THE LOWEST PRICES AVAILABLE IN ANY ST MAGAZINE!**

ON OFFER?

KEEPING TRACK OF TIME

UPDATE YOUR ST SYSTEM CLOCK AUTOMATICALLY!

ATARI ST REVIEW
ESSENTIAL BUY

The problem with the internal clock in the ST is that it forgets the time when you switch off!

This little device plugs into the cartridge port and remembers to tell the computer the correct time when you switch on by using a small AUTO folder program. Given an essential buy award in an earlier issue of *ST Review*, this is an offer you cannot refuse!!

Available with or without a throughport to connect other cartridges to your computer.



MOUSE-TER CLASS!

MAKE POINTING A PLEASURE



THROW THE OLD ATARI MOUSE AWAY AND REPLACE IT FOR UNDER A TENNER!

The mouse that comes with the ST is not the best in the world, to say the least. Why not upgrade to the *ST Review* mouse?

This great addition to the collection is micro-switched for reliable operation. The feel is very responsive and with a resolution of 280 dpi (the Atari mouse is just 100 dpi!), it's very smooth too! Cost? Just £9.99!

AFFORDABLE INSURANCE

SAVE £2 ON THE ULTIMATE VIRUS KILLER!

Another *ST Review* exclusive! The Ultimate Virus Killer is probably the best virus utility available on the ST and the latest version (5.7) would normally cost £9.99. You can buy it today from us for just £7.99, saving a massive 20%.

UVK recognises all known viruses and does a complete system check every time you run it so don't delay, order it before you lose any valuable data!

PROTECT YOUR DISKS NOW!

TO: *ST REVIEW* READERS OFFERS, PLEASE RUSH ME THE FOLLOWING ITEM(S): (TICK AS APPROPRIATE)

- MEMORY UPGRADE -
- STE.....£9.99
 - STFM.....£34.99
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GIVE US A SQUEEZE!

The first in a brand new series of articles that take a look at how the ST is used professionally. Glenn Tilbrook of pop band Squeeze takes his place in the hot seat...

Typical Monday morning. Traffic nose to tail through Blackwall Tunnel, no parking space down in Blackheath Village and a helicopter in the middle of the Green to whisk some unfortunate soul (who happened to impale himself on some railings) off to hospital. Yep, definitely one of those days...

Squeeze aren't exactly flavour of the month but the current line-up are now recording a new album for release in September 1993. Glenn Tilbrook, one half of the songwriting partnership, has taken the plunge and is using a sequencer on a humble 1040 STF making him the perfect target for *One Man & His ST*.

FOR THE RECORD

Glenn is a musician first and foremost. "Having been taken to see Summer Holiday when I was five, I thought it looked like a tremendously appealing way of life - to travel around on a bus, start playing and to have people dancing around you. More importantly, I'd always been keen on music and so I decided that I wanted to be in a group and never changed my mind."

The first incarnation of Squeeze back



Glenn uses Steinberg's Cubase sequencer on a standard 1040 STF as the basis for his songwriting

in 1975 was very much as a pub band with Jools Holland (on keyboards) and Chris Difford, the other half of the songwriting team. "We played in pubs for a few years," he recalls, "making a really good living and having a fantastic time with absolutely no responsibilities!"

The band then signed to RCA in 1976 and spent some time recording with producer Muff Winwood, fresh from success with the Bay City Rollers.

"His brief was obviously to create another Rollers outfit from this bunch of young lads and I'm very glad to say that the couple of tracks we did never saw the light of day - they were horrendous..."

Dropped by RCA, Squeeze continued gigging and released an EP on their own label before being signed to A&M in 1977. Their first LP, *Squeeze*, spawned a top twenty hit in *Take Me I'm Yours* and set Squeeze on the road to 11 albums and half a dozen top twenty singles.

TIMES CHANGE

Has a computer or sequencer ever been used before the current project?

"*Take Me I'm Yours* actually has a load of synths and a drum machine on it. I'd been listening to Kraftwerk and so we hired a load of synths in along with a programmer. He had a crude sort of sequencer that we used for a phrase at the beginning which repeats over and over. Unfortunately, the sequencer only had enough memory for two and a half bars of the four bar pattern and so it just repeated that! The result was quite effective although none of the synths could run together - they had to be recorded separately while playing along with the sequenced track."

The ST came into the picture midway through 1991. "I'd heard a lot of dance stuff but had been very ostrich-like in my way of moving forward," he confesses. "I'd always been firmly convinced that a four-track recorder was all I needed to get across a song. To a certain extent that was right, but I hadn't grasped how

useful a computer could be in terms of a tool, a means to an end.

"A friend of mine gave me some demos that I thought sounded absolutely fantastic especially as I knew that he had done them at home. 'I've got a *Cubase* system - come along and see it' was an offer I couldn't turn down.

"Having gone along and seen his set-up, I decided that I must get into this as it would save me a lot of time. So I invested in an Atari system and *Cubase* and it's fantastic for me because I hadn't been at all computer-literate before. Admittedly I still only know how to use *Cubase* but that's fine for me."

Does the ST get used for anything other than *Cubase*? Word processing, for instance? "I haven't discovered how to do anything else on it at all - I want to get *ST Review* to find out how to use it for other things!" Glenn freely admits. This certainly dispels the myth that all musicians are computer-crazy - is this a perfect example of a professional musician using the ST as a tool to achieve a result?

"Exactly my point. I'd kept hold of a few keyboards that I'd collected over the years and had them MIDI-retrofitted to make them controllable by *Cubase*. The result was incredible. I was suddenly able to get my ideas down so quickly and could then tinker with them. With a four-track I was used to committing a song to tape and that was the way it was - I couldn't change it."

THE CURRENT ALBUM

How did the recording process change once an ST had been incorporated into the studio? "With this album I put all of the songs onto computer but not onto tape so that I could actually go back and chop and change things here and there. The advantage of this is in being able to



Squeeze today: Pete Thomas (drums), Chris Difford, Keith Wilkinson (bass) and Glenn Tilbrook.

WHICH COMPUTERS?

Glenn uses a couple of STs. Steinberg's *Cubase* sequencer is run on a standard 1040 STFM with an Atari SM124 mono monitor - even the mouse is the original. The second ST controls the automation side of the mixing desk, an Amek Einstein (very expensive...). This uses a MegaSTE with 2 megabytes of RAM and an Atari SM144 mono monitor. Oddly enough, the mixing desk has a trackball and a pair of buttons built in.

alter any song at any time, a total revelation to me."

How about live - Computers? Sequencers? "No, and actually I wouldn't want to. Although one of my current favourite songs is by 808 State, and I know they use *Cubase*, I only want to use *Cubase* as a tool and keep it at that level. What we do well is to play live and if I can use *Cubase* as a compositional tool for arranging, that's a great help."

What gets recorded onto *Cubase*? "Keyboards, drums and bass lines via a MiniMoog synth for the demos but everything gets replaced with real instruments or instruments that are being played. If setting up a percussion loop helps with the feel of the track then we'll set one up but we've even tried to avoid doing that. Something that I like about a record is a degree of movement as the tempo picks up a bit in some parts of the song."

Any hassles? Only one serious problem back in November 1992 when a disk went down. Backup? What backup! "It wasn't so much a problem with the computer as a problem with my filing system...or a lack of it."

"The system's only crashed four or five times over the last eighteen months and hasn't happened at all recently although I find that if I want to play a live keyboard piece through the whole song over the

DISCOGRAPHY

Squeeze have been one of the more prolific British bands with eleven albums to their credit: *Squeeze* (1978), *Cool For Cats* (1979), *Argy Bargy* (1980), *Eastside Story* (1981), *Sweets From A Stranger* (1982), *Difford And Tilbrook* (1984), *Così Fan Tutti Frutti* (1985), *Babylon And On* (1987, re-released 1990), *Frank* (1989), *Around And About* (1990) and *Play* (1991).

Of the various singles, six have reached the top twenty, namely: *Take Me I'm Yours* (number 19 in 1978), *Cool For Cats* (number 2 in 1979), *Up The Junction* (number 2 in 1979), *Another Nail In My Heart* (number 17 in 1980), *Labelled With Love* (number 4 in 1981) and *Hourglass* (number 16 in 1987).

Interestingly, one of their best singles missed out on the top 40. *Tempted* was taken from the *Eastside Story* album and reached number 41 in 1981 with Paul Carrick on keyboards/vocals following the first departure of Jools Holland.

top of something I've already programmed, my computer can't cope. It won't have enough memory to do that. But generally I've found the program to be really user-friendly throughout this album."

With Paul Carrick joining the line-up as keyboard player and vocalist, does this mean that keyboard parts are going to be added via *Cubase*? "Well, there aren't any keyboard parts on the album at present so, with the exception of two songs, we're going to start again. We've

been playing eight new songs live to see how they went down. But I don't know whether the keyboard parts will be played straight onto tape or recorded onto *Cubase* first."

THE FUTURE?

Are there any other projects currently underway in which the ST gets used? "I've done a couple of TV theme tunes exclusively on computer. One of them was for a Carlton programme that went out on New Year's Eve called *Big Night*

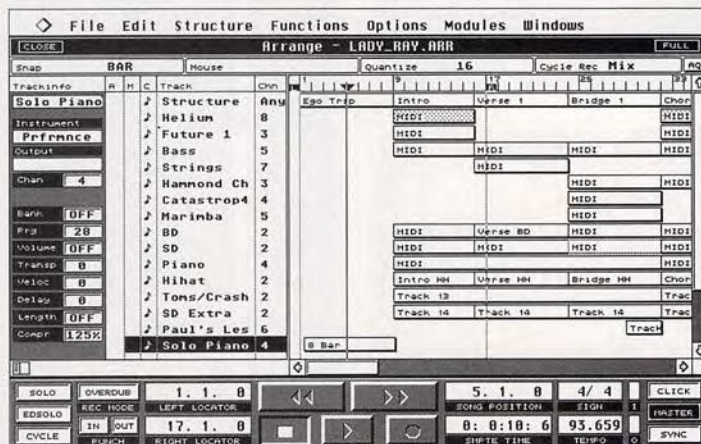
Out and the one I'm doing at the moment is for *Singles*, a program about relationships. I'll do that one on computer, record the sounds onto tape and then play the lead lines on guitar."

And how about a direct-to-disk system like the one we've reviewed for the Falcon? "I'd like to get into that and next time I get an injection of cash, that's what I'll probably invest in!"

CURRENT LINE-UP

Glenn Tilbrook and Chris Difford are the heart of Squeeze and originally formed the band along with Jools Holland, who finally left in 1991. Keith Wilkinson (bass guitar) joined in 1983 and has stayed the course while the present drummer is Pete Thomas, formerly with Elvis Costello and the Attractions.

The fifth member of the band is Paul Carrick, formerly lead vocalist with Mike & the Mechanics. Older readers may remember him as vocalist and keyboard player with Ace who were a one-hit wonder with *How Long* in 1974.



Steinberg Cubase, the choice of many professionals



The mixing desk is controlled by a MegaSTE, hidden underneath

HITTING ROCK BOTTOM

Having problems sorting out the bottom end of your songs, asks Vic Lennard? Spectrum Bass to the rescue



Peavey's spectrum Bass – the ultimate bass sound module?

Personally, there are three instruments I definitely try to change from one song to the next – bass drum, snare drum and... bass. Any reasonable drum machine will give you a good selection of the former two but basses are quite a different story. Current synths either have a limited selection of sounds or follow an editing procedure which would challenge a top-flight computer programmer! Moreover, the last dedicated bass sound module bit the dust over six years ago. Enter the Spectrum Bass...

Think about it. What do you want from a bass module? Sounds. Lots of them – the last thing you need is to waste time trying to carry out a long-winded edit. Spectrum Bass gets around this by providing you with one megabyte of sampled sounds including a large selection of acoustic, electric and synth basses. In terms of number of sounds, we're talking about two banks. The first contains 100 different bass tones, the second bank having a selection of 50 of these with no sustain (for short, pop basses) and maximum sustain (for perfect legato playing).

The Preset dial on the front panel has 16 positions; 1 to 14, MIDI 1 and MIDI 2. The numbers allow you to choose from the first 14 presets while MIDI 1 and MIDI 2 select the relevant bank and allow you to use MIDI Program Change commands from a sequencer or keyboard to access all 200 sounds. The rest of the front panel simply has rotaries for MIDI

Channel, Volume and Transpose plus a couple of buttons for fine tuning and a final button for mode selection. An easy to operate piece of kit.

You'd be forgiven for thinking that a bass module only has single-note polyphony. Not so – Spectrum Bass is four-part multi-timbral and eight-note polyphonic which means that you can layer up to four sounds to create a truly unique bass sound. The fact that all sounds are coming from the one unit means that you don't have to worry about any attack time differences from one sound to the next. This problem usually rears its ugly head when a number of sound modules are used in this fashion.

Of the six modes on offer, Omni, Poly and Mono are as you would expect while Multi lets you play four different sounds on consecutive MIDI channels which ties the Spectrum Bass in with Peavey's MIDIBase, the bass guitar MIDI controller. The two Legato modes let you change a note

without retriggering so giving you the glide effect of an old-fashioned analogue synth or the perfect platform for fretless bass playing.

Whoever has programmed the presets knows their onions – or should that be bass sounds! They're

superb. In the course of a number of sessions, I had no problems at all finding a usable sound very quickly; in fact, you're spoilt for choice. The actual sound quality is good with a full frequency response; bags of bottom end yet with clarity. My only grouse is that the manual doesn't list the sounds - you have to get hold of an October 1992 copy of Peavey's "Key Issues" magazine (which Peavey kindly provide).

Fancy editing the sounds? Attack time, Release and Brightness can all be easily accessed from standard MIDI Control Changes and there's even a full synthesis section where the frequency cutoff, resonance and envelope of the sound can be altered via System Exclusive. While changes can't be saved internally, the edits can be recorded to a sequencer track.

I don't often unreservedly recommend a sound module, but I'll make an exception here. Owning a Spectrum Bass means never again having to apologise for a song's lack of bottom end.

**The only current dedicated bass sound module
200 excellent sounds**

PROS AND CONS

**No list of sounds in the manual
Edits cannot be stored**

PEAVEY GO DIGITAL

The Peavey name is appearing on the front panel of more and more products. While guitar amps and PA equipment has been their staple range for many years, Peavey entered the synthesiser market three years ago with the DPM 3 keyboard. The current range includes the DPM V2/V3 sound modules and the Spectrum Bass's close relative, the Spectrum Synth with 999 analogue sound presets for £379. Also of interest is the SP/SX combination of sample playback/record modules.

"An excellent solution to one of music's most tricky problems"

NAME: SPECTRUM BASS
COMPANY: PEAVEY ELECTRONICS (UK) LTD
CONTACT: 0536 205520

PRICE: £279
RELEASE DATE: OUT NOW
MIN MEMORY: N/A

EASE OF USE ★★★★★
DOCUMENTATION ★★★★★
EFFECTIVENESS ★★★★★
VALUE FOR MONEY ★★★★★

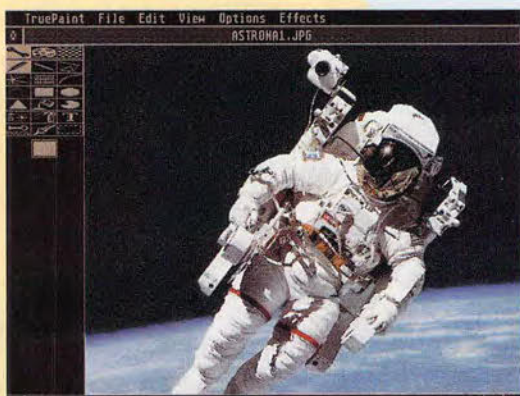
OVERALL **88%**

NEXT MONTH

*Next month's
matchless
editorial pages
will include...*

ART TO HEART!

HiSoft's support for the ST is without equal with software ranging from programming through to databases. Their latest offering, *True Paint*, is purported to be the finest paint package on the ST – how does it measure up? Is it worth buying? Just how good is it on the Falcon? We answer all of these questions and more in an in-depth review. Then we let you make up your own mind by presenting you with a buyer's guide of all the current paint packages...



*Impressive
looking screen-
shots from
True Paint
running on
the Falcon.*

PRIME READING IN ST REVIEW!

SUPERB TUTORIALS!

...with our famed step-by-step walkthroughs. Next month, the Problem Solved series turns to RAMdisks – what are they and how do you use them? We give you the answers. If you've been looking at our Offers pages, you can't fail to have noticed how cheap it is to upgrade the memory in your computer. How easy is it? We take you through a photographic step-by-step of how to upgrade the memory of *any* ST.

INIMITABLE REGULARS!

...and more besides! Interested in getting into the world of communications? Got a modem lying around gathering dust? Our new series, Comms Coaching, takes you through the nitty-gritty of setting up a popular comms program each month. We're also offering subscription to CIX, one of the foremost UK bulletin boards, absolutely free – a saving of £25!

Through The Keyhole gives you a unique look behind the doors of the foremost ST companies in the UK while One Man & His ST brings you up-to-date information on how professionals make the most of their computer.

You can rely on us to bring you the best reviews – including an evaluation of *SpeedoGDOS*, the latest Atari replacement for GDOS.

What do *Timeworks*, *HiSoft BASIC* and *First Word Plus* have in common? They've all appeared on an *Atari ST Review* cover disk of course!

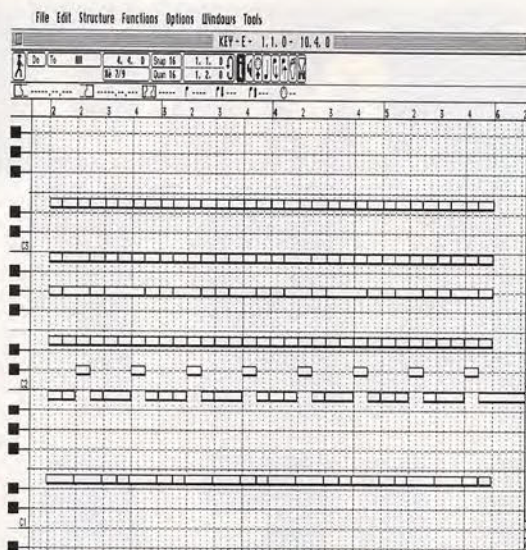
We're back to our best with a complete, commercial program worth £80. What is it? Our lips are sealed... until next month!

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**THE BEST EDITORIAL AND THE BEST COVERAGE FOR ANYONE WITH AN ST!
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MIDI Busker

MIDI may be the panacea for many musicians, but how do you recreate the feel of a guitarist? Try the MIDI Busker files...



Cubase's Key Editor shows how a strum is programmed in the Vamp file - the lower notes play slightly earlier as would be the case with a guitarist.

MIDI STRUM ALONG!

There are two main instruments that are very demanding to recreate electronically: sax and guitar. Sax is difficult by dint of the sheer range of tonal variation it is capable of, but the guitar presents a very different problem: chords.

I have yet to hear a keyboard player accurately imitate the strumming action of a guitarist, mainly due to the delays that naturally occur from one string to the next.

MIDI has offered musicians the wherewithal to "play" instruments they normally wouldn't. A decent sampler can duplicate the sound of a natural instrument and many modern synths are effectively preset sam-

ple players, such as the Roland Sound Canvas which has an excellent assortment of steel- and nylon-strung guitars. But how can a musician using a sequencer make the most of these?

The solution comes courtesy of a brand-new British company called Station Records. *MIDI Busker* is a selection of MIDI files containing typical acoustic guitar strums and finger-picking examples. The 19 files each contain a set of four-bar patterns with between two and eighteen chords per file. By selecting various patterns and using a sequencer's copy/paste feature, a complete guitar part can be created.

INSTANT GRATIFICATION

Most MIDI synths and sound modules have built-in demonstration songs and *MIDI Busker* copies this idea with a couple of 20-odd bar demos. Both of these are configured for Sound Canvas (or any other Roland GS synth) but any multi-timbral synth can be used as long as the MIDI channels and sounds are configured according to the documentation.

The demos are good, and give you a fair taster of what this product is about. With a total of four acoustic guitar parts in the Acoustic demo, two of them being strummed, the sound bears an uncanny resemblance to a recording of real guitarists.

Perhaps a little too staid and repetitive in nature, but the files make no attempt to introduce any random element; if you so desire, this can be achieved by using the relevant editing option on your particular sequencer. An absolute gem of a

muted guitar part can be heard on the demo for the forthcoming second volume, *Electric Guitar*, a mixture of funky picking and strumming. Now how about the actual files ...

BRIEF RUN THROUGH

Files are categorised according to style: Ballad, Country, Folk and so on. The number of chords varies from file to file but most have 18 chord shapes covering E, A, D, G, C and various minor, seventh, minor seventh and major seventh versions. Again, the documentation details how to obtain other chords by using a sequencer's transpose function. Some files have a "B" version with 13 exotic chord shapes including the likes of diminished, augmented, suspended and major ninth chords. Nice.

Of the actual files, *Accent*, *Folk* and *Strate* offer basic strum variants which fit nicely into standard pop songs. The arpeggio-style strum in *Ballad* and bass pick/finger brush from *Country* are very typical of their style and again very usable. *Blues* and *Vamp* files will appeal to musicians who want to recreate a 12-bar song in typical Status Quo style while *Finger Pick* is just that - 14 chord shapes with the feel of "Midnight" from *Cats*.

CONCLUSION

Ask yourself a couple of questions. Do you use a sequencer for demos? Are you a non-guitarist who wants to simulate the feel of a rhythm guitar player? If the answer is "yes" to both of these, then buy *MIDI Busker* and keep your eyes peeled for the *Electric* version!

Easy to use
Good selection of chords
Offers unique facility for non-guitarists

PROS AND CONS

Could do with a few more styles

"A great idea - easy to use and with good practical results"

NAME: MIDI BUSKER - ACOUSTIC GUITAR
COMPANY: STATION RECS
CONTACT: 0787 311500
PRICE: £14.95
RELEASE DATE: OUT NOW
MIN MEMORY: N/A

EASE OF USE ★★★★★
DOCUMENTATION ★★★★★
EFFECTIVENESS ★★★★★
VALUE FOR MONEY ★★★★★

OVERALL 85%

INSIDE INFO

One of the nice points about *MIDI Busker* is that the files have been created by musicians. Robbie Gladwell is a guitar player and designer of some note, writing the *Dr Robert* column in *Guitarist* magazine and currently working on a book entitled *GuitarElectronics & Customising for PC Publishing*. He's currently touring

Australia with Suzie Quatro and has also played with Nik Kershaw and BB King. Mark Newby-Robson has written various themes for TV including *First Letter First*, a 13-part BBC-1 series, and various *Pebble Mill At One* programs.

Roland's Sound Canvas is fast becoming the budget sound module. But editing is always easier with a visual editor on the ST...

PAINTING BY NUMBERS...

If you already own a MIDI sound module, you'll know what I mean when I say that editing from the front panel is a torrid affair - multiple presses of the same button to access different parameters whose values are unreadable on the small display. Yet such editing is essential if you intend to get the best out of even a basic sound module.

The Sound Canvas range is currently expanding (see the *Inside Info* box); sound modules, synths, workstations, MIDI File players and so on. The point is that all models in the Sound Canvas range share the same excellent sound chip.

This particular Sound Canvas editor is testament to a programmer carrying out what he preaches, being the work of Ofir Gal, our resident *HiSoft BASIC* expert.

The package consists of a copy-protected disk, a necessary evil against piracy, and a decent,

left shift button changes values in steps of 10. Using the Control key with left/right mouse buttons changes the values to minimum/maximum while pressing both buttons at the same time selects the central value. If you prefer typing in numbers, the Alternate key brings up a small dialogue box. Flexibility is the order of the day; the ST's up and down arrows even step through the 16 parts.

While the main screen gives you access to most functions, there are three extra boxes for Instrument, Effect and Drum edit. The fact that all editing is number-based makes for a tidy screen but perhaps the odd graph would have been useful - especially one for the instrument envelope.

One nice touch is being able to save all settings as a MIDI File. This

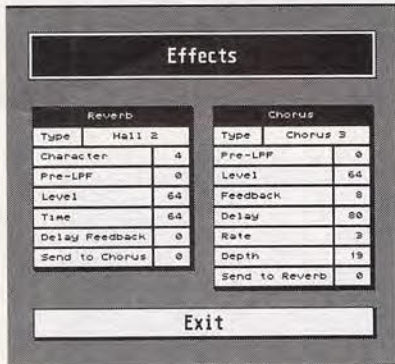
means that you can set up Sound Canvas in the way that you wish - instruments, effects and so on - and then place the settings at the start of a song. Depending on the song's tempo, between one and two bars are needed for this and it's certainly a helpful facility to have.

The program will run under both Steinberg M•ROS and EMagic Softlink multi-tasking environments - I can attest to the former but couldn't check the latter. With *Cubase*, edits can be made while a song is playing and you can even pass all settings directly to a track without having to go through the hassle of saving and loading a MIDI File.

As the editor only runs in hi-res, Hands On MIDI Software have included the *Sebra* mono emulator which is good but not *that* good. If you intend to use this editor fre-

quently, you are going to need a mono monitor. That said, most serious music programs only run in mono anyway.

The sum total is that this particular editor works fine, albeit a little functionally, and is certainly worth considering if you happen to be lucky enough to own a Sound Canvas. It's also one very good advert for *HiSoft BASIC*...



The Sound Canvas effects have their own editing box.

30-page manual.

All values from a connected Sound Canvas can be requested just after the program loads up so the editor always reflects the current situation in the synth. Most of the parameters are shown on the main screen including the instrument for each of the 16 parts and its level, pan position and the chorus and reverb settings. Clicking on an instrument name brings up the instrument list from which you can select your poison; fast and professional.

Some people like scrolling through values with the mouse, others prefer just typing them in. This editor gives you both options. The left and right mouse buttons decrease and increase values respectively; holding down the

Part	Instrument	Reverb	Chorus	Level	Pan	Bend	Mod	EDIT
1	Church Org.1	112 R36	40	20	+0	+0	J	2 10 C -1 G 9 2
2	Church Org.1	112 L36	10	20	+0	+0	J	2 10 C -1 G 9 2
3	Piano 1	80 L63	80	0	+0	+0	J	2 10 C -1 G 9 4
4	E. Piano 1	76 L 8	60	0	+0	+0	J	2 10 C -1 G 9 4
5	Muted Gtr	104 L 3	50	40	+0	+0	J	2 10 C -1 G 9 1
6	Bass & Lead	62 <>	60	0	+0	+0	J	2 10 C -1 G 9 1
7	Clav.	70 R63	40	63	+0	+0	J	2 10 C -1 G 9 2
8	Steel str. Gt	86 R 4	40	27	+0	+0	J	2 10 C -1 G 9 4
9	Vibraphone	106 R41	40	23	+0	+0	J	2 10 C -1 G 9 0
10	Standard Set	120 <>	64	0	+0	+0	J	2 10 C -1 G 9 4
11	Trenolo Str	92 L 5	40	0	+0	+0	J	2 10 C -1 G 9 0
12	OrchestraHit	59 <>	40	0	+0	+0	J	2 10 C -1 G 9 0
13	Windchime	77 L30	40	0	+0	+0	J	2 10 C -1 G 9 0
14	Music Box	107 R30	40	0	+0	+0	J	2 10 C -1 G 9 0
15	Syn Strings3	102 R 5	40	24	+0	+0	J	2 10 C -1 G 9 0
16	Echo Drops	56 L23	40	76	+0	+0	J	2 10 C -1 G 9 0

Most editing takes place on a well laid out main screen.

INSIDE INFO

WHAT IS SOUND CANVAS?

Roland introduced the first of this sample-playback series in 1991 as a replacement to the U-220. Initially starting out with a single, high-quality sound module (SC-55: £699), the range now boasts ten models. The SC-155 (£719) and CM-300 (£399) are very similar to the SC-55 - the same number of sounds but different casing and facilities - while the CM-500 (£799) has an additional synthesis section. Keyboard and workstation variants exist in the JV-30 (£985) and JW-50 (£1499) while the Boss DS-330 offers the same sound quality but fewer sounds for £410.

Three new models have been added recently. The SC-7 (£273) is a budget unit with just 128 sounds on-board while the SC-33 (£449) and SD-35 (£759) boast over 200 sounds, the latter having a disk drive for the play-back of MIDI Files.

**Good screen layout
Can export settings as
a MIDI File**

PROS AND CONS

**Mono only
Could be a little
more graphic**

**"A little functional
but worth consider-
ing if you want to get
the most from
Sound Canvas"**

NAME: SOUND CANVAS

EDITOR

COMPANY: HANDS ON MIDI

SOFTWARE LTD

CONTACT: 0705 221162

PRICE: £39.95

RELEASE DATE: OUT NOW

MIN MEMORY: 0.5MB

EASE OF USE ★★★★★

DOCUMENTATION ★★★★★

EFFECTIVENESS ★★★★★

VALUE FOR MONEY ★★★★★

OVERALL **82%**

A PIPE DREAM?

The Dream GMX-1 is one of the cheapest multi-timbral sound modules on the market - but does it live up to its name?



Is this diminutive box a sound canvas beater?

Most General MIDI (GM) sound modules sport the Roland name and GS logo with the latter signifying that the module conforms to Roland's superset of General MIDI.

While both Yamaha and Korg have released GM products (TG100 and 03R/W respectively), no other manufacturer has made any movements in this direction. From looking at the front panel of the GMX-1, you'd be forgiven for thinking that this is the exception, but the GM logo is misplaced as you'll see later.

Designed and built in France by Dream, the control side of the GMX-1 couldn't be much simpler with only three items on the front panel - on/off switch, volume slider and headphone socket.

The mapping of the internal sounds conforms to the GM Sound Set which means that the basic 128 timbres are the same as for any other GM module and are called up by the relevant MIDI Program Change message from a synth keyboard or sequencer.

Also included are various drumkits and sound effects; in effect, Dream have looked closely at Roland's Sound Canvas and created an identical product in terms of architecture including the mistake Roland made with Bank Select messages which precludes most sequencers from easily accessing tones beyond the basic 128.

The comparison ends the moment you hear the sounds. While all of the Sound Canvas tones are based on good quality samples, the GMX-1 uses a mixture of samples and digital synthesis. This is fine, but although Dream state that these samples are of 16-bit quality, the graininess and digital noise on the tail end of many sounds shows that the resolution is only one factor.

The unsatisfactory tonal character may be due to a low sampling rate,

poor quality analogue to digital conversion or some other factor, but in six years of reviewing sound modules I cannot recall one whose sound quality was inferior to the GMX-1. Perhaps this is a case of getting what you pay for - to keep the price down, Dream have left out the Chorus and Reverb that makes many of the Sound Canvas tones what they are.

For computers other than the ST, the rear panel includes an RS-232 connector to provide a direct computer link without the need for a MIDI interface, much in the same manner as Yamaha's TG100. A stereo pair of phonos for the audio outputs and the external PSU socket complete the rear panel.

Is the GMX-1 a GM module? Not really. While it conforms to the Sound Set, it only has 16-voice polyphony; any GM sound module must support a minimum of 24 voices. However, the issue is clouded by the fact that each voice can be used for either a single instrument (such as piano, strings and so on) or three percussion sounds. So the

polyphony depends on the content of the music - for instance, you might have 14 instrument voices and 6 drum sounds but you cannot guarantee 24 voices. Whichever way you view it, the GMX-1 does not conform to GM in this area.

Politics aside, comparing playback of a MIDI File on the GMX-1 and a Sound Canvas shows that Dream appear to have incorrectly set the initial levels of the 128 basic sounds - the mix balance is poor. Additionally, long sounds tend to be cut off due to the lack of sufficient polyphony. Inability to edit sounds, no effects, insufficient polyphony, and poor sound quality...

If you're a games player who wants to improve on the innate quality of the ST sound chip and who owns games that support playback on a GM module, then the GMX-1 might be worthy of consideration. If you're after a multi-timbral sound module that will help you to create music, you'll probably want to look elsewhere - possibly at Roland's SC-7, a cut-down Sound Canvas for £259.



PROS AND CONS



"The GMX-1 is a perfect example of getting what you pay for"

NAME: DREAM GMX-1
COMPANY: ZONE
DISTRIBUTION
CONTACT: 071 738 5444
PRICE: £269
RELEASE DATE: OUT NOW
MIN MEMORY: N/A

EASE OF USE ★★★★★
DOCUMENTATION ★★★★★
EFFECTIVENESS ★★★★★
VALUE FOR MONEY ★★★★★

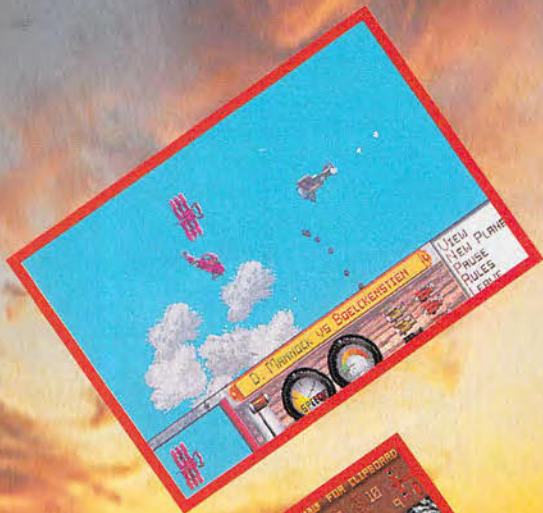
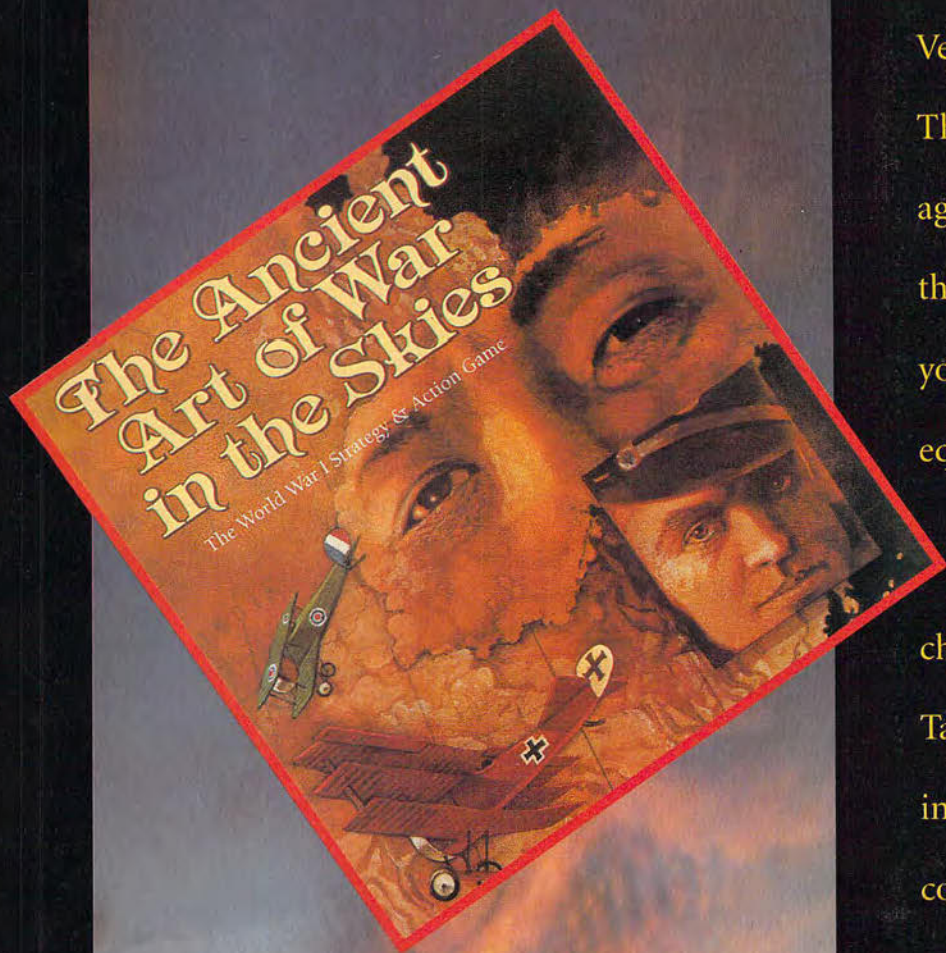
OVERALL **55%**

What is GeneralMIDI?

A General MIDI (GM) module has to conform to a specific set of MIDI functions. For instance, all GM modules must be 16-part multi-timbral and play back key-based drums on MIDI channel 10 according to the GM Percussion Map. They must to have a minimum of 24 simultaneously available voices and 128 presets, each assigned to the MIDI Program Change number in the GM Sound Set. Finally, they must recognise certain MIDI Control Changes including Modulation, Volume, Pan, Expression and Sustain Pedal along with Channel After touch and Pitch B end.

Consequently, using any GM sound module should mean compatibility - no notes cutting out due to different polyphonies, no incorrectly selected sounds via MIDI Program Changes, no incoherent drums due to the wrong mapping, and so on.

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Midi Studio Master,
Stylus 800 printer,
Calamus 5

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SCREEN SCENE

A liberal sprinkling of the new, the very new and the not-quite-so-new-but-at-a-nice-price for you this month in our regular round-up of the ST games scene...

The post-Christmas rush is over now. All the releases that didn't quite make it are finally in the shops. We look forward to a couple of the exciting new products due to reach the shops soon in our regular Previews slot: *D-Day* and *Ishar II – Messengers Of Doom*.

Chaos Engine has finally arrived and looks like being worth adding to the collection. We've also taken a flight in a Harrier Jump Jet with *Domark's AV-8B*.

Looking into the pocket money vaults, we drive a truck, have a gamble, go back in time to fight the Bosch and even help to clean up the environment!

So here we go for your adventurers of the past and the future in this month's mixed bag...

FIRST IMPRESSIONS

ISHAR II – MESSENGERS OF DOOM 56

This sequel to the best-selling *Ishar – Legend of the Fortress* looks like a winner.

D-DAY 59

Re-live the Normandy landings with the latest from Ocean.

REVIEWS

CHAOS ENGINE 55

Long awaited offering from the Bitmap Brothers. Full of Eastern (well, East London) promise!

AV-8B HARRIER ASSAULT 61

Domark's flight sim with a difference.

ARCADE SPORT 61

Four sporting games in one package, but are they worth the money?



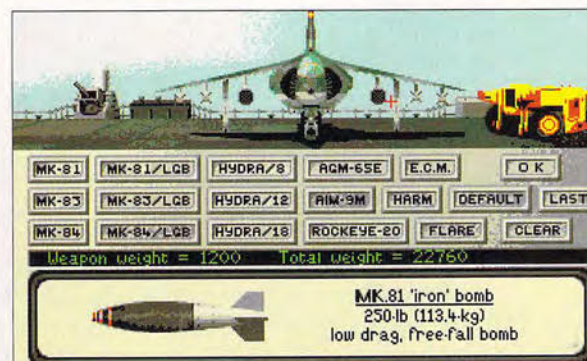
Superb graphics, but what about the game? Find out on page 56.



The Eagle has landed! D-Day on page 59



Chaos Engine – worth the wait? See page 58.



AV-8B – the first ST Harrier flight sim.

VFM	1943	62
	INTERNATIONAL TRUCK RACING	62
	ARCADE FRUIT MACHINE	62

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THE CHAOS ENGINE

Nearly three years ago, work started on The Chaos Engine at the Bitmap Brothers' hideaway in London's trendy Docklands. Now the game is

complete and Richard Barton travels back in his time machine to see if it was worth the wait...

The first thing you notice about any Bitmap Brothers game is the extreme attention to detail. The Chaos Engine, with some 40,000 man-hours in the development stage, is no exception. Such exacting standards have put the release date back three times so far.

Imagine a combination of the Victorian mystery of HG Wells or Jules Verne with the menace of Edgar Allan Poe and you have the basis of this epic adventure. An invention has been developed that can change the very fabric of space and time. The Chaos Engine, for obvious reasons, is

top secret in an age when even space travel was considered impossible. The "Primeval soup" produced by the Engine is the basis of all life.

As always seems to happen in these stories, the machine has become corrupted by a meddling scientist and it has started to produce mutated

beings and crazed beasts with only one aim - to protect the Engine itself.

Newspapers in Berkshire reported a monster the size of Tyrannosaurus Rex, labelled "The Maidenhead Monster". It died only after falling into a deep pit and, having feasted on cattle in a quarry, was unable to climb out.

Using various illicit substances, the story has been extracted from a scientist who worked on the project at the Fortesque Estate, home of the Chaos Engine. A group of adventurers and mercenaries assemble their forces and set out to do battle with the newly created mutants.

The character selection screen looks like the control panel of the Time Machine. Each person has his



own strengths and weaknesses and the whole team needs to be balanced if the mission is to succeed.

One of the main features of the game is the intelligent computer-controlled characters that move with you, each of which has its own functions. They are able to use their skills to fight alongside you and search for objects and clues. You can even select their intelligence, stamina and strength levels.

The "if you're going to kill someone, do it with style" philosophy of the Bitmap Brothers is carried into Chaos and even the priest has a white lightning that can do a vast amount of damage and each character has his own method of inflicting devastation on his enemies.

The primary objective of the first level is to find and destroy the power current controllers, called Nodes. These are connected to the Engine, so when you blast it, it hums and bursts into life adding to the ultimate

destruction of the main target.

Once all the nodes are active, you move on to the next stage, further in the Fortesque Estate and one step closer to the Chaos Engine. It is vital to work as a team, or the mission stands no chance of success. Most characters are driven primarily by greed, but their characteristics have been carefully designed to add as much realism to their actions as possible.

There's enough here to keep even the most ardent adventurer happy with an excellent mix of action and brain power. The pace is variable, making this one game you will return to again and again. Watch out when the awards are handed out - this one's sure to be in the queue!



"Excellent attention to detail. Well worth the wait"

NAME: THE CHAOS ENGINE

COMPANY: RENEGADE

CONTACT: 071-702 3643

PRICE: £25.99

RELEASE DATE: OUT NOW

MIN MEMORY: 1MB

GRAPHICS ★★★★★

SOUND ★★★★★

VALUE FOR MONEY ★★★★★

PLAYABILITY ★★★★★

OVERALL **92%**

Atmospheric adventure
Intelligent CPU characters
Enhanced STE features

PROS AND CONS

Can be
daunting at first

FIRST IMPRESSIONS

Dave Jones got lost in the mists of time to find out more about the latest from Silmarils



A happy band? Choose your heroes

The French have a knack for producing excellent graphics.

It's been a long-standing feature of the movie world and now it's really catching on in the software market. Sequels have always been around, but lately, it seems to be a case of "that one did well, let's bring out another".

There are pros and cons to this idea. If a game was not that good in the first place, the sequel will more than likely be under par too, but if an original game can take it, a sequel can be a massive money-spinner. Take a look at *Lemmings 2 - The Tribes* for proof!

Messengers of Doom is a good example of the genre. The original game was massive and kept many a gamer busy for a long time. The sequel promises even more. It's three times the size of the first and among other things has seven islands to explore.

Ishar has had a period of peace and prosperity since the defeat of Krogh, that well known megalomaniac and chat-show host. Peace and prosperity are not, on their own, a good basis for an RPG, so an element of evil needs to be added.

This takes the form of a demonic beast who supplies mind-bending drugs to the population of the islands. His aim? To take over the world, of course! Sounds like a "come home, switch on, save the world, dig into Findus Crispy Pancakes and go

ISHAR 2 MESSENGERS OF DOOM

to the pub" to me!

Players of the original game will be pleased to know that the facility exists for you to import the same band of happy travellers that you finished with. Or, if you prefer, you can start afresh with a new set.

The seven islands mentioned earlier each have their own characteristics ranging from grassy plains to swamp or arctic. Silmarils have even developed a new technique where the ground is actually graded to show a good representation of altitude. Exactly what that means is anyone's guess, but it'll make you take a closer look at the finished game!

There are over 30 new characters

to interact with, some of whom you can talk to, fight with or even recruit. Besides these, there are over 70 new enemies to do battle with. Enough to keep even the most ardent RPGer busy.

One case of "nice idea, shame about the result" was the very annoying Save Game feature on the original. You had to pay some gold for the privilege of coming back to the same point. This, mercifully, has gone from the sequel.

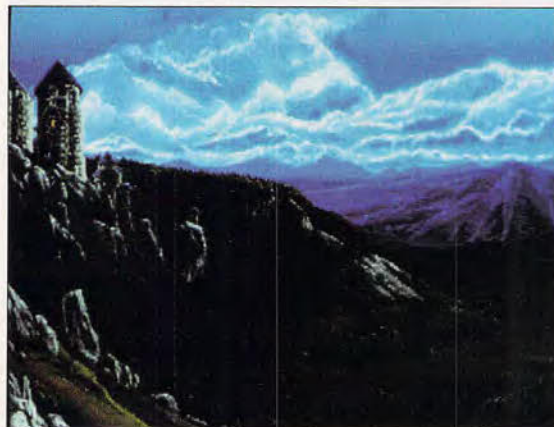
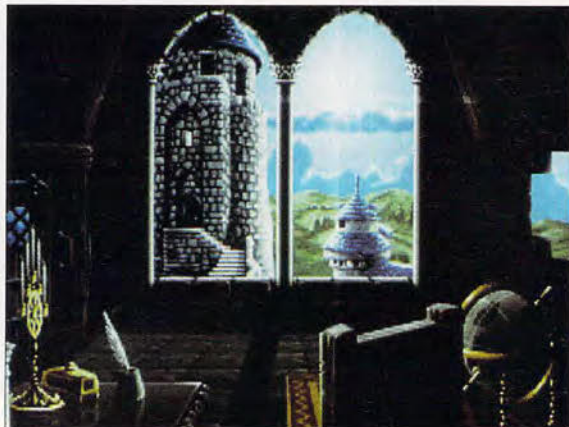
When it comes to presentation, the French have a flair for it, and *Ishar 2* is no exception. A rolling demo was running at the recent ECTS computer trade show and it looked stunning.

FALCON COMPATIBLE

Ishar 2 is being produced for the entire ST and Falcon range featuring a 32-colour screen on the 16-bit machines and 256 on the Falcon. The 32-bit machine will be every bit as stunning as the SVGA PC or the Amiga 1200.

This promises to be a game of good quality and playability and should keep RPG fans busy long into the night. Expect it to be in the shops around May/June.

Looking through the window, the feel of quality is there all the way.



The scenery is great but we're waiting to see the new "altitude techniques".

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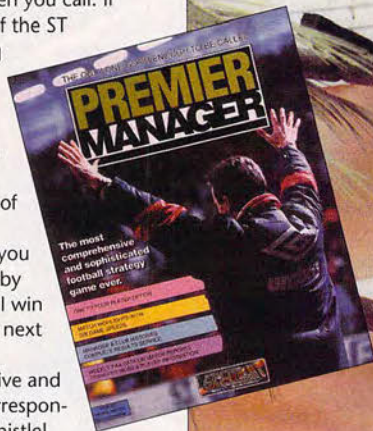
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3. It's a game of _____

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- Largest results database: 21290 match results and league positions going back 20 seasons all instantly retrievable. All of which may be printed out.
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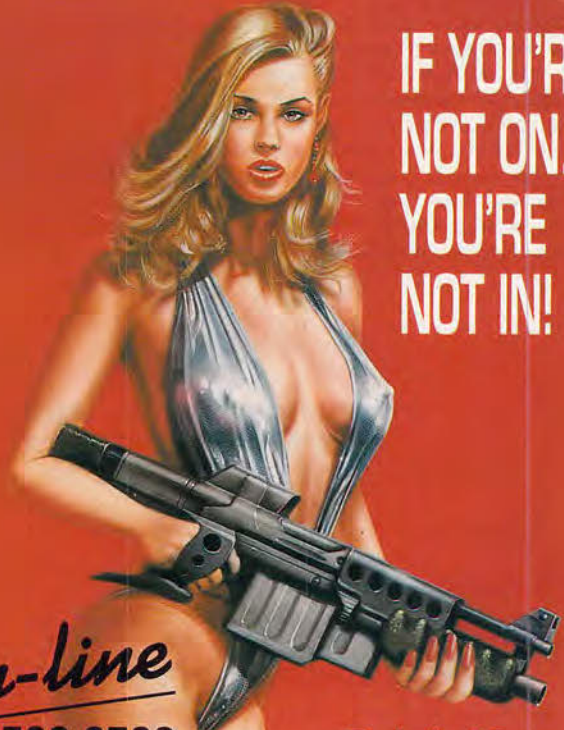
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Operation Overlord comes to the ST. Dave "Winston Churchill" Jones dons his uniform and tin helmet and digs in...

D-DAY

For those who don't know, and some of you may not have seen any war films on the telly, Operation Overlord was the name given to the Normandy landings on the 6th June 1944 - D-Day (what DOES the D stand for?).

This was the biggest Allied offensive of World War II, and helped to see the end of the hostilities. Put it this way, had the Normandy landings failed, we'd probably all be under Nazi rule today!

Mind you, ask around and some old fogey is bound to tell you: "We 'ad real wars in those days. People got killed and no-one complained about it. Not like these mamby-pamby efforts of today."

Fifty years later (well, 49 to be precise) and US Gold are about to launch their own invasion on the software charts with a computer re-enactment of the battle.

The programming team behind D-Day are Pascal Jarry (author), Chris Terrotin (graphics) and Michel Winogradoff (sound) who, incidentally, also programmed Panza Kick Boxing! Bit of a difference, lads?

Reading the hype, the game is described as "a totally original combination of strategy and simulation", but that's not the first time it's been said. Let's have a closer look and see if the claim holds water.

Operation Overlord was a combined air, sea and land attack on the German forces in occupied France. You get the chance to relive the whole thing, taking over from General Eisenhower on the day before, the 5th June 1944.

Four options are available to you: tank manoeuvres, parachuting, bomber raids and ground attacks. Of course, you'll need all of these for the main offensive, but you can start in training mode to get used to how they work. Then, progress to the first



On the horizon. Do the Gerries know what's coming?



Tanks form one of the four main strike forces involved.



"I say, chaps, wouldn't it be top hole if we won?"



"Over the hill, Lads!"

of seven missions in each division.

As you work your way through, they get increasingly harder so you should be equipped to take on the might of the German army when the time comes. A word of warning, though, you'll need to take part in over 100 missions and drive the enemy back to their own land to do well in this game.

There are 144 different locations that battle takes place on and up to 42 engagements can be handled by the computer at the same time.

Progress is shown by a ranking system starting at the bottom as a straight forward foot soldier and working your way up to General, eventually.

The 3D graphics are a joy and this game should appeal to the arcade fan as well as the serious sim user. Look through the port of the gun turret on the tank and you could almost believe you were actually driving it.

There is even what appears to be a sub-game of a flight simulator built in! Walk the troops through the streets of Paris and shoot your big guns at the buildings to finish off any hiding German troops. Watch out for flying shrapnel, though. It goes a long way and can cause serious damage.

There's a lot in this game. Something for everyone, from a quick arcade kill-'em-off to a full-blown war simulation. US Gold will have a winner on their hands if the early promise is anything to go by.

Watch out for a full review when it becomes available in May before parting with your cash, though. We've seen this kind of hype before.

By the way, this was the decisive battle of World War II and Hitler was left to sleep when it started. The German Generals didn't take it seriously enough to wake him up!



Maps help you plan your attack



Parachute in for the aerial onslaught



A full report of troops is available.

AV-8B HARRIER ASSAULT

Yet another flight simulator, but this promises to be different. Is it? Rob Redfern puts on his flight suit and finds out...



Plan your attack in the operations room

There are many different flight simulators on the ST ranging from light aircraft to fighter jets. No-one has ever produced a Harrier sim. Until now, that is, with Domark's latest offering.

The Harrier itself is a STOL/VTOL (Short/Vertical Take Off and Landing) aircraft and you can immediately see the difference between this and other simulations.

This outstanding British aircraft was instrumental in the battle for the

Falkland Islands in the early 80s. Sold in more colour combinations than the Ford Mondeo, the Harrier has become a favourite around the world.

Domark, in conjunction with Simis, have brought us the first computer version of flying the Jump Jet, as it became known.

No fancy Mach 5 fighters here! You can choose between just flying the plane or conducting the entire campaign.

First impressions from the packaging are good. From the wonderful picture of the Harrier emerging from the clouds on the front of the box to the screenshots on the back, every-



"Tophole, chaps." Time for a briefing



An impressive range of weaponry is at your disposal

"Nice idea, shame the game doesn't live up to it"

NAME: AV-8B HARRIER ASSAULT
COMPANY: DOMARK
CONTACT: 081-780 2222

PRICE: £29.95
RELEASE DATE: OUT NOW
MIN MEMORY: 1 MB

GRAPHICS ★★★★★
SOUND ★★★★★
PLAYABILITY ★★★★★
VALUE FOR MONEY ★★★★★

OVERALL 66%

thing points to a game that's a bit special. This is where disappointment sets in! Inside the box, where the real action should take place, it just fails to impress. You realise that the shots on the pack are not from the ST and the graphics are blocky and totally fail to match up to your earlier expectations.

The idea behind this game is good. Take a standard flight simulator and add some new angles to make an exciting package, but, unfortunately, it doesn't quite all match up to make an explosive game in this day and age. It may have been rated higher five years ago, but not today.

ACTION SPORT

A sports compilation from Microids combines classics with the unusual. Dave "Superskis" Jones jogs round the track a few times

Action Sport is the latest from Microids and includes four games for only £29.99. The games are Superski 2, Grand Prix 500 II, Advantage Tennis and Killerball.

Compilations work out to be a cheap way to buy software, but only if the package is up to scratch. The immediate thinking is that you're paying £7.50 for each, so it must be good value. In reality, the software house usually manage to put at least

one game on that's not worth the disk space. In this case, it's Grand Prix 500 II. Previously known as Hot Rubber, a name change has done nothing for the gameplay. ★

On a brighter note, Advantage Tennis is very playable and realistic. Although not one of the most popular of the genre, this offers a 3D perspective of the real thing and more than makes up for Grand Prix's lacking. ★★★★★

Third is Superski 2, a winter sports

compilation in its own right! There are six events to compete in: Downhill, Slalom, Giant Slalom, Ski Jumping and Hot Dog.

All are great fun, have great graphics and, added to Advantage Tennis, make this a good bundle for the money. ★★★★★

Last, but not quite least (that honour goes to Grand Prix), is Killerball. Definitely a two-player game, this. If you've ever stayed up late to watch the re-runs of James Caan in the film Rollerball, there's not a lot I can add. Third on the quality list of the package. ★★★★★

Overall, a mixed bag here, strengthened by two good, quality games. You can't expect all four to be brilliant, so two and a half ain't bad!

"Two strong games, one medium and one not worth the disk space"

NAME: ACTION SPORT
COMPANY: MICROIDS
CONTACT: N/A

PRICE: £29.95
RELEASE DATE: OUT NOW
MIN MEMORY: 0.5 MB

GRAPHICS ★★★★★
SOUND ★★★★★
PLAYABILITY ★★★★★
VALUE FOR MONEY ★★★★★

OVERALL 86%

VFM

Budget games are becoming more popular and a wider selection is available. Tony Kaye looks at this month's offerings...

ARCADE FRUIT MACHINE

ZEPPELIN • £7.99 • 091-385 7755

IN BRIEF: Once upon a time, the only fruit machine programs available were poor, slow and not exactly packed with features. If you were lucky, you may have found one with a nudge feature on it, but mostly they were cheap PD space fillers.

This was a great shame because a good program can give you all the fun without digging a great big hole in your pocket. Let's face it, £7.99 for a game is probably one visit to the local arcade!

This fruit machine game from Zeppelin has most of the features and flashing lights that you'd find on the real thing. Light up the letters that make the words CASH'n'GRAB and you have a range of options in the cash 'n' grab feature.

This includes cashpot, spin win and nudges.

ST REVIEW COMMENT: "A great little program, but the novelty soon wears off. The thrill of playing a fruit machine, you very soon discover, is the risk of winning or losing money. As you can't actually do this, the attention span wears thin and you're looking for more. However, if you're addicted to these beasts, as our reviewer is, you'll love it, for a time, anyway."



Lasting appeal? Without actually putting a slot on the ST, I doubt it!

INTERNATIONAL TRUCK RACING

ZEPPELIN • £7.99 • 091-385 6444

IN BRIEF: Sitting behind the wheel of a "big rig" and racing around a track at great speed is something that a lot of overgrown kids would love to do at some stage. This, however, is the closest they're likely to get at the moment.

This game involves hurtling around various championship circuits in 40-tonne trucks along with five other contenders. Things like tyre choice can greatly affect the handling, which takes time to get used to, but once you are familiar with them, the game is highly addictive.

ST REVIEW COMMENT: "Frustrating at first, this is a good game for removing your aggressions without actually killing anything! The best way to play is with two people."



I thought that Hertz Van Rentals was a Dutch footballer until I discovered International Truck Racing!

1943

KIXX • £7.99 • 0260 299023

IN BRIEF: This should be titled World War II meets the 21st Century if you count the laser weaponry involved! Having said that, 1943 is a good shoot-'em-up that keeps you coming back for more.

You are a pilot in the middle of the Battle of Midway and you're in the hot seat of a P38 twin-engined fighter plane. Waves of enemy fighters are sent to knock you out of the skies, so you have to fire back and try and get them first.

Shooting the various symbols that appear after you've destroyed special waves of enemy fighters will add new weapons to your arsenal from triple shots to laser power.

ST REVIEW COMMENT: "A good game that has appeal. Can you survive

the onslaught? Difficult and challenging, this takes time to master and represents good value for money."



Wave after wave of enemy fighters provides plenty of arcade action.



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P D Z O N E

THE GLASS BUTTOCK OF THARG

CALEDONIA PDL • DISK NO: GM.155 • £2.50 • MEMORY: 1MB • SHAREWARE

**ATARI ST
ESSENTIAL BUY**

IN BRIEF: With a name like that, surely this game could only come from Ian Scott, author of Grandad and the Quest for the Holy Vest. The plot is intricate and tells a sordid tale of a wicked princess's misfortunes, resulting in her glass buttock reigning in terror over what was once a peaceful island.

The aim of the game is to break through the legions of bandits and conquer the castle containing the evil glass buttock. To aid you in your quest you are given a total of 12 armies, led by famous warmongers from show business such as Sergeant Wilson, Mr Bean, Jimi Hendrix and Jeremy Beadle. Each turn gives you a set number of moves and as you progress up the island you can increase your forces by stopping at the liberally scattered castles. The 3D display is suitably convincing and the graphics throughout are truly excellent. And yes, as with Grandad, you can expect more than a fair share of innuendo!

ST REVIEW COMMENT: "It's another cracker! The Glass Buttock of Tharg may lack the long term interest of Grandad, but the superb graphics and humour element put it a cut above all the rest."

★★★★



The map screen shows the position of your twelve armies. Clicking on an icon puts you in charge of a character.

Are you sure this was written in STOS?! The Glass Buttock of Tharg has a 3D graphical display that puts many commercial games to shame!



ALAN B'STARD CONTROLS A REGIMENT OF 13 MEN. THEY HAVE 16 MOVES LEFT.

NIRVANA

CALEDONIA PDL • DISK NO: GM.156 • £2.50 • MEMORY: 0.5MB • SHAREWARE • FALCON COMPATIBLE

IN BRIEF: Yep, it's another platformer. Nirvana carries on the age-old PD tradition by challenging your little green hero (sprite 1) to collect all of the gold (sprite 2) on a level while avoiding the nasties (sprite 3) – how original! In fact, this concept is uncannily similar to Manic Miner, which appeared on 8-bit machines some nine years ago!

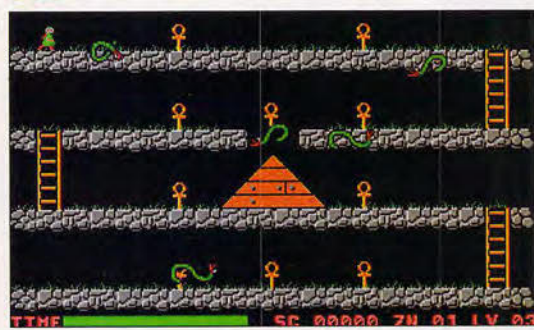
Graphics are quite acceptable with the animation of the main character being particularly good, but some of the enemy sprites let things down badly. It's almost as if the programmers gave up half way through and just threw the last few pics together. The control system is better than most, but not quite up to 16-bit standards. As with, it seems, most STOS games, the colour palette is incorrectly set on the Falcon.



Jump, walk, collect; jump, walk, collect – who said computer games were mindless? Nirvana fails to live up to its name.

ST REVIEW COMMENT: "As platform games go Nirvana isn't bad, but the action isn't quite fluid enough to make it a classic. On the other hand, it's a little better than most PD offerings of this genre, so you might care to give it a try."

★★★



Level two, and the graphics are starting to deteriorate but look on the bright side – at least the controls are fairly responsive.

OXYD

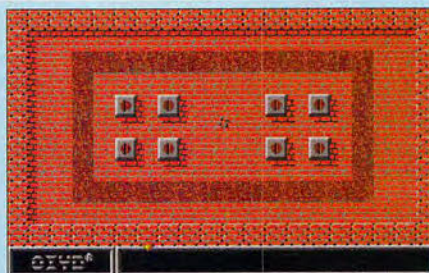
GOODMAN INTERNATIONAL • DISK NO: GD.1881 • £2.75 • MEMORY: 1MB • SHAREWARE • FALCON COMPATIBLE

IN BRIEF: Oxyd is loosely based on the "match maker" theme. The idea is to steer your marble around each scene, bumping into similarly coloured squares. Early levels are very easy, but as you get a bit further into the game, a far more strategic approach is needed – level three for example requires you to deflect a laser to hit the blocks, which are placed out of reach on the other side of a chasm.

Sampled sound is used liberally throughout the game and a two player game is possible with the help of some MIDI leads. Beyond the tenth level a "play guide" is needed, which will set you back £19.95 in the UK. The game itself is Falcon compatible, but be quick on the mouse button when the title screen appears otherwise the machine resets!

ST REVIEW COMMENT: "If you're a fan of puzzle games, you need Oxyd now! It takes a tired theme and reworks it into a totally compulsive game. The registration however, is a bit over the top at £20."

★★★★



Role play with a marble may not sound like your idea of fun, but give Oxyd a go – you'll be hooked (right up until the point you have to fork out the £20 registration that is!).

Wire up another ST and you will be treated to a simultaneous two player game. As if you needed any help, right?



F1 or left mouse button: start game
F2 or right mouse button: start LINK game
F3: restart landscape
F4: timed game is off F5: sound is on
F7 (MODEM)/MIDI F8: guide
F9: bongleware info
ESC: abort game F10/Quit

MINEFIELD

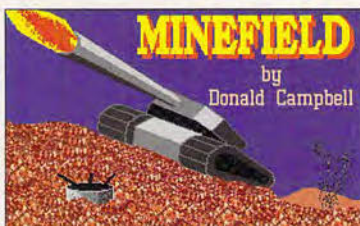
NEW AGE PDL • DISK NO: BUGAM.110 • £2.95 • MEMORY: 0.5MB • LICENCEWARE • FALCON COMPATIBLE

IN BRIEF: Minefield is a variation on the Battleships theme, the idea being to guide your tank across a grid avoiding mines laid by your digital opponent. The player who manages to drive the most tanks over the landscape without being blown into oblivion is the winner. Control is via the mouse and the sound effects are suitably loud and proud, with heart-stopping explosions signalling the demise of a tank (what, again?). Each tank is equipped with two shots capable of detecting the position of a mine in an adjacent square. The intelligence of your opponent can be selected from the main menu and the easy level should break you into the game nicely.

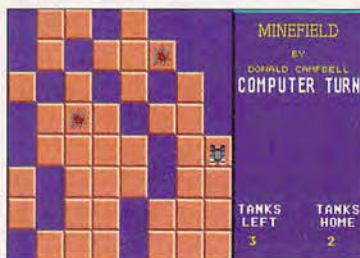
Once again wierd colour schemes abound on the Falcon, although this can be solved by a little fiddling with the GFA Basic source code, supplied on disk.

ST REVIEW COMMENT: "It hasn't got a huge amount of long-term interest, but Minefield is the sort of game you can pick up and enjoy for five minutes when the mood takes you. A selection of varying sized grids would probably improve the game further."

☆☆☆☆



Three skill levels are Minefield's only contribution towards lasting playability, but it's fun for a five minute break.



All actions are mouse-controlled via a panel of icons on the right hand side of the screen. Evidence of two previous victories stains the battlefield.

DROID III

TUMBLEVANE PDL • DISK NO: GM.090 • £1.50 • MEMORY: 1MB • FREWARE • FALCON COMPATIBLE

IN BRIEF: After his exploits in Droid II, Hans the robot – it's a German game you understand – is without work. In order to afford his beloved Milk, Hans has taken to hanging bill-board posters. This involves tearing down rival companies' adverts while hanging your own and avoiding the badly drawn henchmen. And this sums up Droid's biggest problem – its graphics. Most are adequate, but only just. In order to keep the speed at an acceptable level, the scrolling lurches in huge steps which detracts from the overall effect.

Instructions are a little bit scarce on disk, but a few minutes' playing time is all you need to suss out what you have



Hans the robot needs your help! Dash around technotraz temping for rival poster companies to earn you milk money. Plots don't get much more original than that!



As you can see the presentation lacks polish, but Droid III's original plot and fast gameplay go a long way towards making up for that.

to do. Persevere and I think you'll agree that there's a great game struggling to get out of Droid III's presentation.

ST REVIEW COMMENT: "If you excuse the lacklustre presentation, Droid 3 is a thoroughly enjoyable game. It's a brave effort for GFA Basic and just shows what you can achieve with a little perseverance. The original plot is also a refreshing change."

☆☆☆☆

TOP TEN GAMES

1 THE GLASS BUTTOCK OF THARG • CALEDONIA PDL • DISK NO: GM-155 • £2.50 • MEMORY: 1MB • SHAREWARE

An engrossing role player with perfect graphics and a humorous plot. Take command of a crack force of TV personalities and misfits in a bid to dethrone the nasty Glass Buttock. Registration, at a reasonable £5, is needed to progress to the later stages of the game.

2 OXYD • GOODMAN INTERNATIONAL • DISK NO: GD.1881 • £2.75 • MEMORY: 1MB • SHAREWARE • FALCON COMPATIBLE

Battle your way through ten levels of sample-clad brain teasing, before forking out the slightly nauseating £20 registration fee. Easy-to-cope-with mouse controls and difficulty set at just the right level put this head and shoulders above most PD puzzlers.

3 ROCKFALL • GOODMAN INTERNATIONAL • DISK NO: GD.1879 • £2.75 • MEMORY: 0.5MB • SHAREWARE • FALCON COMPATIBLE

Boulderdash reincarnated, and you'd be hard pushed to distinguish it from the early eighties original. The gameplay also remains spot-on and although slightly eclipsed by Budgie's Douglas Rockmoor, this is a good attempt. Also includes level editor.

4 LIGHT CYCLES • NEW AGE PDL • DISK NO: GAME.85 • £1.50 • MEMORY: 0.5MB • SHAREWARE

Wipe the envy from your face – STFM owners can enjoy Light Cycles too! This effort was written by demo programmers and it shows – every graphical trick in the book is given an airing! Once again it's a toughie, but the game speed, number of players and music are all fully adjustable via the numeric keypad.

5 VIKING III • FLOPPYSHOP • DISK NO: 3276C • £2.50 • MEMORY: 0.5MB • PUBLIC DOMAIN

This original little game puts you in charge of a spaceship whose sole mission is to prevent Martians from destroying the earth. As much as it sounds like space invaders, the gameplay is sufficiently different to make it worth a second glance.

6 MINEFIELD • NEW AGE PDL • DISK NO: BUGAM.110 • £2.95 • MEMORY: 0.5MB • LICENCEWARE • FALCON COMPATIBLE

Navigate your tank across the battlefield without unearthing any of the five enemy mines laid by your ST. Whoever manages to cross the field with the least number of casualties is the winner – it's as simple as that!

7 DROID III • TUMBLEVANE PDL • DISK NO: GM.090 • £1.50 • MEMORY: 1MB • FREWARE • FALCON COMPATIBLE

A game starring a billboard poster? – this must be a world first. If you manage to post enough boards without getting nobbled you move on to the next level. What Droid III loses in presentation, it makes up for in gameplay.

8 BOOGY MAN • TUMBLEVANE PDL • DISK NO: GM.072 • £1.50 • MEMORY: 0.5MB • PUBLIC DOMAIN

A similar concept to Centipede, the aim being to move around a maze collecting fruit and avoiding nasties. Simple but cunningly addictive (oh alright then, the main reason it's in the charts is on account of the superb raspberry sound it makes when you collect a goody!).

9 ROCKET BALL • FLOPPYSHOP • DISK NO: GAM.3263C • £2.50 • MEMORY: 0.5MB • PUBLIC DOMAIN

Race around the circular arena stealing the ball from the opposing team and dashing to the goal before they return the favour. This enjoyable Commodore 64 conversion is held back from greater things by poor presentation.

10 GUARDIAN • MERLIN PD • DISK NO: MPD.1270 • 99p • MEMORY: 0.5MB • SHAREWARE

Your mission: dash around the universe and arrive back safely on earth in time for tea and pop tarts. Guardian's interface is quite a handful, being keyboard driven, but the game is quite enjoyable once you get the hang of it. It's hardly Elite, but at this price who's complaining?

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GENERAL

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- All the little things (and some not so little) that our friends at ATARI should have told you but didn't. This is the manual that should have been supplied with your computer (at least in our humble opinion).
- GEN-05 Adventure Writer/Skymap + 4 more 'D'
- GEN-06 Archive Suite (back-up in less space) 'S'
- GEN-09 ZX-81 Emulator + lots of programs 'D'
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- GEN-12 Formfinder 2.1 (find a winner?) 'S'
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- GEN-16 60 assorted samples (SPL Format) 'D'
- GEN-20 Firstbase DB+7 more good programs 'D'
- GEN-22 E-Plan (Electronic Circuit Designer) 'S'
- GEN-24 Joke Database (Laugh with us!) 'D'
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LOBOTOMY INVADERS

CALEDONIA PDL • DISK NO: GAM.3193C • £2.50 • MEMORY: 1MB • SHAREWARE • STE ONLY

ATARI ST ESSENTIAL BUY

IN BRIEF: There's no shortage of STE demos in the public domain, but when it comes to games the picture isn't quite as rosy. Lobotomy Invaders was written to fill this gap in the market and makes a point of using every extra feature offered by the ST's big brother.

The plot is a familiar one, being based on the Space Invaders theme, but the aliens are no longer limited to a single screen. Instead, you are given a joystick controlled cross-hair and as you move, the whole picture smoothly scrolls to reveal a "virtual" play area some four times the size of the screen. Over 350 kilobytes of stereo sound has gone into the game and it shows, with three original soundtracker modules and clear commentary speech popping up all over the place.

ST REVIEW COMMENT: "As a demo of the STE's abilities Lobotomy Invaders is superb, but as a game it doesn't fare quite so well. It's fast, very slick and the sound is wonderful, but be warned - it's tough!"

★★★★



Smooth 8-directional scrolling and stunning sound effects line the game, but you may find it just a tad too difficult.

THE JUNGLE DEMO

FLOPPYSHOP • DISK NO: DEM.473C • £2.75 • MEMORY: 1MB • PUBLIC DOMAIN • STE ONLY

IN BRIEF: A mini movie in a demo - what a great idea! Haunting tribal music greets your ears as our intrepid adventurer enters stage right, magnifying glass in hand. Hot in pursuit follows a menacing native - he's got a spear and he's not afraid to use it! The explorer knows what's good for his health and dashes up a tree pronto. Ah! - It's not a tree after all, it's a huge Atari logo! Explorer disappears and the whole thing starts all over again.



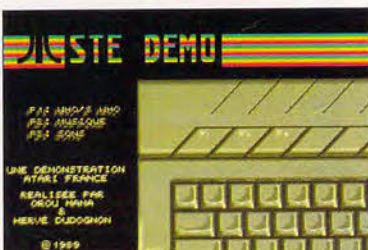
Pretty graphics and an atmospheric soundtrack are all part and parcel of this STE extravaganza from France. A little longer and it would be a classic.

And that's about it. The scrolling is controllable via the cursor keys and you can plaster the programmer's name all over the screen by prodding F1. It's hardly Gorillas in the Mist, but at least we're spared scrollers, rasters and bouncing balls!

ST REVIEW COMMENT: "Some superb sound and a blistering array of colours are what this demo has to offer, but it's unlikely that you'll want to watch it more than a couple of times. Great idea, but the plot's a bit thin."

★★★

From the dawn of time (well, 1989) comes Jungle STE - a mini-movie demo.



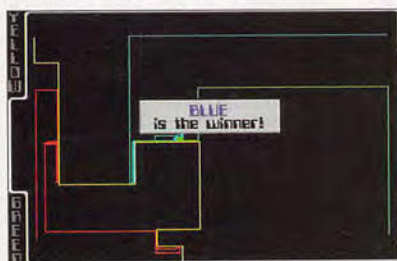
MEGALINE

CALEDONIA PDL • DISK NO: STE.49 • £2.50 • MEMORY: 1MB • SHAREWARE • STE ONLY

IN BRIEF: There once was a game called Tron - it was never hugely popular, but for some reason public domain authors can think of nothing better to do than to copy it. Megaline is just one of these clones and holds the dubious honour of being the only STE specific Tron variant in existence.

The aim of the game, in case you haven't come across it before, is to avoid crashing into the trails of coloured light left by your own and other players' cycles. At the same time, you have to trap your opponent into writing off his pride and joy. A new feature for Megaline is the turbo button, which speeds up your cycle to break-neck level. Up to four human players can compete or you can simply switch one or all of the cycles over to computer control. STE enhancements come in the way of crisp sampled commentary.

ST REVIEW COMMENT: "Megaline doesn't offer a huge amount to the Tron genre, but it plays well and the sound samples are very effective. The multi-player option adds appeal too, although in practice four people all using the same keyboard could prove troublesome!"



★★★★

Just as you thought Tron was nothing more than a nasty memory, along comes Megaline. An old concept is brightened up no end by stereo commentary.

FANTASIA STE

FLOPPYSHOP • DISK NO: STE.471C • £2.75 • MEMORY: 1MB • PUBLIC DOMAIN • STE ONLY

ATARI ST ESSENTIAL BUY

IN BRIEF: 3D vector demos are ten a penny on the ST, but Fantasia STE is different. Admittedly, it contains more than its fair share of pointless shapes, but this time you can take control by pressing the space bar. This gives you the opportunity to zoom, rotate, twist, slide and mutilate the 3D shapes to your heart's content. And that's not all - the soundtrack is quite simply the best you will hear on the STE. It's been taken from an instrumental Cure ditty, the clarity is wonderful and it loops seamlessly.

If vectors are not your thing, you might care to try another offering from Fantasia's author, which shares the same scrumptious sound. It's called 3D Scroll and can be found on Floppyshop's disk no DEM.470C.



Prod the space bar and you're in control of all of the trendy 3D objects on display, via keyboard or mouse.



ST REVIEW COMMENT: "While a little long in the tooth, Fantasia is still one of the best STE demos around mainly thanks to its stonking soundtrack. The 3D graphics are also impressive and the option to control the shapes yourself adds to the appeal."

★★★★★

Fantasia STE packs a superb soundtrack.

BLAT!

LAPD • DISK NO: G.201 • £2.00
 • MEMORY: 1MB • PUBLIC
 DOMAIN • STE ONLY • FALCON
 COMPATIBLE (MINUS SOUND EFFECTS)

**ATARI ST
 ESSENTIAL BUY**

IN BRIEF: If you're forced to classify Blat! it inevitably drops into a Tetris clone category, but don't let that put you off. Even if you have an ordinary Tetris clone, it in no way prepares you for this truly 90s version! Not content with just beefing up the sound the programmer has tweaked the gameplay to include numerous power-ups and bonuses such as smart bombs, lightening, acid bottles and many more.

Rather than forcing you to complete a whole row of blocks, the aim of Blat! is to form lines of three or more similarly coloured squares – the longer the line, the higher the score. This demands a far more strategic approach than Tetris, because the temptation is to form short lines – the quick and dirty approach – when it would be far better to plan ahead and go for longer lines. Decisions, decisions!

ST REVIEW COMMENT: "Probably the best STE game in the public domain. It may not use every single extra feature offered by the machine, but the gameplay is thoroughly addictive and practically limitless levels guarantee you sleepless nights well into the future."



Blat! puts the emphasis on gameplay rather than STE effects, but still manages to use a huge range of classic stereo sound samples.

★★★★★

The aim of the game is to form lines of the same coloured blocks, the longer the better. Unite a match and dynamite for a truly explosive sound effect!

TOP TEN STE

1 BLAT! • LAPD • DISK NO: G.201 • £2.00 • MEMORY: 0.5MB (1MB RECOMMENDED) • PUBLIC DOMAIN • STE ONLY • FALCON COMPATIBLE (MINUS SOUND EFFECTS)

A very special Tetris variant with stereo sound, numerous special effects and more power-ups than you can shake a stick at. Well defined graphics and red-hot gameplay make this the best STE game the public domain has to offer although sound effects are severely limited on half meg machines.

2 FANTASIA STE • FLOPPYSHOP • DISK NO: STE.471C • £2.75 • MEMORY: 1MB • PUBLIC DOMAIN • STE ONLY

An average vector demo is completely redeemed thanks to an incredible stereo soundtrack and mouse control over all objects. Prod the HELP key for some instructions, wire your STE to a hi-fi, dim the lights and enjoy!

3 LOBOTOMY INVADERS • CALEDONIA PDL • DISK NO: GAM.3193C • £2.50 • MEMORY: 1MB • SHAREWARE • STE ONLY

A tough shoot-'em up (what else could it be?) that manages to utilise all of the STE's enhanced features. Eight directional scrolling and a host of digital effects are used to brighten up an old concept, but be warned – this game is no easy ride!

4 PRESENTATION STE • GOODMAN INTERNATIONAL • DISK NO: GD.792 • £2.75 • MEMORY: 0.5MB • PUBLIC DOMAIN • STE ONLY

Atari France have a second stab at the STE demo scene. This offering consists of four sub-demos, each illustrating one or more of the STE's enhanced features. Full screen graphics and stunning sound make this worth more than a passing glance.

5 DELIRIOUS 3 • RIVERDENE PDL • DISK NO: STE.829 • £2.50 • MEMORY: 1MB • PUBLIC DOMAIN • STE ONLY

The Overlanders strut their stuff on the STE with this blisteringly colourful mega demo. The main menu screen contains over 32,000 colours (so we are told) and all soundtracker music is played back at an impressive 25kHz.

6 AN COOL STE DEMO • RIVERDENE PDL • DISK NO: STE.773 • £2.50 • MEMORY: 1MB • PUBLIC DOMAIN • STE ONLY

Mickey mouse as you've never seen him before! The blitter is put through its paces in this LOUD demo from Carebears member, AN Cool. Plenty of colours and a crystal clear soundtrack almost compensate for the short length of the demo.

7 MEGALINE • CALEDONIA PDL • DISK NO: STE.49 • £2.50 • MEMORY: 1MB • SHAREWARE • STE ONLY

Light Cycles revisited, STE style! Megaline adds little to the concept, but squeezes every last ounce out of the STE's sound hardware with digital commentary popping up at every available moment. A simultaneous four-player mode adds to the chaos!

8 BACKTRACK • CALEDONIA PDL • DISK NO: STE.34 • £2.50 • MEMORY: 0.5MB • PUBLIC DOMAIN • STE ONLY

Music while you work! This desk accessory sits in the background, playing your favourite tracker module. The tune can be changed at any point and the program is quite happy to work alongside 99% of word-processors, desktop publishers and spreadsheets!

9 DMA PLAYER • GOODMAN INTERNATIONAL • DISK NO: GD.1938 • £2.75 • MEMORY: 0.5MB • FREWARE • STE ONLY

This nifty little utility puts you in total command of the STE's (or TT's) stereo sound hardware. Treble, bass and volume can be adjusted at will and the whole thing is housed in a fiendishly easy-to-use GEM interface.

10 THE OFFICIAL STE DEMO • FLOPPYSHOP • DISK NO: DEM.426C • £2.50 • MEMORY: 0.5MB • PUBLIC DOMAIN • STE ONLY

The original STE demo and still well worth checking out. Bobs jumping smoothly all over screen, plenty of colourful rasters and a crisp rendition of Axel F are what you can expect from this one.

THE MAIN COURSE SLIDESHOW

FLOPPYSHOP • DISK NO: 3568C • £2.50 • MEMORY: 0.5MB • PUBLIC DOMAIN • STE ONLY

IN BRIEF: The Amiga public domain has been positively bulging with top quality slideshows for years and since PhotoChrome hit the ST, the trend seems to be gathering steam on the Atari. This collection takes that loved children's classic (not!) Nightbreed as its theme and all of the pictures are displayed in 4,096 glorious colours.

A crisp looped sample plays along in the background and although it's nice for one or two seconds, you'll be lucky if you get to the end of slideshow without throwing your ST through a nearby window (or at least turning the volume down). In terms of quality, the pictures aren't bad, but are really only of interest to those people who've seen the film ... and I doubt if there are that many of you.

ST REVIEW COMMENT: "This one's for hardened Nightbreed fans only. If the subject film had just been released and was a hit on a massive scale, I might be impressed. As it happens it hasn't, it wasn't and I'm not – sorry!"

★★ *Picture quality is very good, but the subject matter just isn't impressive enough.*



I say granny, what big teeth you have! If Nightbreed is a personal favourite, check out the Main Course Slideshow of all of those friendly stars.



PD ZONE

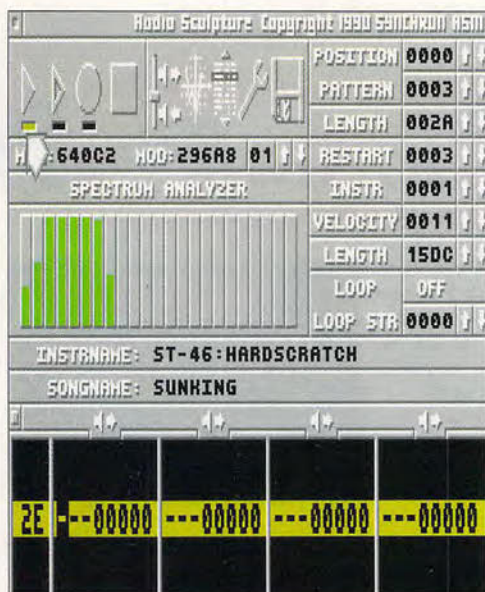
CHRIS PRITCHET MODULES

**NEW AGE PDL • DISK NO: TRAC.91 &
TRAC.92 • £3.00 (SET) • MEMORY: 0.5MB •
EXCLUSIVE WARE**

IN BRIEF: It's a fact that 99% of the tracker tunes that appear on the ST scene are ported from Amiga demos, and so obviously sound best on Commodore hardware. This selection of modules from New Age is different, in that they were composed on the ST using Noisetracker 1.5.

The tunes themselves are pretty good. A mixture of tastes are catered for from heavy guitar squealing rockers to more relaxed, digital numbers. One weak spot is the intros which are a bit on the wet side and lack the impact of Amiga sourced classics such as Demons or Cream. As always, the quality of the sound depends on your player – anything pumped through Audio Sculpture on the STE sounds like a masterpiece, but even with no filtering the songs remain listenable.

ST REVIEW COMMENT: "New Age's claim of total originality is a little bit empty because most of the sound samples originated on the Amiga. On the other hand if you're new to the tracker scene, this is as good a place as any to start."



If you're lucky enough to own an STE, make sure you pump Chris Pritchett's modules through Audio Sculpture for glorious stereo sound.



All modules were composed with Noisetracker 1.5 and cover a wide range of tastes. Sound quality is good on all STs.

☆☆☆☆



In terms of ease-of-use, Automation 5 is the best bet. It uses the same compression algorithms as the mighty Ice Packer, but boasts a neat GEM interface.

Another packer listing highly in the ease of use stakes is JAM which is also capable of disk compression.

PACKERS

**THE ST CLUB • DISK NO: UTI.232 • £1.45
• MEMORY: 0.5MB • PUBLIC DOMAIN •
FALCON COMPATIBLE**

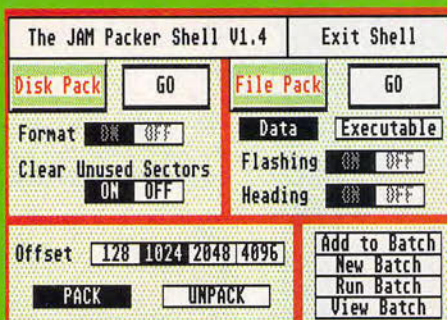
IN BRIEF: It's amazing how much disk space you can save by simply crunching program files, but which packer should you use? Well, why not just try them all and pick the best for each situation, with this disk from the ST Club? Fifteen are present altogether (overkill? – never!) and this includes all of the old favourites such as Automation, Ice and Jek.

Interfaces vary from program to program, the best being Automation version 5 which uses GEM dialogues for all operations. Others are more primitive in their approach, lacking even a basic file selector. The majority are Falcon compatible and naturally benefit from the extra speed available. If packers are missing from your

software collection at present, it could be time to take the plunge, but don't forget – only work on back-up files until you know what you are doing!

ST REVIEW COMMENT: "A nice collection, but largely pointless when you realise that the only three worth using are Ice, Automation and Atomik. Having said that, these three essentials are included, so it could be worth a look."

☆☆☆☆



DATALOPE

CALEDONIA PDL • DISK

NO: AU.205 • £2.50 •

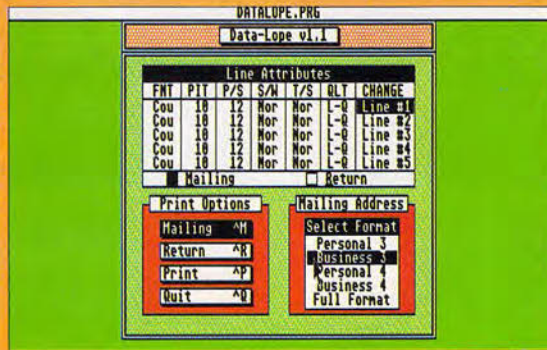
MEMORY: 0.5MB • FREWARE



IN BRIEF: Datalope is the latest in a long line of address printing programs for Hewlett Packard's trusty DeskJet. Where this program differs from its competitors however, is in its ability to store a library of addresses on disk for use at a later date. This opens up all sorts of possibilities, such as being able to search for a phrase in that elusive address, and more importantly never having to retype a regularly used address every time you need it!

And the story doesn't end there – Datalope is also very flexible. It allows you to print addresses in the various print styles and typefaces offered by the DeskJet. The interface is wholly GEM based and a joy to use in any 80 column ST or TT resolution. Although the program itself is Falcon compatible, the machine hangs when you select "quit" – it's still usable, but can be frustrating.

ST REVIEW COMMENT: "What is this fixation DeskJet owners seem to have with address printing programs? If you do need another to add to your collection though, you won't find one better than Datalope. It's quick, flexible and extremely easy to use."



Unlike many of its competitors, Datalope is able to store all of the addresses it prints in a database which can be searched at will.

Any of the DeskJet's styles and typefaces can be stirred into action through the "Print Address" dialogue box. Output in a number of different layouts is also possible.



MARK MATTS' UTILITIES

GOODMAN INTERNATIONAL • DISK NO:

GD.1895 • £2.75 • MEMORY: 0.5MB •

SHAREWARE • FALCON COMPATIBLE

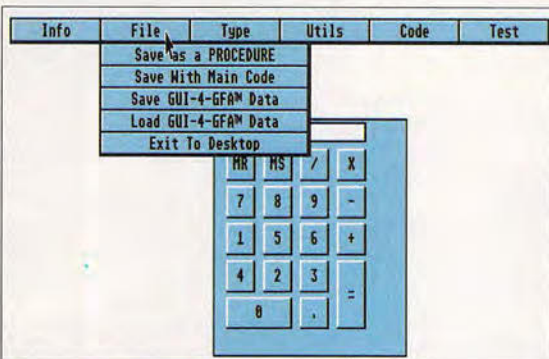
IN BRIEF: This disk comprises a collection of utilities written by Mark Matts over the past couple of years. Without a doubt, the best offering is an interface creation utility for use with GFA Basic 3. With the help of this little number, windows, dialogue boxes and buttons can simply be drawn on the screen by dragging the mouse and the results saved as source files for direct inclusion into your own programs. The resulting interfaces have a 3D effect similar to that used by GEM on the Falcon. Unlike its main competitor ZeST, GUI4GFA is quite happy to run in ST medium as well as high resolution.

The other utilities are more limited in their appeal – a program to delete .BAK files and a 60Hz switcher being two more useful examples.

ST REVIEW COMMENT: "If you look on the interface creator as the main attraction and view the other utilities as space fillers, this disk offers great value for money. Ideal for those who want to use ZeST, but don't have a mono monitor."



Now that's what I call a 3D menu! Creation of GUI4GFA interfaces is easy and several examples are included to get you started.



The FULL version of GUI-4-GFAM is available for only £10/320



Contact Mark Matts, 66 Telford Way, Leicester, LE5 2LX, England

The creation utility itself is written with GUI4GFA and, unlike ZeST, can be run in medium as well as high resolution.

DOT MATRIX PRINTER UTILITIES

NEW AGE PDL • DISK NO: UTIL.38 • £1.50 •

MEMORY: 0.5MB • SHAREWARE • FALCON

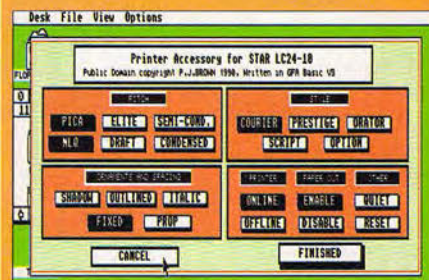
COMPATIBLE

IN BRIEF: Lack of printer drivers for popular applications is not a huge problem these days, but printing text files from the desktop in anything other than the default typeface is nigh on impossible without extra software. This disk contains no fewer than three desk accessories to help out in this department, all designed to suit particular models of printer. First up is KXPSET which surprisingly enough is designed for use with the Panasonic KXP series. It's really the Rolls Royce of configuration utilities, supporting every single feature offered by the printer and up to nine macros containing a complete set of commands.

The other two accessories are for the Star LC24-10 and NEC Pinwriter and while not quite up to KXPSET's standards are functional and easy to use. Several other handy utilities also grace the disk including a spooler and poster printer.



When it comes to printer configuration accessories, they don't come any better than KXP SET. Thanks to macros it also remains the easiest to use.



ST REVIEW COMMENT: "Overall an essential selection of utilities if you own one of the printers covered. Being accessories, you can also use them from within applications that refuse to set up your printer correctly."



Tame your LC24-10 with this nifty utility, available as part of New Age's Dot Matrix collection.



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- D.322 MENTAL HANGOVER: Conversion of Amiga demo. (STE) 1mb

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Blue in colour but not in quality – perhaps we should rename this section the super blues!

The latest in our Problem Solved series looks at replacement file selectors. Why are they better? How can using them make your life easier? Turn to page 77 to find out.

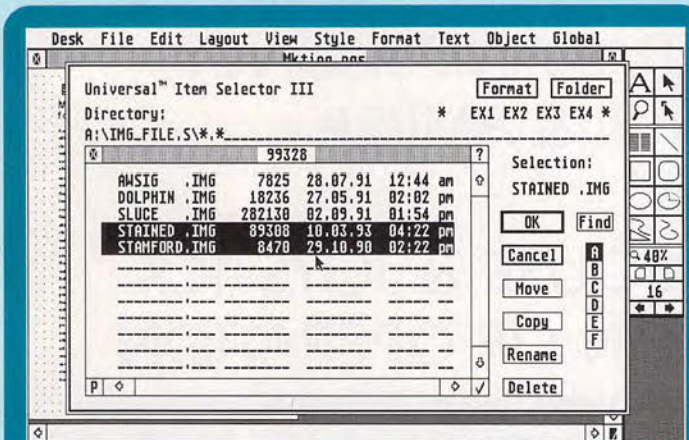
Programming in HiSoft BASIC has been so popular that we've decided to continue the series. Ever wanted to write your own desk accessories? Find out how on page 80.

With money being too tight to mention these days, are you considering buying your ST gear second-hand? Need some sound advice on where to look, how much to pay and the mistakes to avoid? Check out Second Thoughts on page 84.

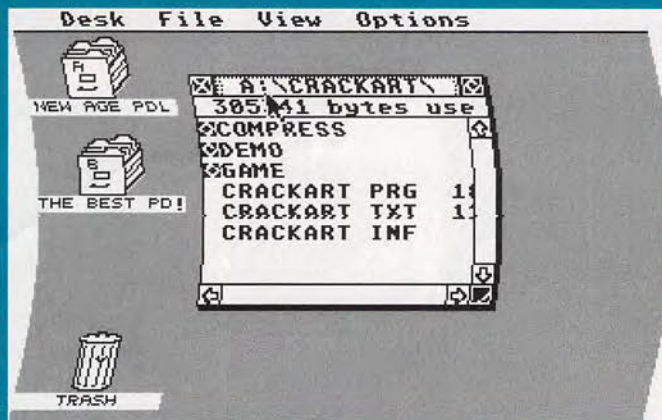
There's a nice selection of short reviews including a TOS switcher for the STE and a cheap font editor. And don't forget all the regulars – Ask The Experts, Learn The Lingo, Readers' Letters and a Blitter End with a difference!

The blues is your section. Got a problem that needs solving? Want to express a point of view? Drop us a line and you never know – it could be your name at the end of a letter next issue.

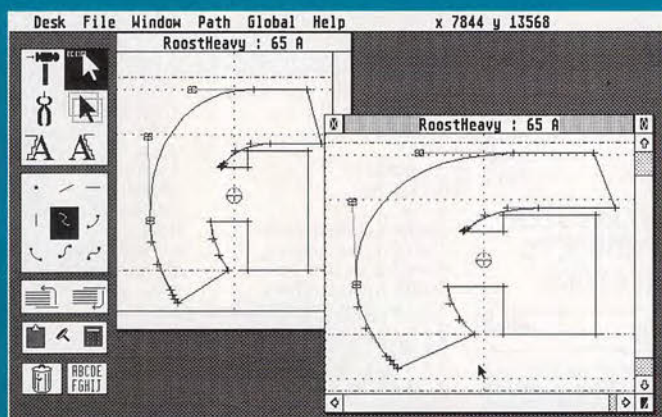
Blue in colour, lively in nature...



Ever wondered what all the fuss is about replacement file selectors? We let you in on the secret on page 77.



Having Second Thoughts about buying second-hand? Our advice on page 84 could save you time and money!



A font converter and editor for less than £12 – have a peek at Fonty on page 87

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The standard TOS file selector has always been a bone of contention. Andrew Wright considers how to replace it.

THE BEST SELECTION

Not long after the first STs rolled off the production line, scores of TOS bugs and various other inadequacies made their presence felt. Some of the bugs are inconsequential and unlikely to affect most users. Others are a little more awkward, such as the 40 folder problem, for example. The only comforting thing about bugs is that they can usually be patched pretty easily. Most of the bug fix patches for the ST have been released by Atari and correct the odd malfunctioning feature - as long as you install them.

Some of the TOS inadequacies, however, are a lot harder to work around, and require extensive code to replace the offending parts of the operating system. A prime example here is the file selector, the much maligned dialogue box that allows the user to indicate which data file a program should load or save.

In early versions of TOS (prior to TOS 1.04) this was about all it would do - and it did it badly. If you needed to load from or save to another disk drive, the correct path had to be entered manually in the file selector much in the manner of a command line. Even a simple action like changing the file mask was hard work and required the use of an undocumented feature (clicking on the window bar). Small wonder that replacement file selectors became the number one priority for many programmers!

TOS 1.04 improved things slightly by adding buttons for the various available drives but by this time many users had realised that the file selector could be used for an awful lot more than just choosing a file. They realised that other disk and file operations were often needed when loading or saving files - whether it be formatting a blank disk to hold them, moving or deleting existing files to make more room or even creating a new folder to house them in. TOS 1.04 was nowhere near as flexible as the replacement file selectors coming on to the market and even subsequent releases haven't done much to improve the situation. For all of its

fine features, TOS 2.0x/3.0x is still groping around with much the same file selector as the STfMs of 1989 had to put up with. You'd think the Falcon would have a better file selector wouldn't you? Well, it doesn't, at least not in TOS 4.0x that I've been playing with recently.

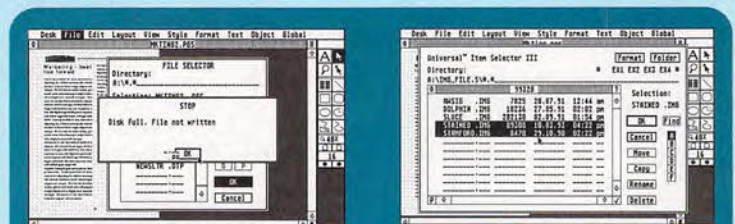
The better replacements are now very handy tools with multiple capabilities. *The Universal Item Selector* is almost a replacement desktop - you can do just about anything in *UIS* that you can do on the desktop and more besides. *UIS* (along with *Selectric*) also has a matching accessory that will call it from within any GEM program - not just when opening or saving files. If you don't have this, there is a small utility from Double Click Software, one of the famous DC utilities, that will let you call up whatever file selector you're using with a click of the right mouse button.

Some applications and utilities have their own file selectors, such as *Calamus* and *Tempus2* the text editor, which can be a little awkward. At least with the accessory *Harlekin*, though, it can be turned off and your own replacement used.

To demonstrate the effectiveness of the replacements, we'll look at some of the features that make them useful - not just by listing them but by showing you, step by step, how a file selector achieves its result.

Incidentally, replacements selectors are equally valuable to floppy drive and hard disk owners alike. They make navigating the average hard disk's hundred odd paths much easier and let users keep a tight rein on how a hard disk is used. For floppy drive owners they reduce the need for laborious exiting and reloading of applications when simple file or disk management tasks are required - and can be a lifesaver when emergencies arise.

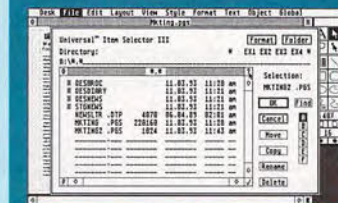
As an example we'll use the *Universal Item Selector*, which is the only commercially available replacement for the ST and has scores of features:



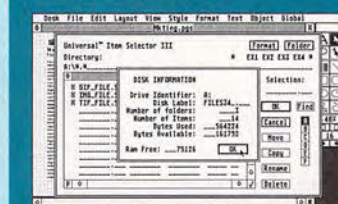
1 It's late and you're tired. You click on "Save as..." and find the disk is full! The 16-page brochure is sitting in your ST's memory with no safe place to put it!



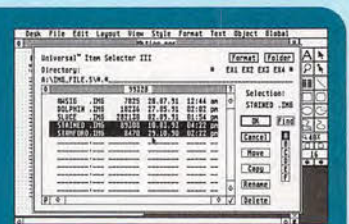
2 With *UIS* installed, the disk full message can be easily handled.



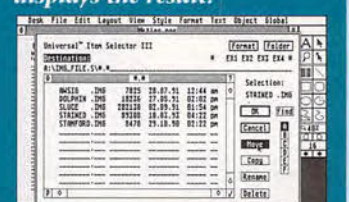
3 Bring up the file selector again via the accessory. If it isn't installed, get it up clicking on "Save As..." instead. Your file will have taken up all remaining disk space, but is much smaller than it should be.



4 Insert a disk which has some space on it and use the disk space function in *UIS* to see how much there is. Make a note of this to save time later.



5 Select the files you want to move, holding down the Shift key or drawing a rubber band to select more than one. *UIS* adds up the sizes of all selected files and displays the result.



6 Click on "Move" and choose drive B as the destination. *UIS* automatically "knows" where your files are.



7 *UIS* will prompt you for disks so just do as you're asked. Remember that disk A is the source drive and disk B is the destination.



8 You may have to delete some unimportant files. Select them and hit the Delete button. You may even be able to free up a whole disk...

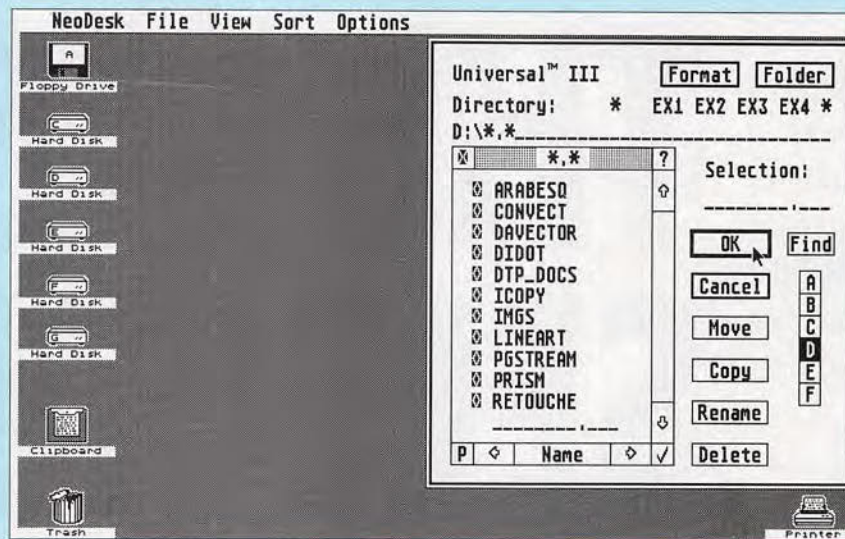
PAGESTREAM PICKLE

Reaching quickly for your disk box you gulp in horror as you realise that every single spare disk is full of vital bits and pieces. Even if you had a spare disk, *Pagestream* wouldn't let you format it - version 2 doesn't have any disk tools! The only solution is to leave your ST running all night and wander down to the computer shop first thing in the morning!

Now take a look at what would have happened had a good replacement file selector been installed. No question of panic this time - we'll use *Selectric's* unique capabilities to show you just how beneficial the latest file selectors are for keeping your files in order.

It's time to do some moving around of files to make space. There's no way of knowing how much space we'll need for the *Pagestream* file although the last saved version should give you some idea.

Some replacement file selectors (including *UIS*) let you copy, move, delete and rename files without leaving the program you're in. The



UIS can be resized and moved, reappearing in the same place every time.

objective in this case is to move some of the less important data or program files around from disk to disk, freeing up enough space on one to save our file. Then we can go back to the GEM desktop and do the job in a more organised fashion, if needs be. After that, a trip to the computer shop for more disks might be a good idea!

Which files you choose to move is up to you - you can always move them back again later once the *Pagestream* job file is safely tucked away on a disk somewhere.

FLEXABLE FLING

No question of panic this time - we'll use *Selectric's* unique capabilities to show you just how beneficial the latest file selectors are for keeping your files in order.

When "Save As..." is selected, it pops the file selector, showing you the normal save path and the folders for the various word processor files. But you don't have a folder for your

form letters. No problem.

Incredible isn't it? In the middle of saving a file you can move, copy or delete other files, add folders, and generally tidy up your disk - all from the comfort of the file selector. I haven't tested how many levels of filing operation *Selectric* can store and it would be silly to push it too far, not least because I'd be more likely to get confused than *Selectric!* It does however, indicate the tremendous flexibility you can have by installing just one utility like this and replacing Atari's own dismal effort.

CONCLUSION

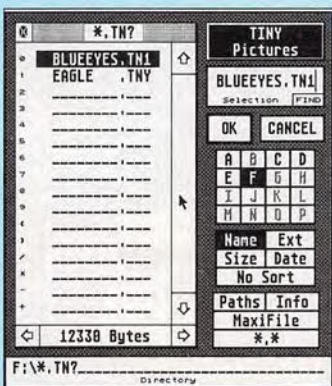
Overall, the best file selector replacement is undoubtedly the ST Club's *Universal Item Selector*. It is priced well within reach of the casual user and although calamities shouldn't strike at all if you plan ahead, it has all the features you need to get out of trouble. It also makes day to day filing operations that much quicker and you'll find yourself using the

desktop less and less. It can also be moved around the screen and configured in different ways, with different sized windows.

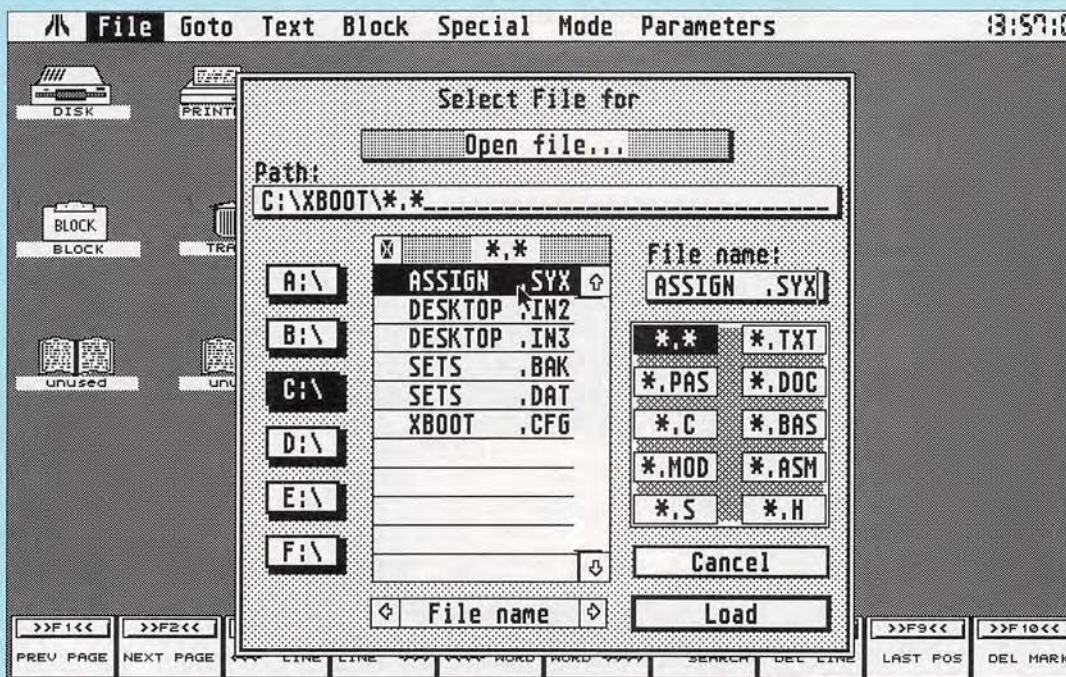
Selectric has less features overall but it does have some benefits over *UIS*, namely the unique flexibility that has already been demonstrated. This multiple nesting of operations can make life a lot easier and tidier too. It is also somewhat neater although the way the drive, path and extender selection works, by popup lists, isn't everyone's cup of tea and in some cases it is slower to use than *UIS*.

The other alternatives have advantages too - the *Little Green Selector* comes from the Codehead stable, although it is actually shareware by Charles Johnson rather than a commercial Codehead release. It can link up with *Maxifile*, the comprehensive file management accessory, and the two combined present an even more powerful package than *UIS!* It looks dated though, in my opinion, and *Maxifile* can be slow to operate as it is a rather large accessory. Without *Maxifile* though, it doesn't have enough to really recommend it as it can't copy or move files.

And finally, *FSelect*. It doesn't offer much in the way of facilities and it wouldn't get you out of the *Pagestream* pickle we looked at above. The only thing going for it is the small amount of RAM that it takes up - only a third of its competitors.



The Little Green Selector, another Codehead product.



Tempus' own file selector is nothing to write home about - and unfortunately it can't be disabled.



Out of date and not exactly feature laden, *FSelect* nonetheless fills a niche.

Product Name	RAM used	Create Folders?	Delete Files?	Rename Files?	Copy/Move Files?	File Search?	Format Floppy Disk?	Details	Rating
U/S 3.32	44	★	★	★	★	★	★	ST Club £14.95	4
FSelect v9/88	17	★	★					Freeware	2
Little Green Selector 1.8c	47					★		Shareware	3
Selectric 1.0	60	★	★	★	★	★		Shareware	5

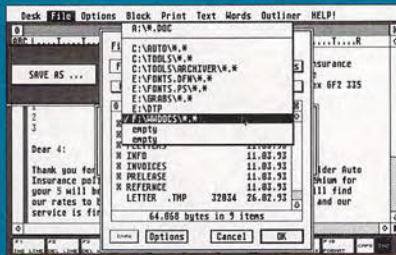
- *U/S* has long been the most popular replacement file selector on the ST. It combines ease of use with a smart, clear layout - few serious users would be without it, especially as it has very few compatibility problems.
- *FSelect* is the oldest product looked at here and hasn't been updated since 1988 to my knowledge. It is basic; better than the TOS effort but only just.

- *The Little Green Selector* is best teamed with Codehead's Maxifile to create a very powerful combination. The interface is a little clumsy though and it appears somewhat dated.
- *Selectric* is my own personal favourite. This superb piece of shareware programming offers amazing flexibility, as we've shown, and it could make life much easier for many ST users.

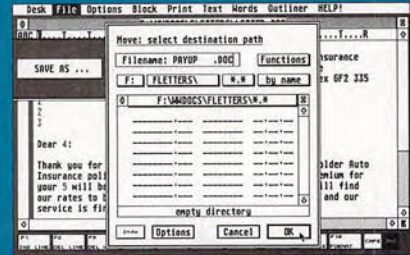


1 Here's Word Writer 2, an under-rated word processor. Let's save a form letter in a new folder.

NEED A TEMPLATE FOR YOUR LETTERS? HERE'S HOW SELECTRIC DOES IT...



4 Save this path to quickly recall it in the future. Clicking the mouse on the top window bar and holding it down produces a list of saved paths. Holding down Shift, clicking on an empty slot and saving the configuration in the "Options" dialogue remembers it permanently.



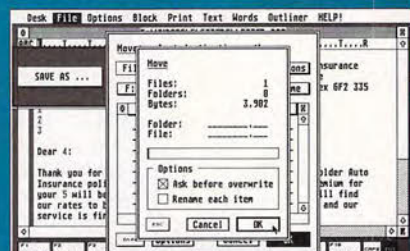
6 Selectric will now ask for a destination path - navigate your way back to FLETTERS and press "OK".



2 Click on the "Functions" button for the list of options - you can delete, touch, move and copy files or folders. "New Item" lets you create folders - that's the one we want.



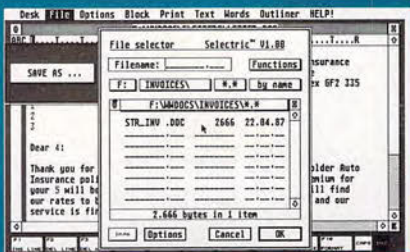
5 Do you already have a form letter which you want to put in the new folder? Let's see what Selectric can do. Click on the folder INVOICES to locate PAYUP.DOC, your old form letter. Select it with the mouse and choose "Move" from the Functions list. Selectric will remember the file you originally wanted to save.



7 The confirmation box will appear - just click "OK" again and the file PAYUP.DOC is copied into your folder.



3 A small dialogue box opens and you can type in the name of the folder.



8 Type in the name and press "OK". The file will be saved and the selector will vanish.

WORKING WITH

Ever wondered how to program a desk accessory? Ofir Gal starts a new programming series with this in mind...

This month heralds the start of a new series of BASIC tutorials where the task is to program a desk accessory. The accessory will be written as a standard GEM program and converted to an accessory later. In the process, more AES, GEMDOS and BIOS calls will be introduced so broadening your general knowledge of the ST. And yes, the accessory will be Falcon-compatible

GETTING STARTED

Since creating a GEM program is quite complex, it is much better to write a skeleton of the program with all screen output performed via the simple, but extremely handy, *PRINT* command. The program for the next few months is a desk accessory that shows the computer's free memory, free disk space, total disk space and so on. In fact, there is a whole list of system variables you may wish to check. Alternatively, the accessory could be used as a file manager as implementing file copy, move and delete is easy enough. Let's look at the first problem – free RAM.

By default, a BASIC program grabs all available memory for itself leaving only 5 kilobytes free, the bare minimum for TOS to operate in. HiSoft BASIC includes an option which allows a limit to be set on the amount of memory a program uses. Enough memory must be allowed for the program to run properly and while this is hard to calculate, it is easy to measure. BASIC provides you with the *FRE()* function to check how much memory a program has

reserved and how much free RAM the system has. *FRE("")* returns the program's own memory while *FRE(-1)* shows the system free memory in bytes. Dividing by 1024 gives the result in kilobytes. Listing 1 is an example of this function in use.

The system free memory should be only 5 kilobytes which means that your tiny program has gobbled up all remaining memory! This is a bad start for a desk accessory – as it is normally loaded at start-up, practically no free memory will be left. To remedy this, add the line "REM OPTION k20" at the top of the program. This has the effect of reserving only 20 kilobytes and returning the rest to the system. Try running the program now and you should see the difference; your program still has 10 kilobytes of workspace which should be enough at present.

DISK SPACE

So now you know how to check for free RAM, how about disk space? GEMDOS has a sub-routine called *dfree* that takes two parameters, the first being an array which is used to store the various results and the second the actual drive you want to check – 1 for A, 2 for B and so on. You may not be familiar with passing an array as a parameter, but it is simpler than it sounds. Normal sub-routine calls with parameters look like this:

```
subname par1,par2,par3...
```

Passing an array as a parameter is very similar:

```
subname array1(),array2()...
```

You need to *DIM* the array beforehand, otherwise the compiler will complain! In the case of *dfree* the array must have 4 elements (0 to 3), each being a long integer to accommodate values higher than 32767, the limit for normal variables. The array declaration will take the following form:

```
DIM dinf&(3)
```

To get info about a disk in drive A, call *dfree* as follows:

```
dfree dinf&(),1
```

The sub – routine will fill the array with information about the disk. The first element contains the number of free clusters while the second shows the total number of clusters. The third and fourth values tell you how many bytes per sector and how many sectors per cluster the disk was formatted for. This may seem a long-winded method but it allows for non-standard disk formats to be checked. A standard double-sided disk will have 512 bytes per sector and 2 sectors per cluster, so each cluster has a capacity of exactly 1 kilobyte which is rather convenient. The best way to obtain the total and free disk space is shown in Listing 2.

INTELLIGENT CHECKS

An "intelligent" program should also check which drives are available, such as an external floppy, RAMdisk or hard disk, and then issue a sequence of *dfree* calls to check each valid drive. Checking non-existent drives can lead to unpredictable results, so how do you know which

2078 kbytes work space
kbytes

minated - press a key to exit

You can see the difference in available program and system memory before and after using the k (Keep) option.

Program has 11 kbytes work space
Free RAM: 2063 kbytes

Program terminated - press a key to exit

Listing 1

```
'show free memory  
DEFINT a-z  
  
progmem=FRE("")\1024  
system=FRE(-1)\1024  
  
PRINT "Program has"+STR$(progmem)+" kbytes work space"  
PRINT "Free RAM:"+STR$(system)+" kbytes"
```

Listing 2

```
'show total and free disk space, drive A  
DEFINT a-z  
LIBRARY "gemdos"  
  
'declare array  
DIM dinf&(3)  
  
'check disk info  
dfree dinf&(),1  
  
'calculate cluster size (in kbytes)  
cluster=dinf&(2)*dinf&(3)\1024  
  
'calculate free space  
free&=dinf&(0)*cluster  
  
'calculate total space  
total&=dinf&(1)*cluster  
  
PRINT "Disk A has"+STR$(free&)+" kbytes free out of"+STR$(total&)
```


HISOFT BASIC

Listing 3

```
'show FNdrvmap in binary format
DEFINT a-z
LIBRARY "BIOS"

PRINT BIN$(FNdrvmap)
```

drives are available?

The BIOS library provides the answer to this in the form of *FNdrvmap*. This function requires no parameters and returns a bitmap value representing the available drives in the system. What is a bitmap? This requires a quick look at how numbers are generally represented internally. In other words – how does a processor handle numbers?

Humans, unlike computers, use the decimal system where each digit in a number is multiplied by 1, 10, 100, and so on according to its position. For instance, the number 354 means $(3*100) + (5*10) + (4*1)$. In other words, the value of a digit depends on its position in a number and is always a multiple of ten. We also have 10 digits in total (including 0 of course). Why the number 10 was chosen as a base for our numbering system is unknown but is probably due to the fact that we have 10 fingers...

Computers don't have fingers (*really?* – Ed) and use a binary numbering system which is identical to decimal but based on the number two. There are only two digits, 0 and 1, and the value of a digit is always a multiple of 2. For example, 10 in binary represents $(1*2) + (0*1) = 2$ while 101 is $(1*4) + (0*2) + (1*1) = 5$. Each digit is called a *bit*, a group of 8 bits is called a *byte* and a *word* is made up of 16 bits. In HiSoft BASIC, binary numbers are prefixed with *&B*. It is useful to remember that a byte can have a maximum value of *&B11111111*, which is equal to 255 in decimal notation.

Back to our program. *FNdrvmap* returns a word in binary form.

Listing 4

```
'a program to show if drive C is available
DEFINT a-z
LIBRARY "bios"

IF FNdrvmap AND 4 THEN
  PRINT "Drive C available"
ELSE
  PRINT "Drive C unavailable"
END IF
```

If you only have one floppy disk drive in the system, the value returned will be *&B000000000000000001*, where each digit represents a drive. If a digit is 1 the drive is valid while 0 means that the drive is not available. For instance, if you have a hard drive with partitions C and D and a RAMdisk labelled P, the returned value will be *&B1000000000001101*. Only 16 drives are possible, as a word contains 16 bits, and this covers drives A to P. If you try to simply print the value with *PRINT* you'll get a decimal equivalent of this number, but you can use the example in Listing 3 to view the bitmap on screen. This employs the *BIN\$* BASIC function which enables you to *PRINT* any value in its binary form. The leading zeros are truncated so a sole floppy disk returns a value of 1. You may wish to install a RAMdisk to get different results.

BINARY ARITHMETIC

How is the result converted into something that can be used for a series of *dfree* calls? After all, the aim of the accessory is to show how much free space is left on each disk, not which disks are available – this should already be known!

Binary numbers can be initially confusing but offer some unique arithmetical operations. Such flexibility is simply not possible with the decimal equivalents. One of the most useful techniques involves the *AND* operator which is used in virtually all computer languages.

This enables you to create a bit mask or filter and so examine each bit, one at a time. The best

way to understand this is by example:

```
11101010
AND
00100110
-----
00100010
```

The second binary number filters out the 1s from the first number; the result is 1 only when both numbers have 1s in the same position. The 0s in the second number "mask" out the 1s above them. So if the number *&B0000000000010011* is returned by *FNdrvmap*, and we need to know whether B is a valid drive, simply *AND* the *FNdrvmap* value with the value for drive B (*&B0000000000000010*). The leading zeros can be truncated to make this more legible:

```
10011
AND
00010
-----
00010
```

The fact that the result is non-zero is

important, not the actual number. Had drive B not existed, the result would have been 0. Now check for drive C:

```
10011
AND
00100
-----
00000
```

Since there is a 0 above the only 1 in the second number, the result is 0 – no drive C.

There is no necessity to use binary numbers as the computer converts any input into binary form automatically. In the last example the second number is *&B100*, or $(1*4)+(0*2)+(0*1) = 4$ in decimal notation. So you get the same result with:

```
PRINT FNdrvmap AND 4
```

The result will be either 4 or 0 depending on whether drive C exists or not. This rather useful shortcut is demonstrated in Listing 4.

Remember that the value returned

Listing 5

```
'show free and total space on all drives using a sub routine
DEFINT a-z
LIBRARY "gemdos","bios"

'declare array
DIM dinf&(3)

SUB checkdrv(drvmask&,drv)
  SHARED dinf&()
  STATIC cluster,free&,total&
  IF FNdrvmap AND drvmask& THEN
    dfree dinf&(),drv
    cluster=dinf&(2)*dinf&(3)\1024
    free&=dinf&(0)*cluster
    total&=dinf&(1)*cluster
    PRINT "Drive has"+STR$(free&)+" kbytes free outof"+STR$(total&)
  END IF
END SUB

checkdrv 1,1
checkdrv 2,2
checkdrv 4,3
checkdrv 8,4
checkdrv 16,5
checkdrv 32,6
checkdrv 64,7
checkdrv 128,8
checkdrv 256,9
checkdrv 512,10
checkdrv 1024,11
checkdrv 2048,12
checkdrv 4096,13
checkdrv 8192,14
checkdrv 16384,15
checkdrv 32768,16
```

Listing 6

```
'show free and total space on all drives using exponentiation
DEFINT a-z
LIBRARY "gemdos","bios"

'declare array
DIM dinf&(3)

SUB checkdrv(drv)
SHARED dinf&()
STATIC cluster,free&,total&
dfree dinf&(),drv
cluster=dinf&(2)*dinf&(3)\1024
free&=dinf&(0)*cluster
total&=dinf&(1)*cluster
PRINT "Drive has"+STR$(free&)+" kbytes free out of"+STR$(total&)
END SUB

FOR i=0 TO 15

  drvmask&=2^i
  IF FNdrvmap AND drvmask& THEN checkdrv i+1
NEXT i
```

is not important – all we need to know is whether the result is 0 or not. To check for drive A, AND *FNdrvmap* with 1, or 2 for drive B, 4 for drive C and so on. An example of this is found in Listing 5, using a sub-routine, while Listing 6 uses a different operator where ^ stands for *to the power of*. So, 3^2 means "3 to the power of 2" which is 9. Using an exponential in this manner saves having to write the routine, or call the sub-routine, 16 times. This is a good example of how source code can be optimised to produce a fast and efficient program.

ASCII

You should find that your program still "thinks" that drive B exists, even

if you don't have one connected, and keeps showing an alert box requesting that you insert disk B into drive A. Next month I'll show you why this happens and how it can be eliminated. In the meantime, there is one other problem that needs to be tackled – *PRINTing* the drive letter with the rest of the data. The line could be changed to:

```
PRINT "Drive"+STR$(drv)+"
has"+STR$(free&)+" kbytes
free out of"+STR$(total&)
```

All this would display is a number instead of the drive letter but there is a way around this. You may have come across the term ASCII (American Standard Code for

```
Drive has 296 kbytes free out of 711
Drive has 296 kbytes free out of 711
Drive has 997 kbytes free out of 6111
Drive has 992 kbytes free out of 14271
Drive has 1388 kbytes free out of 11211
Drive has 1398 kbytes free out of 9171
Drive has 897 kbytes free out of 18394
Drive has 2935 kbytes free out of 18394
```

Program terminated - press a key to exit

The program to date shows free and total disk space for all valid drives.

Information Interchange), a standardised character set which is identical on all modern computer systems. Up to 256 characters can be described as numbers; for instance, the letter A is ASCII 65, B is 66, C is 67 and so on. There is even a BASIC function to display the ASCII value of a character. The following line displays the values for A, B, a, and b:

```
PRINT
ASC("A"),ASC("B"),ASC("a"),A
SC("b")
```

Conversion from any value between 0 and 255 back to a text character requires the *CHR\$()* function:

```
PRINT
CHR$(65),CHR$(66),CHR$(67)
```

This produces the capital letters A, B and C which points to the solution – since the first drive is A and the value we use to check drive A is 1, change the *PRINT* line in *checkdrv* to the following line:

```
PRINT "Drive
"+CHR$(drv+64)+"
has"+STR$(free&)+" kbytes
free out of"+STR$(total&)
```

You now have a small, efficient program that displays disk free and total space and can now add the free RAM routine from the skeleton of the accessory. If you have any questions or suggestions before next month, please write in to me or join the ST Review conference on the CIX bulletin board.

```
Drive A has 296 kbytes free out of 711
Drive B has 296 kbytes free out of 711
Drive C has 997 kbytes free out of 6111
Drive D has 992 kbytes free out of 14271
Drive E has 1376 kbytes free out of 11211
Drive F has 1398 kbytes free out of 9171
Drive G has 897 kbytes free out of 18394
Drive H has 2935 kbytes free out of 18394
```

Program terminated - press a key to exit

NEW COMMANDS

FREE() - returns the amount of free system memory in bytes.

'Soption k - a HiSoft BASIC compiler option that limits the amount of memory a program uses.

dfree buffer&(),drive - A GEMDOS call that fills the array *buffer&* with four long integers showing size of sector, number of sectors per cluster, free clusters and total clusters for the specified drive.

FNdrvmap - a BIOS function that returns a bitmap representation of valid system drives.

ASC() - returns ASCII value of specified character.

CHR\$() - returns the character corresponding to the specified ASCII value.

BIN\$() - converts a value to a text string representation of its binary value. Leading 0s are truncated.

ALL CHANGE

ATARI REVIEW
ESSENTIAL BUY

Want to add TOS 2.06 to your STE without losing the compatibility of TOS 1.62? Tony Kaye has the answer...

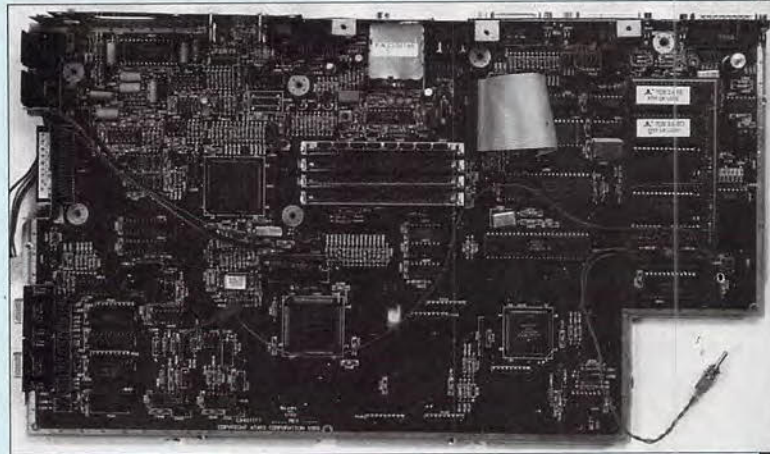
While the advantages of TOS 2.06 over the older versions make it a desirable upgrade, there is one drawback; a small number of programs won't run. Incorporating a method of switching back to the old TOS for these applications is the simplest solution.

Analogic Computers have launched a British designed and manufactured upgrade board for the STE that will allow you to do just that. It's easy to install and solderless too. The STE TOS Switcher is a small circuit board that fits into the machine and allows you to switch between any two STE TOS versions at the flick of a switch.

Fitting the upgrade couldn't be simpler, which is quite fortunate as the four page leaflet is certainly not as clear as it could be. Depending on your own ability to disassemble and rebuild the computer, there is the option of connecting a lead allowing you to switch between the TOS versions without having to turn the

machine off. This extra wire instigates a warm boot on flicking the switch, but you do need to remove the metal screen which involves taking out the power supply. There is still no soldering involved unless you want to solder the lead for extra security. If you don't install this feature, you can swap TOS versions by pressing the reset button on the back of the computer as you operate the switch. Remember that whichever way you connect the Switcher board, a cold boot is performed by switching the computer off for a short time (about 10 seconds per megabyte of RAM) using the main switch on the back of the machine.

After disconnecting all leads from the ST and allowing about five minutes for any power to discharge, open the case and remove the keyboard. The TOS chips are situated underneath the disk drive, so that also has to be removed. The next step is to carefully remove the existing TOS 1.6x chips by prizing them up at both ends with a flat bladed screwdriver after labelling them Hi and Lo. These are placed in the vacant slots on the new board, which is then placed back into the sockets left by the old ROMs. The lead that allows a warm start has to be connected diagonally across the main board, so it is at this stage that you need to remove the power supply and the metal screen. Locate the component marked C100 (a capacitor) and connect the lead to the positive leg (marked "+"). All that's left to do is to find a suitable position for the switch. Before drilling the case, make sure that the switch will fit without snagging and that it's in a suitable position. It's not a good idea to place it too near the disk drive slot, for example, as



The Analogic STE TOS Switcher allows easy switching between any two different TOS versions.

there's a chance of inadvertently flipping the switch and causing a crash at an inconvenient moment!

CONCLUSIONS

STE TOS Switcher is an excellent product let down only by a poor manual. It offers the advantage of

hardware and software switching without tying up the 68000 processor which may be needed for an emulator, accelerator or even the new Marpet eight megabyte memory upgrade (which needs TOS 2.06 to run).

This is the first product designed and marketed by Analogic Computers (based in Kingston) who promise a solderless STFM version very soon. It is available at the introductory price of £19.95 instead of the normal £29.95 for a limited period.

THE ALTERNATIVES

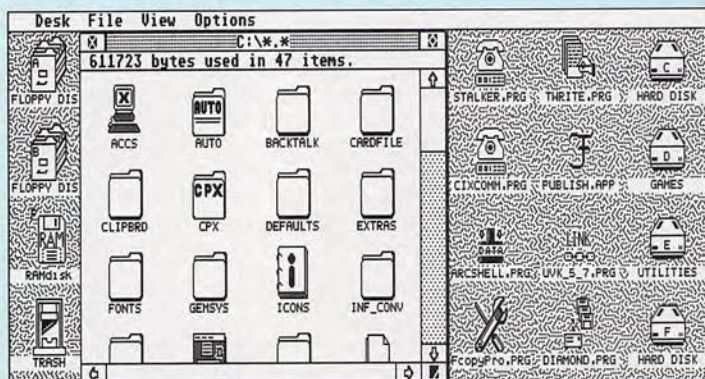
One other upgrade that we are aware of is the TOS 2.06 board from Compo Software (£69.95). This is also an excellent product although a small amount of soldering is required. The cheapest way to upgrade an STE is to change the ROM chips which are available from most suppliers for around £39.95, but have one disadvantage over boards like the TOS Switcher or the Compo board - you can't change back to the old TOS version for total compatibility.



PROBLEMS

Some early STEs have 32-pin TOS ROMs fitted. If this is the case, then a couple of resistors have to be moved which involves stripping the board down and attacking it with a soldering iron.

Also, there are two links marked 28 and 32 on the Switcher board. If you have 28-pin ROMs, then the link marked 32 has to be cut and vice versa.



The new TOS 2.06 desktop. Well worth having!

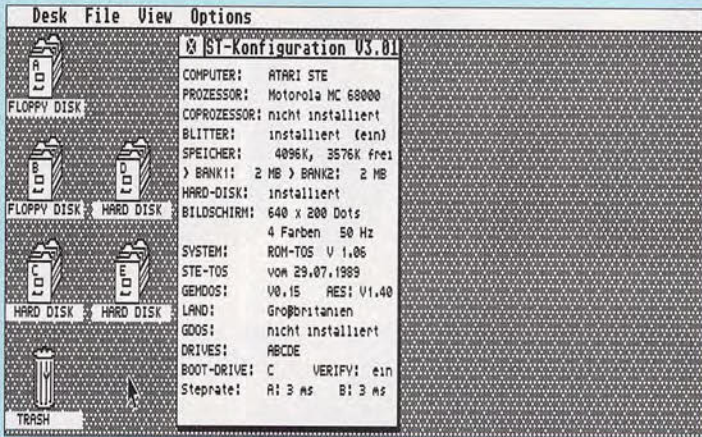
"An excellent product that is easy to fit and use. Deserves to do well."

NAME: STE TOS SWITCHER
COMPANY: ANALOGIC COMPUTERS (UK) LTD
CONTACT: 081 546 9575

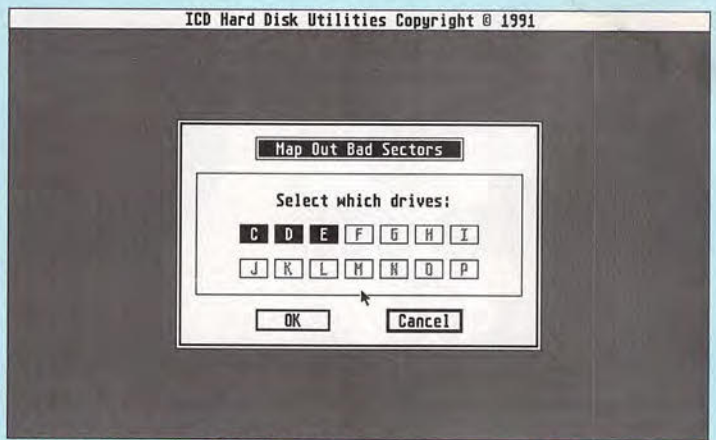
PRICE: £29.95 (SPECIAL OFFER PRICE - £19.95)
TOS 2.06 ROMS - £39.95

EASE OF USE ★★★★★
DOCUMENTATION ★★★★★
EFFECTIVENESS ★★★★★
VALUE FOR MONEY ★★★★★

OVERALL **92%**



Always handy when buying an ST is a PD utility to tell you exactly what you are looking at – how much RAM did you say it had?



All hard disks come with diagnostic software capable of marking bad sectors – make sure you use it before you buy!

How would you like a colour monitor for £30, or perhaps an ST for £90? Impossible? – not when you know where to look! Fiddler on the hoof Nial Grimes dons the fingerless gloves and explains what's what in the second-hand ST market...

With the poor dollar exchange rate sending prices rocketing and the dreaded recession biting deeper into everyone's pocket, you could be forgiven for thinking that now is a bad time to expand your computer system. Not so. In fact it's these very circumstances that are making the second-hand ST market look more and more attractive! Add the rush to upgrade to the new Falcon and you have a sea of affordable STs and peripherals available for the picking. But where are these bargains and how should you go about buying them? Read on...

A RISKY BUSINESS

There are several routes you can take to buying second-hand computer equipment. On a local level, peripherals and even systems can pop up in second-hand shops or you might care to try a dedicated computer auction. Even the high street holds its fair share of bargains. Large chain stores often dispose of shop-soiled equipment at knock-down prices. And don't think the neon signs mean haggling is a no-no – you'd be surprised at the offers managers will take to clear their showrooms! Without a doubt though, the most popular – and many would argue best – way of

SECOND

buying equipment is through classified adverts, such as those found in dedicated magazines such as Micro Computer Mart.

But it's a harsh world out there in second-userland – there's no guarantee that the goods are going to work, no guarantee they're what you want and, more importantly, no guarantee you're going to get the goods in the first place! While this is the main reason why people steer clear of the second-hand market, there are ways to reduce the risks.

Depending on which purchase method you are using there are several precautions you can take. If you're buying by post, use the Recorded Delivery and Advice of Delivery services provided by the Post Office. These facilities will cost you just under a pound in total, but you

then have a record of exactly when your cheque was received; essential should a dispute arise. Also high on your list of priorities should be getting a receipt – if the buyer is unwilling to give you one, the goods may not be his to sell. A receipt should ideally contain the seller's name, his address, the goods, the price agreed and the seller's signature. And never, ever send cash by post!



TESTING 1-2-3

Having located that ridiculously underpriced computer or peripheral, the next step is to make sure it does what you want it to. This involves checking that it's compatible with your ST, and whether your software is capable of using it – for example checks could include that a laser printer is LaserJet 2 compatible, a dot matrix printer is Epson compatible, a modem is Hayes compatible and so on. The golden rule when buying second-hand is to know what you are looking at! If you're not quite sure, ask somebody who does know. If in doubt, pocket your money and live to buy another day.

Fortunately, testing electronic equipment is fairly straightforward in that it either works or it doesn't. On the other hand, you don't want to buy a machine that is just about to take a ticket to silicon heaven, so here are a few signs of wear you can look out for:

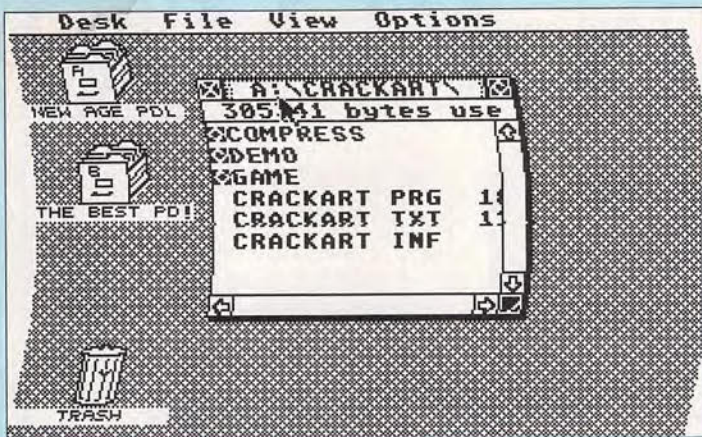
- Monitors should have an almost perfectly straight edge to their display. Distortion could be down to the metal frame around the monitor becoming magnetised – fairly easy to remedy – but on the other hand it

GOING, GOING, GONE!

Auctions tend not to be packed with ST-specific goodies, but there are bargains galore to be had in the peripheral department. A large proportion of gizmos designed for the PC – such as modems, printers and some monitors – are usable with the ST, but once again it's imperative that you know exactly what you are buying. Picking up a trendy hard disk at a fraction of its retail price is all well and good, but finding you will need a NASA scientist and ten tons of electronics to link it to your ST is a crushing experience (*yes, I know – been there, bought it, felt a right idiot ...Ed*).

Auctioneers are good at their job and they want nothing more than for you to pay over the odds for a "lot". You can however foil all of their "don't lose it for another fiver" ploys by simply going to the venue early and setting a sensible "ceiling" price on any goods you are interested in.

If you're looking for a good starting point, try contacting Traderdesk on 021-445 1794. They hold auctions across the UK and all goods valued at £100 or more are guaranteed until 12 noon on the Monday following the auction (on Saturday!).



Check monitors for straight borders. A lack of adjustable brightness can sometimes indicate wear.

Second Thoughts

How would you like a colour monitor for £30, or perhaps an ST for £90? Impossible? – Not when you know where to look! Fiddler on the roof Nial Grimes dons the fingerless gloves and explains what's what in the second-hand ST market...

With the poor dollar exchange rate sending prices rocketing and the dreaded recession biting deeper into everyone's pocket, you could be forgiven for thinking that now was a bad time to expand your computer system. Not so. In fact it's these very circumstances that are making the second-hand ST market look more and more attractive! Add the rush to upgrade to the new Falcon and you have a sea of affordable STs and peripherals available for the picking. But where are these bargains and how should you go about buying them? Read on...

A Risky Business?

There are several routes you can take to buying second-hand computer equipment. On a local level, peripherals and even systems can pop up in second-hand shops or you might care to try

Stripy inkjet printouts are either a sign of a faulty ink cartridge or a faulty machine – make sure you find out which before parting with your cash.

THOUGHTS

could be about to die; is it worth the risk? STs themselves are reliable beasts. Power supplies are the main problem with STFMs and you should check that the machine doesn't run too hot – it should be warm to the touch, but no more. A buzzing from the PSU/switch on early FMs is normal. The best policy is to see a variety of software running and all should be well.

- Printers, particularly inkjet and

laser, are not recommended second-hand buys unless you can see them working. Inkjets should have no stripy gaps, and treat the 'it needs a new ink cartridge' excuses with extreme caution. Dot matrix printers on the other hand are very sturdy and even a new print head isn't the end of the world, although these can be expensive so find out the price of a replacement first.

- Hard disks are also a relatively safe

buy, providing the mechanism is SCSI. It's always wise to ask if there are any errors on the disk – it's a damn good bargaining point for a start! – but the SCSI standard is clever enough to transparently map out any errors, within certain limitations of course. Other variations of hard drive should be seen to have no errors.

Of course, buying through the post makes it impossible to test equipment yourself, but there are

precautions you can take. Firstly, make sure you ask specifically whether the equipment is in perfect working order. A few sharp questions such as when the machine was bought and why it is being sold will often help to determine the reliability of the seller.

ATTITUDE PROBLEMS

Attitude is another vital ingredient in getting hold of that elusive bargain. The first thing to remember is that you cannot be too apathetic! Any sign of enthusiasm will be seen by the vendor as a signal to maintain the price. It helps to remember that you are doing the seller a favour, not the other way round.

Having convinced yourself that the equipment is what you need and is in working order you move on to make an offer. Point 2 – never pay the asking price. The vendor is expecting an offer and who are we to disappoint him? Point out any defects you have noticed – no matter how small – to back up your offer. Ten percent discount should be expected from most second-hand buys; start at twenty and work up. A few crisp fivers waved under the cash-hungry seller's nose often does wonders. When considering a price to pay always look at the worst scenario – if it were to break down tomorrow where would you be left?

ALADDIN? – NOWHERE!

The benefits of expanding (or starting!) your ST system through the second-hand market are many. Having paid the right price for goods in the first place, you are practically guaranteed little or no loss when you decide to sell on – play your cards right and you could even make a profit!

"Second-hand" has long been considered a dirty word. Yes, there are always risks when taking the "used" route, but by following the above advice, keeping a cool head and being prepared to take the rough with the smooth you might just find yourself the bargain of a lifetime. Happy hunting!

PRICE GUIDE

Paying over the odds is the one thing you want to avoid, so here's a quick rundown of rough prices you should expect to pay for some of the more popular ST bits and bobs. Naturally, prices will vary depending on condition and, when it comes to peripherals, brand name. If the particular model can't be found in this list, look for an equivalent. Prices quoted are for basic machines excluding software.

Hardware	Price	Comments
520STFM	£90-£100	The STE is a far better machine. Avoid single sided drives!
1040STFM	£120-£130	Ditto.
520STE	£140-£150	Extra memory may add a little (£19 per meg) to the price.
1040STE	£160-£170	Ditto.
Mega STE 2	£330-£340	Add £100 for 40 meg hard disk version. Price includes SM124.
Mega STE 4	£350-£360	Ditto.
TT030 2-40 – Colour Multisync	£950-£1100	Current high used prices make a new Falcon the better buy.
Atari SM124	£70-£90	Limited new availability has led to quite high used prices.
Phillips CM8833	£145-£155	Add £10 for Mk II.
20 Meg Hard Disk	£100-£110	Think seriously about a 30!
30 Meg Hard Disk	£150-£160	Atari Megafile is currently a good option.
40 Meg Hard Disk	£190-£210	Popular size - 65s are a better buy.
65 Meg Hard Disk	£230-£250	Pound for punch, the best value.
Star LC-10	£70-£85	Sturdy and reliable - a good buy at the right price.
Star LC24-10	£120-£130	Another good option at a reasonable price.
HP DeskJet 500	£220-£260	Very highly sought after - probably best to buy new.
Ricoh 1200 (HP III Comp.)	£450-£550	Once again, very popular.
400dpi Naksha Scanner	£50-£65	Reliable and affordable.

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520STE - 1MB memory	224.00
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Canon BJ200 - 360dpi bubblejet, NEW MODEL	299.00
Ricoh LP1200 - 400dpi laser, 2MB RAM, 6ppm	699.00
HP Laserjet 4 - 600dpi laser, 2MB RAM, 8ppm	1499.00

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Fancy some new fonts? Andrew Wright looks at a new Calamus font editor and converter with a budget price tag.

FONTY

There's no doubt about it – the Calamus font format has dominated the ST in recent years, at least as far as outline fonts are concerned. Despite DMC's refusal to allow other developers to use the format for copyright reasons, public domain fonts in *.CFN format have appeared in their hundreds. Many are of excellent quality too.

Of course, they're not only useful to Calamus and Didot Professional users – the format itself has become a standard in the ST world. Other utilities can import and edit Calamus fonts and then convert them into other ST formats, mainly GEM for use with GDOS applications or programs like That's Write and Write On. The most popular conversion utilities are Fontkit Plus, the excellent bitmap font editor, and CFont, for converting fonts to That's Write's slightly different format.

However, users wishing to edit Calamus outline fonts have had to look at more expensive programs like Genus and PCG's Fontdesigner – or resort to the pitiful editor supplied with Calamus. Until now, that is. The ST Club has launched a home-grown product programmed by Matthew Carey which sells for the bargain basement price of £11.95. For your money you get a perfectly acceptable 26 page manual, the Fonty font editor itself and a very handy PostScript to Calamus conversion program.

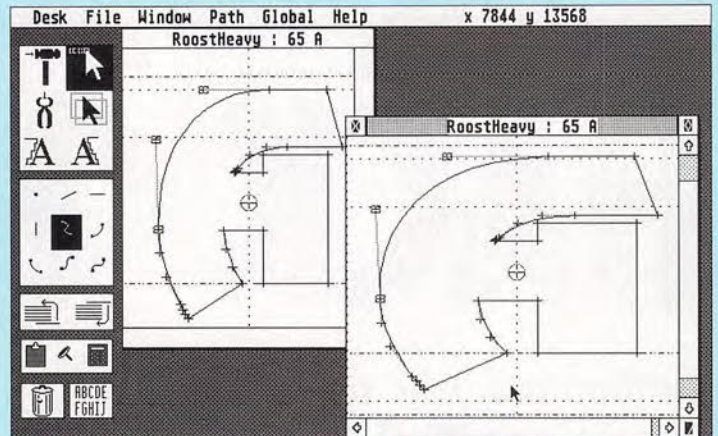
Fonty is supplied on a single disk and works on any ST in either medium or high resolution. It features an easy-to-use GEM interface and even allows seven windows to be open at once, each with a font loaded. When the program is run, the file selector appears requesting a font to be loaded. On the left-hand side of the screen is the multi-part toolbox contain-

ing 22 icons. Other functions can be accessed from the GEM menu bar.

The CFN format is of the outline variety and each character is made up of points, lines and curves, so Fonty is very similar to a vector graphics program. You can create a new font from scratch by placing lines or Bezier curves on the screen and moving the control points until the right shape is achieved. Of course, nobody in their right mind creates a font this way – it is essential to have something to work from so Fonty lets you import Degas graphics or even existing GEM fonts to trace around. This makes the job much easier.

The tools themselves are quite straightforward, with standard icons for various functions such as the hammer for adding points, pliers for removing and the arrow for moving them. A single character can be made up of several paths, of course, so there are commands for moving between paths and objects and no less than eight different lines and curves can be created. Any existing line or curve can be changed into another simply by double clicking with the appropriate shape selected.

To zoom in close, one of the GEM menus produces a dialogue box (that should really be an icon) from which you can select one of nine pre-determined magnifications or set one of your own between 20% and 4000% – the latter figure is for 640 by 400 (hi-res) but will be different at other resolutions. There's an undocumented keyboard shortcut, incidentally – holding down Control and clicking on the screen zooms in to maximum magnification. The mouse pointer



Creating a new expanded version of the PD font Rooster Heavy (converted from PostScript).

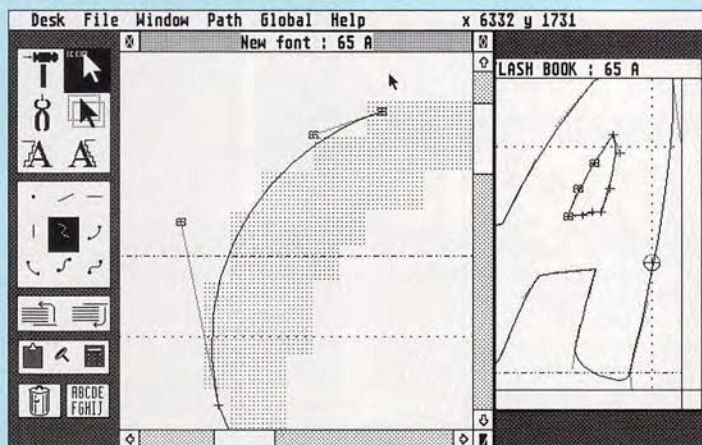
isn't very sensitive and I did find some difficulty in selecting and moving points. It is also rather slow when changing modes and even seems to hang temporarily at times, but on the whole Fonty's tools work well.

The second major function is font editing. Characters can be edited by hand, perhaps to remove anomalies in some lower quality PD fonts or tidy up fonts converted from other sources. There is also a built-in calculator for applying various distortions to existing fonts, including compressing and expanding fonts, and skewing or rotating them. The effects can be applied to single characters or the whole font.

The third aspect of Fonty is the conversion. A separate program asks for source font, destination font and name of a text file containing character mapping

information (a default file is provided). The utility works with most fonts though those of doubtful origin tend to produce error messages and the conversion aborts.

Overall Fonty is a clever program with wide appeal – whether you're working with Fontkit Plus or CFont to produce new GEM fonts or with Calamus itself to add flexibility, the bargain price more than makes up for the odd shortcoming. It's a fraction of the price of other Calamus editors and well worth treating yourself to.



Tracing a bitmap image of a character to create a new outline font. The tools are fairly easy to use.

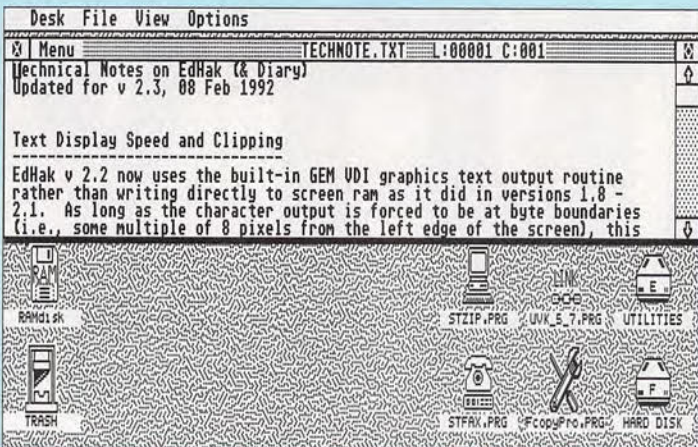
Minor irritations in the interface
Slow at changing modes

PROS AND CONS

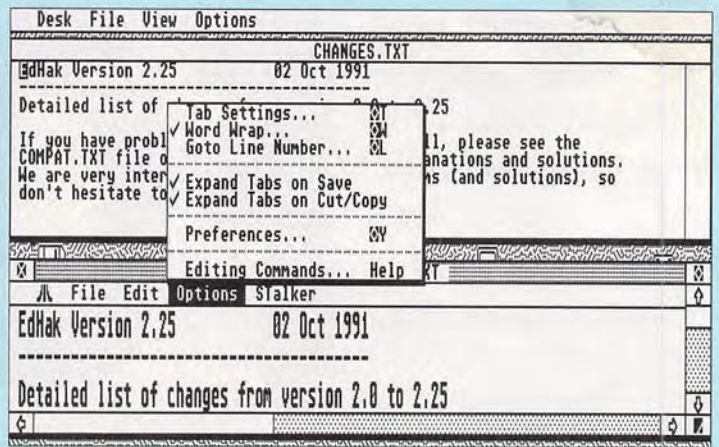
Budget price.
Useful conversion utility

"Another essential utility for DTP users – and one that's particularly welcome at such a realistic price"

NAME: FONTY	
COMPANY: ST CLUB	
CONTACT: 0625 410241	
PRICE: £11.95	
EASE OF USE	☆☆☆☆☆
DOCUMENTATION	☆☆☆☆☆
EFFECTIVENESS	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆
OVERALL	76%



EdHak running as an accessory. Note the lack of a size box in the bottom right corner.



EdHak and STeno running side by side. Which looks more friendly?

HACK 'N' SLASH

Editing data, text and other files requires a range of different programs. Tony Kaye looks at one that handles them all...

There are a number of text editors available, both in the public domain and as commercial packages. Some are worth owning while others are simply a waste of money or disk space.

EdHak is the latest commercial offering from Douglas Communications, the company responsible for the *Ultimate Virus Killer*. It boasts the ability to edit text, data, binary files, disk sectors and even your ST's memory.

The utility can be installed as an accessory, giving full rein to its functions from within any GEM-based application. By changing the extension to .PRG, you can run EdHak as a program so allowing you to use the Install Application option in TOS to call up the editor when you double click on any file with the extension .TXT.

A range of word processor-like features are available including word wrap, margin setting, tabs and saving a file while simultaneously renaming any previous version with a .BAK extension. Editing features include find/replace text and the usual block cut/paste commands.

Any kind of file can be opened by the program allowing for text portions to be edited. For instance, the bootup message of an AUTO program can be altered to flash a message on screen such as "hello" on switching on. Care must be taken not to infringe copyright, though, as

most software is credited to the author who will justifiably be upset if his programs are altered!

EdHak has a default buffer size of 10 kilobytes which can be changed to suit your own memory availability. If a file is too large, it will load sections at a time and allow you to work on each one. Thought has also been given to using the program with



The only other size available, full screen! Here it's displaying a program file.

other applications and EdHak will work directly with STalker, QuickCIS and Barefoot Software's MIDITrack sequencer along with many others. Programmers are offered information on how to incorporate EdHak into custom software.

Part of the manual is dedicated to hacking - delving into program files and changing information. The best way to view a file can be decided with the Text/Hack/Hex option and straight text can be viewed (with or without the carriage returns) or, in Hack mode, all control characters along with the text. The Hex option shows the value of each character in hexadecimal.

Good manual
ASCII and Hex
character display

PROS AND CONS

Awkward to use
Lacks originality

"At the end of the day, it's just another text editor although the box is nice"

NAME: EDHAK

COMPANY: DOUGLAS COMMUNICATIONS

CONTACT: 061 456 9587

PRICE: £11.95

RELEASE DATE: OUT NOW

MIN MEMORY: 0.5 MB

EASE OF USE ☆☆☆☆☆

DOCUMENTATION ☆☆☆☆☆

EFFECTIVENESS ☆☆☆☆☆

VALUE FOR MONEY ☆☆☆☆☆

OVERALL **71%**

CONCLUSIONS

As previously stated, there are many text editors available for the ST. Although EdHak is adequate, it is certainly not outstanding despite the extra hacking features. If you need a straight forward text editor, there are several in the public domain including *Scribe*, given away on the cover disk of issue 13, as are sector editors and disk tools. For a comms capture buffer, the excellent *STeno* from Gribnif is a much better bet. It will also let you edit program files, but not display hex characters.

The strength of EdHak is in having an editor for text, binary and program files all in a single package.

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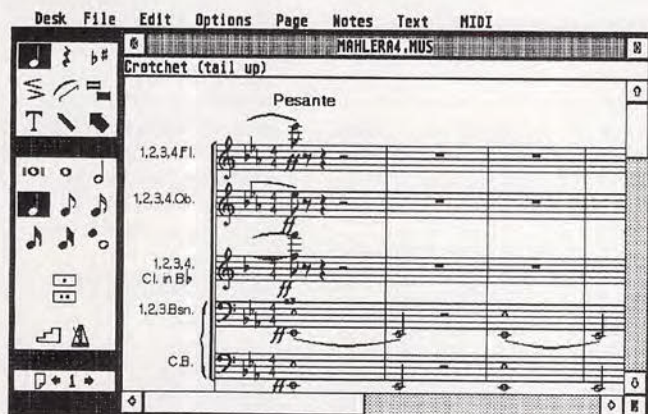
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The new version of this program incorporates many new features, including real time entry from a MIDI keyboard, playback of scores, graphics functions including import and export, and MIDI file import and export. This allows the transfer of files from sequencer packages for typesetting and printing.

For more details, a demonstration disk and example printouts, or to place an order, contact:

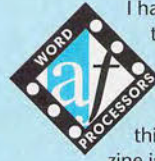
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ASK THE EXPERTS

*Got a problem?
Can't find the
answer? Our
team of experts is
on hand to
help you...*

PRINTER PROBLEM



I have quite a few things that I would like to ask you, but firstly I would like to say that I also think that your magazine is excellent. All of your cover disks, reviews, letters pages, news and everything else are brilliant.

My first question is about First Word Plus. Whenever I try to import an IMG picture, it always tells me that it is "unable to show a picture taken in a different resolution", or that it is not a standard IMG picture file. I have tried to show the

TIGER.IMG file, but this for some reason will not work, and neither do any other IMG pictures. Please could you tell me what I am doing wrong, as I can't think of anything at all. Also with First Word, I can't, for some reason print out italic or light text. I have an Amstrad DMP 3000 printer and I tell the program that I have an Epson printer. Is this right? Apart from these small problems, First Word Plus works fine and I have been using it frequently ever since it was given away with your magazine.

Secondly, I would like to learn how to program as I would like to write my own applications and maybe even small games. However, I'm not sure where to start. Can you

need to solder it or something?
**Andrew Axton,
Cheltenham, Glos.**

Your problem with the IMG files is one of resolution. You can only show most IMG files in the resolution they were created or saved. A program like the ST Club's Imagecopy would help you convert these and other pictures into a format that First Word Plus will import.

The printer driver for the Epson is slightly different from the Amstrad. Yours will obviously recognise standard commands, but when control codes are needed to tell the device to print light or italics, they are different to the ones supplied. Different printer drivers are supplied with the upgraded full package that may solve your problem.

There are many books available to help you learn to program, but you need to decide what type of programs you want to write. If you are hoping to program commercial quality games, you need to learn 68000 assembly language or C. These are complex and take time to master. However, if you want to create your own applications, try HiSoft or GFA BASIC. Both come with excellent manuals and technical support.

Finally, a memory upgrade will enable you to load more fonts and larger point sizes as well as more pictures. For an STFM, the upgrade involves more than just slotting in extra memory and although few machines requiring any soldering, the process usually involves stripping the ST down to the main circuit board.



THE ST EXPERTS...

VIC LENNARD

Editor

When Vic is not editing your favourite magazine, he wears the hat of director of the UK MIDI Association and can help with all aspects of music and sequencing.

TONY KAYE

Technical Editor

Tony can help with anything to do with the ST's operation, hardware and software along with upgrades and consumer problems.

OFIR GAL

Freelance writer

What Ofir doesn't know about HiSoft BASIC, HiSoft don't know! He can help with upgrades and system enhancements, too.

ANDREW WRIGHT

Freelance writer

If you need help with DTP or general printing problems, Andrew is your man.

recommend any books on BASIC for me please? I haven't got a clue about programming at all and am really interested. I would like to get hold of a book that explains things simply, not one that tells you to type in a hundred lines without explaining what you have just written. I know that it probably won't be very easy to learn, but I am very patient and don't mind how much time it takes me to learn the language quite fully.

Oh yes, thanks a lot for Timeworks DTP on your November issue. It really is brilliant. Before I actually got hold of this I didn't know what DTP was at all, but Timeworks has really been a lot of help for schoolwork, as has First Word Plus.

Lastly, with Timeworks, it is only possible for me to get font sizes of 40 maximum and I can only display one picture at a time. I am considering getting a one megabyte memory upgrade, so would this allow more pictures, higher font sizes and a larger selection of typefaces? I have a 520 STFM.

By the way, if I upgraded my STFM to one megabyte with your special offer, would I be able to just slot the extra memory in, or would I

PROFESSIONAL DTP ON THE ST?



I need help! Would you be kind enough to assist me in my queries? Basically, I wish to be able to design my own

audio cassette labels and inserts on my Atari 1040 ST, bought in 1986, and to be able to print them in colour. This then prompts the following questions:-

a. Is there a colour DTP program (and label maker program) that will enable me to do this on the Atari? I

need a good level of versatility in design, movement and fonts to emulate to some degree what is the commercial norm. It follows that I also need to obtain very small point size characters with half-line spacing like Word Perfect. First Word Plus does not appear adequate. Can you recommend a suitable word processing package that will work on my Atari to achieve this?

b. I believe I need flat bed feeding/printing and am looking at a Hewlett Packard Deskjet 500C to print in colour and monochrome from my Atari. Will it interface all right or what do I need to make it run?

c. Can I also buy a cable to interface the above printer to an Apple Mac should this be necessary instead of purchasing a HP Deskwriter C? If so, will speed and other things be affected?

I would be grateful to receive answers and advice for the above. I'm not terribly computer literate, but I've been advised to change my Atari for an IBM or Apple Mac. I would be very loath to do this as I love my ST and its music capabilities. Therefore please, can you help?
Miss Lou Tate, Ealing, West London.

a. You don't need a DTP program so much as a colour-capable design or layout package that will let you use multiple fonts and graphics, place them anywhere on the page and rotate or manipulate them at will. If you are using small point sizes you'll need one that handles hinted fonts properly (hints mean that small sizes print very accurately and legibly). No word processor or dedicated label program is likely to give you the level of control and design flexibility that's needed, though Protex, for instance, will let you use half-line spacing in conjunction with a printer like the Deskjet. All you would need the WP for would be to type out the text for the label, save it as an ASCII file and then import it into your chosen layout package.


To some extent the answer will also depend on the type of colour you're using. Spot colour is a uniform colour normally applied to simple graphics or text. It is the simplest form of colour to use. Process colour, on the other hand, is a combination of cyan, magenta, yellow and black inks blended to represent true colour pictures. The best options here are either Didot Professional (the colour version) or DA's Vector reviewed in this issue. Both will handle spot or process colour

though Didot is somewhat better at the latter. It also has a dedicated driver for the colour Deskjet, something DA's Vector hasn't got. Pagestream 2.2, which also has a Deskjet driver, will do it at a pinch but you'll need to purchase expensive additional fonts in Compugraphic format (the only hinted ones that Pagestream will use). The main problem will be your inability to see colour on the screen. The packages above need a high resolution monochrome monitor that represents colour using dithered dot patterns. Pagestream will run in medium resolution but as that only gives you two more colours, the difference is negligible. You could always upgrade to a Falcon, of course, which would give you all the screen colours you're likely to need. A colour printer will certainly help - at least you'll be able to print out proofs at any stage.

b. The colour Deskjet is an excellent choice - I used one with Didot Professional for a month and it was great fun. It's just a case of plug in and go - a standard parallel cable is all that's required.

c. The general consensus of opinion (including that of Hewlett Packard themselves) is that you won't be able to connect it to a Mac. There are fundamental differences between the standard Deskjet and the Apple Mac compatible version, the Deskwriter, and although I suspect there might be a way for the technically adventurous, I wouldn't like to bet on it...

NOT FADE AWAY

 I have an STFM and an annoying problem. When I turn my computer on, it turns black and white and I have to reset to get the colour back. Sometimes this does not happen at all and sometimes it won't go away. Please could you tell me whether it's my ST or something I can improve?

Also, is it possible to record sound on the STFM without using the television speaker?

Could you tell me whether it's possible to use 4x4 Mb SIMMS in an STE?

Kim Plowman, Swindon, Wilts.


You may need to retune the television to the computer as it sounds like they are not quite aligned. If this doesn't work,

then you may need a new RF modulator which is the device in the ST that converts the video signal into one that a TV will decode. Any good Atari repair centre should be able to help.

Audio is output through the monitor socket as well as the TV modulator with pin one carrying the audio out signal. The lead to connect the ST to a Philips CM8833 Mk II monitor has two phono leads coming from the monitor plug which would let you plug it into a tape recorder or hi-fi system.

The ST can only address four megabytes of RAM and will only recognise the SIMMS in pairs so no, it is not possible to use 4x4 megabyte SIMMS. See the feature on page 28 for more details on how the memory is addressed and how it is possible to add a total of 8 megabytes of RAM to an STE or Mega.

THE ULTIMATE UPGRADE?

 I have had an Atari STFM for about five years now and have upgraded it to a double sided disk drive and one megabyte of RAM.

I was wondering if it was possible to get stereo sound from my computer as some games like E-motion offer this on the STE. Is there an upgrade available? I have no interest in MIDI or sound sampling, so please do not suggest these.

Another thing I would like to know is whether there is a graphics card available to give 4096 colours like the STE.


If your answer would be to buy an STE or a Falcon, please do not give it to me as I would rather buy a PC which has better software support than any other machine and, most of all, it is expandable.

George Kaskiris, South Woodford, London.

Why ask questions when you tell us that if you don't like the answer, you don't want to hear it? At present, it is not possible to upgrade the STFM to the specifications of the

STE, and if you think you are going to get a PC with colour graphics and a sound card for much under £1000, you are very much mistaken. A 520 STE can currently be bought for under £200 by carefully shopping around and not only has 4096 colours and stereo sound, but also has a blitter chip and two extra joystick ports. Not to mention the upgraded TOS version. The choice is yours.

EMPTY SOCKETS

 I have recently obtained a RLL Western Digital hard disk drive but have been unable to find out which host adaptor is needed to connect it to my Atari 520 STFM.

Also, while checking my circuit board for upgrading, I discovered four spare sockets where the ROM chips are situated. Can you please tell me whether the new TOS 2.06 chips will plug straight into these sockets or will I still need to buy the board which you say is needed in your magazine?

Mr Leach, Bristol, Avon.

There are two basic kinds of hard drive mechanism named after the data-encoding method used - RLL (Run Length Limited) and MFM (Modified Frequency Modulation). As the former method of encoding results in more data on disk, the surface of such a unit is generally of higher quality than that of an MFM drive.

All Atari drives have a Host Adaptor board which converts the data from the ST's DMA port to SCSI (Small Computer System Interface) data. Such a board costs around £100 and various companies manufacture these - DAC, ICD, Supra and so on. To connect the SCSI end of this board to your drive requires a SCSI connector.

Does your RLL drive have one "embedded"? You can tell by looking at the connector; if it has 50-pins then you're in luck. If not, you should find two edge connectors with 34- and

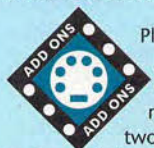


The TOS 2.06 upgrade board from COMPO.

20-pins respectively. This is the Seagate ST 406/512 interface and requires a bridge board which will be difficult to find new. However, if you can obtain a second-hand Atari SH204 drive (which looks like a shoebox and contains a 20 megabyte disk), this has a power supply unit, bridge board and host adaptor and should cost you less than £50. One point - what is the capacity of your RLL drive? If it's less than 40 megabyte you may be better off not bothering with it.

The ROM chips were originally supplied as six chip sets and later modified to the two that you have in your ST, which is why you have four spare sockets. The addressing for TOS 2.06 is different, so you do still need the upgrade board.

HARD WIRING



Please help me as I'm pulling my hair out and I haven't got much left! I have two hard disk drives and can't find out how to use them both at the same time.

Why would I want to? I'd like to be able to keep one as a backup for the other. One drive is a 210 megabyte unit I built myself using Gasteiner parts and the other is a Protar Profile II recently obtained secondhand. My computer is a 1040 STE upgraded to four megabytes and a Compo TOS 2.06 upgrade.

I've tried everything I can think of, but still I can't get both drives to register. By using the Gasteiner utilities and the driver program, I've managed to get most, but not all of the partitions registering. What am I doing wrong? The DMA lead from the computer is going into the "in" socket of the home built drive and the other lead goes from the "out" socket to the "in" socket of the Protar unit.

Keith Smith, Birmingham, West Midlands.

Have you changed the unit number of the Protar drive?



The Gasteiner hard drive case as used for our own "Build your own hard diskdrive" feature in a previous issue

Either they both have the same LUN (Logical Unit Number), or they are not consecutively numbered as required by some host adaptors and driver software. The Atari hard disk driver, for example, looks for LUN 0 and then proceeds to look for LUN 1. If it doesn't find anything there, it won't look any further and assumes that there are no other drives connected. I suspect that the home-built unit has no easy method of changing the LUN, but the Protar has a selector on the back. Change this to unit number one and try again.

STE STEREO OUTPUT



I was given a 520 STE and a Philips CM8833 Mk II monitor for

Christmas. My question is this:- The lead I

have to connect the two has a 13-pin monitor plug on one end and a nine-pin monitor plug on the other. It also has two phono plugs coming from the monitor end. If I connect these to the Philips, do I get stereo sound or do I need to get another lead? I have played around with some games that a friend of mine says are stereo, but I can't tell. He only has a 1040 STFM, so we can't check it on his computer.

J Daniels, Teddington, Middlesex.

The sound from the monitor port is mono only. You need a lead that has two phono plugs on each end and can be used to connect the audio outputs on the rear of the STE to the CM8833 Mk II which has two internal speakers. Such a lead is available from most High Street electrical shops for a couple of pounds.

TOS THE CABER



I have just bought a secondhand Atari 520 STFM and I wonder if you can help me. I am really



The Philips CM8833 Mk II features stereo sound from the STE.

confused with the different TOS versions mentioned. So far I've read about version 1.0, 1.02, 1.04, 1.2, 1.4, 1.62, 2.06 and 3.06! Have there really been eight different TOS releases or have I got it wrong?

I realise that this is something I should know, but I'd really appreciate you clearing it up for me. Also could you tell me which TOS version I have in my computer.

Bill McKenzie, Glasgow, Scotland.

Much has been written about TOS in the past and it's easy to forget that beginners can get confused. Here's a rundown:-

The first commercial STs (the 520 ST) had no internal disk drive or TV modulator. TOS came on disk and was version 1.0. This was followed by the 520 STM, 1040 STF, and the STFM machines. Right up to the first STFMs, TOS 1.0 was installed on ROM, mostly on six ROM chips but later on two. The FM was updated twice with TOS 1.02 and 1.04, which are often referred to as 1.2 and 1.4 instead. The first STEs were

shipped with version 1.60 but a bug that would not allow the computer to boot up in medium resolution led to the release of TOS 1.62 shortly after. This remains the current version in all new STEs.

TOS 2 was fitted in the Mega STE and the latest version is TOS 2.06. The same applies to the TT, whose current version is 3.06. Just to confuse matters, the Falcon is being shipped with version 4.02 (the earliest have 4.01), which is NOT MultiTOS. This is being shipped separately.

All versions are updates with both system and user enhancements. Although some incompatibility exists between the versions, TOS 2.06 is the most desirable release for STs. Several companies offer upgrades for most machines, although the only official ROMs come from Compo Software (0480 891819). TOS upgrades include unseen enhancements to the system as well as the obvious changes to the file selector or the desktop itself.

GOT A PROBLEM?

If you have a question you need an answer to, write to the team and they will do their best to solve it for you. They can help on any aspect of the ST from operating difficulties to repairs. As the saying goes, "if we don't know the answer, we know a man who does!"

Write to Ask The Experts, Atari ST Review, Europa House, Adlington Park, Macclesfield, SK10 4NP. To help us, please write the nature of your problem on the outside of the envelope.

Please note that although we try to answer all letters, the volume we receive means that we cannot guarantee to reply to every letter and personal correspondence cannot be entered into. For this reason, we recommend that you do not send any SAEs or postage. We are unable to deal with your questions on the telephone.

LEARN THE LINGO

Here we go with another dip into the alphabet to help you learn some of the terms associated with the ST and home computing

ACCESSORY

Identified by the extension .ACC, an accessory is loaded at boot-up if it has been placed in the root directory of the boot disk. Access from within any GEM program is via the Desk menu option on the desktop. The most common accessory is the Atari control panel.

AUTO FOLDER

When the ST is first switched on, the system looks for a folder called AUTO on the boot disk. If it finds one, it loads and runs all the programs in it. Only non-GEM programs can be loaded in this way as their installation takes place before the GEM operating system is available to handle them.

BOOT DISK

This is the disk in your drive when you first switch on the computer. All configuration programs such as accessories and AUTO folder programs are placed on it. If you have a floppy disk system, the boot disk is placed in the internal drive of your ST (drive A). However, hard disk drive owners usually have drive C, the first partition of the drive, as their boot drive.

CARTRIDGE PORT

On the left hand side of your ST is a slot that probably hasn't seen any action since you bought the computer. This accepts cartridges which may contain programs, copy protection data (usually called a "dongle") or clock-setting information.

DATABASE

A database is a program that allows you to store and handle large amounts of information and present it in an ordered fashion. For example, a database of names and addresses can be used to produce labels for a mailshot. Although mainly used by businesses, a database can also catalogue collections such as CDs or videos.

EMULATION

Want your computer to be something it isn't? The ST can emulate other computers like the Macintosh or the PC by providing it with the right hardware and software. There is even a program provided with the ST called EMULATOR.ACC, an accessory that turns the computer into a terminal for data communications (comms).

FORMAT

Before you can use a disk to store information, you need to format it (rather like a filing cabinet needs drawers and sections). For this, you have to use the Format option from the desktop. Most STs, apart from the earlier machines and later Mega STs and TTs, have double-sided disk drives.

GEM

Stands for Graphics Environment Manager and describes the system of windows, icons and mouse pointer that is used with the ST.

HIGH RESOLUTION

Many people with a television probably wonder why the "High" option from the "Set Preferences" menu is greyed out and so cannot be selected. To use the high resolution mode, you need a special monitor as a TV cannot handle the number of screen pixels required.

INSTALL APPLICATION

Another under-used feature of the ST. If you have TOS 1.04 or greater, this option allows you to make a program run automatically when the machine is turned on, open an application by double clicking on an associated file and, with TOS 2.06, open an application using one of the function keys.

JOYSTICK

An alternative method to the mouse for moving the cursor around on screen (see also Trackball). A joystick is mainly used for playing games.

KEYCLICKS

The clicking sound that you hear from your monitor when you type. This can be switched off using the "General Setup" option from the Control Panel.

LASER PRINTER

A laser printer presents a high quality print-out by using laser technology. An image is created on a photo-sensitive drum and transferred onto paper in a similar manner to a photocopier.

MOVE FILES

Later TOS versions allow files to be moved from one location to another by dragging them to their destination and releasing the mouse button while holding down the Control key. With earlier TOS versions, files had to be copied and then the original dragged to the Trash icon and deleted.

NAMING FILES

When saving a file, make sure that the name you give it enables it to be found again. A fairly obvious statement, but a lot of people use files names that have a meaning at the time but is lost later on! You can change the names of files using the "Show Info" option from the menu bar.



OPEN FILE

There are two ways to open a file. One is to highlight the program by clicking on it and to then select "Open" from the menu; the other is simply to double-click on the required file.

PROGRAM FILES

Program files are identified by one of four extensions; .PRG, .TOS, .TTP or .APP. These can all be run by double-clicking or opening them as described above. Files with the extension .ACC are accessories and need to be in the root directory of your boot disk when you switch on.

QUIT

This is the command used by many programs to return to the desktop.

RS-232 PORT

The ST is fitted with an industry-standard data communications port called RS-232. This is marked with a telephone symbol on the back of your computer and is mainly used for connection to a modem.

SCROLL BAR

Sometimes, not all the information on a disk can be displayed in the open window. On the right hand side and at the bottom of the window, there are bars that are shaded when more information is available. To access the extra info, click in the shaded area and the window will move to show the next section, or click on the arrows to move one line at a time.

TRACKBALL

Basically an "upside-down" mouse, a trackball is an alternative that has the advantage of taking up less desk space. The ball moves the mouse pointer around the screen.

UNDO

Some programs let you revert to the condition before carrying out a command by pressing the Undo key. This is particularly useful in Art and DTP packages.

VT-52 EMULATION

This is the most common "dumb terminal" for comms. The EMULATOR.ACC effectively turns your computer into a VT-52 terminal so allowing you to communicate with other computers by using a modem.

WARM START

There are two ways of restarting your computer. A "warm" start resets the computer quickly but without returning all of the memory pointers to zero. This is useful if you are using a reset-proof RAMdisk, but will often leave resident viruses untouched.

Warm starts are performed by pressing the reset button on the back of the computer or, with TOS 1.04 and above, holding down the Control, Alternate and Delete keys simultaneously. A "cold" boot is carried out by switching the computer off for at least thirty seconds or by adding the right Shift key to the above combination.

X-CONTROL

The new configurable control panel from Atari. It uses modules called CPXs that can be added or removed as required without having to reboot.

ZIP

Zip is a method of compressing files for storage. Developed in France, it is very efficient and fully compatible with PKZIP on the PC.

COPYING FILES

GEM uses a graphical screen and the mouse for most of its main operations. A system of "clicking and dragging" is used to move files from one place to another. Copying from one disk to another on a single drive system is easy when you get used to it, but can be confusing as it uses both drive icons (A and B). Drive A is used for the source disk and drive B, the destination.

Assuming that your disks have been formatted using the desktop, to copy a complete disk simply drag (click with the left mouse button and hold it down while you move the mouse) the drive A icon onto the picture of drive B. Then all you need to do is follow the on-screen prompts.

You can copy individual files by opening windows for disk A and disk B in the same way. Drag the file you want to the other window and the computer will guide you.

If you need to move a file (copy and delete the original in one operation), hold down the Control key while dragging it across. However, this only works with later versions of TOS. If you are not sure, just try it!

It's time for you to put pen to paper and let us know what you think.

Whether it's praise or a gripe, you'll find them all here in Points Of View...

LETTERS

WRINKLIES STRIKE BACK!

How very refreshing to read James Hornby's letter and to find that "us older folk" also have an interest in an otherwise thought of younger person's pastime. I myself have been a computer nut from the very early days of tennis video games and inevitably jumped onto the bandwagon when the first IBM PCs appeared. I started with a ZX80 kit, then a ZX81 kit, two Spectrums, a Texas TI/99 and finally, my now beloved Atari 520 STFM.

I've gone through most of the games phases. shoot'em-ups, RPGs and adventures. Now, at this moment in time, I'm deeply involved in trying to master the art of STOS programming.

I have several bones to pick, first with Games houses. I work for a medical firm making wheelchairs and scooters. If our company says that a new product is to be released to the public, you can count on us busting a gut to make sure that it is ready on time. Now, if the Games houses have so many bugs to iron out before the release date, why make that date so unrealistic? I for one hate reading of such and such date only to find that it's most probably going to be six or more months later, by which time I've probably lost interest.

Secondly, I hate reading letters from diehards who have nothing good to say about the magazine they are writing to. I know you need a certain amount of feedback to get a well-balanced menu, but do we need to suffer? I would much rather hear from your converts, like me!

My third point is not so much a moan as a plea. Could we please have a more detailed look at programming, in my case, STOS? If you could possibly start from the point where you switch on the computer, it may help some of us clueless spuds!

Now I have watched magazines come and go, some good and some not so good, then wallop, out comes ST Review, which has got the balance just right. If I have to buy two dozen copies to keep your distribution figures up, I would, even if it means that the kids go without their petrol rations!

B A Wallcroft (age 52),

Sandwell, W Midlands.

Generally, people write into a magazine for one of two reasons; to praise or to complain! While I'm aware that many magazines make up the majority of their letters pages, this isn't the case with ST Review as our mailbag is full and varied. Consequently, we do publish the negative letters along with the more positive ones such as yours; however our replies tend to make short work of those whose prime objective in life is to whinge. We have already run a series of articles on programming with STOS and while that doesn't preclude us from running a follow-up, the letters and comments we receive seem to point to most of you wanting to see a continuation of the BASIC programming series. We had intended to finish this at the end of issue 12 but have started a brand new project by popular demand.

Games-house support for the ST is at an all-time low and whilst I also dislike the mentioning of unrealistic release dates, surely this is better than launching a game riddled with bugs. It is a long held opinion of mine that the general public find more faults with programs than the programmers themselves or their testers. The difference is that the latter are generally paid to do the job!

Thanks for the vote of confidence in ST Review. We may be in the hands of a new publisher but the integrity and content of the magazine remains the same.

LEARNING PROGRAMMING

When I leave school I would like to become a computer games programmer and I think now would be a good time to learn to program. Please could you answer some questions?

1 When I got my computer, I got ST BASIC with it and I can program a little. Small games like Guess a Number, but I can't program games with sprites, etc. Is it possible to program an arcade game with it? If so, is there a book as the manual is use-

less?

2 What is C language, is it worth buying and where can I get it?

3 By the time you print this letter, I will probably have STOS, STOS 3D and STOS Maestro. Do any programmers use STOS?

4 How do you program consoles?
Nicholas Smith, Catford, London.

1 ST BASIC is all right as an introduction to programming, but you are better off progressing to HiSoft or GFA BASIC now, as these are capable of producing more powerful code and have a larger user base. Our series of programming on HiSoft BASIC continues and will teach you how to handle many programming situations. The latest versions of these programs also come with excellent manuals, and books are available to help you progress further.

2 C is a much faster language than BASIC and is used by many professionals for games and music programming. Try Lattice C, available from HiSoft.

3 STOS is good for home use and while there is very little commercial software written in this language, it is easy to learn. As STOS has its foundations in BASIC, you will probably want to leave it alone if you want to produce high quality programs.

4 Console programs are created in exactly the same way as computer programs. The difference is simply in machine-specific routines.

PRAISE, WITH A WARNING

I read with interest your letter of the month in the March issue of ST Review praising MJC Computer Supplies. I ordered several items from them in November to give to my children as Christmas presents and I, too, was most impressed with their efficiency. The order was delivered in only a few days.

I then waited with anticipation for another Christmas present I had ordered from Eagle Software, namely

Megatraveller II. As Christmas approached and the order had not arrived, I phoned Eagle Software. was told that the game would not be available until the same time in 1993 and they agreed to refund my money. Christmas came and went with no sign of the refund so I phoned again and again I was promised the refund. I phoned on at least 10 more occasions and was promised the refund each time. I have still not received any money.

I agree with your comment that good companies such as MJC should be praised. Likewise, poor firms such as Eagle Software should also be identified so that readers can make informed choices of where to buy from.

Brian Robinson, Ravenshead, Notts.

PS. I notice that Eagle Software continue to advertise Megatraveller II at £20.99. As this is not available is there not an advertising standards issue here?

We spoke to Eagle Software on your behalf and they confirmed that, at the time of writing, a cheque was due to be sent to you. The person responsible for sending refunds had been ill for a time so creating a backlog of work and delays.

The issue of release dates has always been a thorny one. Software houses often give a release date and then put it back, leaving suppliers in an awkward situation. While not wishing to defend advertisers outright, con-

sideration must be given to the time between an advert being produced and released in the magazine.

TO GAME OR NOT TO GAME?

I have read with concern the numerous letters that your magazine has received concerning the writer's disgust at you devoting part of your issue to games software.

When I first bought my Atari STFM in 1989, I purchased it because I wished to spend my free time working with sophisticated DTP, word processors and Art packages. I saw the ST as not only capable of this, but also playing brilliant, fun games. I am sure that I am in the majority when I say that I believe that the ST was conceived as a real multi-purpose machine, designed to do almost any task you threw at it. Playing games or desktop publishing, the ST is ideally suited to these applications because it is, in my opinion, the best computer for the job.

I feel sad for all of those people who think that the ST is a serious computer only. Yes, there is a wide range of serious software for the ST, but I am sure that they are wrong in dismissing your games reviews as a waste of space. I feel that the majority of readers of your totally excellent magazine would be devastated to find that ST Review had gone from being a brilliant all round publication to a totally serious magazine devoted to business applications.

This is a particularly bad scenario to imagine, and I know that you

wouldn't let them persuade you into doing such a ghastly thing, but it does warrant me writing to you about it.

I was extremely pleased when I first saw your magazine and subsequently bought that issue. I had HiSoft BASIC bolted to the front which I have enjoyed very much. As you may have guessed, this letter was typed using the brilliant First Word Plus V2 software given on the second issue I bought.

On a final note, I feel obliged to congratulate you on an absolutely brilliant magazine and I hope you stay around for a long time to come. I, for one will be quite happy forking out for every single issue.

John Bradley, Buckingham, Bucks.

Historically, the ST has been marketed first and foremost as a games machine. But while some very good games have been written for it, the various Amiga computers have always had the edge due to their superior graphics and sound quality.

Yes, there is quite a clear divide among ST users between those who play games and those who don't. Part of the reason for this is that serious software doesn't generally run on a medium resolution colour monitor (or is seriously compromised if it does) while very few games will run on a high resolution mono monitor. So to use your ST for, say, music, DTP and games requires ownership of two monitors, the combined cost of which is likely to exceed that of

the ST!

ST Review is cutting down its games coverage for one reason - there are far fewer new games appearing on the market. That said, we will always have a games section and games are also covered in PD Zone. The point about ST Review is that while it attempts to be an informative read and to cover the latest serious software in depth, we always bear in mind the comments in your letters and so try to balance out each issue accordingly.

CONTRADICTIONS

May I bring to your attention several contradictions between your preview and review of Streetfighter 2. In the preview (issue nine) you stated that "some arcade to ST conversions have been less than impressive, but this is definitely not the case with SF2". Yet in the review (Issue 11) you declared it "an excellent conversion that is poorly suited to the ST". The preview promised us "the scrolling is truly superb, every character moves fluidly", while the review informed us "the screen scrolls with the smoothness of a car running on lumpy petrol".

So what went wrong? Did you just take US Golds word for it or, perhaps you accidentally previewed the SNES version? Whatever, I'm glad I didn't buy it on the strength of your preview, I might have been "seriously disappointed with the end result".

Enough sarcasm, enough moaning, it's still a good magazine.

M Rayner, Eastbourne, East Sussex.

BECOMING AN EPIC!

I write after reading the letter entitled "Problem of Epic Proportions" from Brian Dicker (STR Issue 10) concerning troubles with Ocean's Epic game. I experienced a similar problem when I purchased the game last year. I am pleased that you have taken the trouble to print his letter, since when I wrote a letter to another leading magazine asking for advice, they did not consider it worthy of acknowledgement!

When I first received the game from Special Reserve, either the title screen appeared and then stopped with no further disk access or the screen just turned red. I was extremely disappointed and returned the package to Special Reserve who, in their usual efficient manner returned a replacement immediately. Without further ado I rushed to the computer and sat back to start my "Epic" adventure, or so I thought. Again the same thing happened, so I contacted Ocean. They were very helpful and suggested I send the disks back to them and they would send me a set of disks with patches installed to enable the game to work on the older TOS dated 20/11/85. In due course these arrived but, surprise, surprise, they didn't work. Being an eager starfighter pilot, still desperate to fly the Epic craft, I decided it was

time to upgrade my TOS version to 1.06. Six weeks later my computer arrived back with the new TOS and, having undergone a 'soak test' at the same time, I was positive Epic would now load. It didn't!

Not being one to give up easily, I phoned the Atari Workshop in Windsor and they told me to bring the machine along to them with the game and they would run some tests. Two days later I received a call to say that Epic was now running without any problems. The answer - They replaced the disk controller chip. Epic now loaded without fail and so did Jimmy White's Snooker, which previously crashed.

I trust that, if all else fails, Brian will find this letter useful.

Briefly, before complimenting your magazine, I would just like to add that a friend has just opened a computer shop in Basingstoke, Hants and, on my request, ordered some ST games for his shelves. Unfortunately no-one is buying them and he can't afford to stock further ST games if they don't sell. He is already ordering replacement Amiga games and may finish with ST titles altogether. So come on you ST owners, do your bit.

Keep up the excellent work at ST Review and, now to make your heads swell even

further, this letter was written using Timeworks Publisher 2, the upgrade that I bought through your special offer when you provided us all with Timeworks 1 on your amazing cover disks. Thanks. Richard Atkins, Sandhurst, Surrey.

Your letter epitomises the dilemma that every person working in technical support faces each time he or she takes a telephone call or answers a letter. There is no such thing as a "bug-free" program and even though a product specialist may know a particular program inside-out, there is no way of guaranteeing the behaviour of a product when loaded into a system along with accessories and autoload programs. So when an irate (as is often the case) user complains of continuous crashes or errors, the advice will usually follow a set procedure: what ST do you have, how old is it, what TOS version does it have, what desk accessories are you using and soon. Being patient when you have paid good money for a product which doesn't appear to work is never easy.

LETTER OF THE MONTH

A preview often has to take into account a programmer's promises, which is exactly why it is called a preview! If the full finished program is available, then we review it and give our opinion. Software houses will always show an unfinished product in its best light which is why there is such a difference between the two.

Normally, a preview is published before the software is available to the general public, so this should not cause any undue grief.

I REST MY CASE

First of all, may I take this opportunity to congratulate you on producing a great magazine. The content and cover disks are excellent.

In your April issue, you mention that the Falcon will have a new case when it is released to the public, but it appears to only be available in the old ST case. Also the price has increased.

I would like to know what is happening and when to actually buy a Falcon. I don't want to be left with an obsolete machine.

Alan Phillips, Luton. Beds.

Atari have informed us that the new case is unlikely to be available until around June. However, many people are buying the current machine as it has a very impressive list of features which ST Review has covered in detail in various issues. While the case is changing, the technical details are remaining largely the same so you pays your money and takes your choice ...

Needless to say, the price increase is due to the exchange rate and so, unfortunately, unavoidable.

HARD TO INSTALL

I would like to ask the software companies why they don't allow ST owners to install games onto their hard disk drives.

I have recently bought Goblins 2 and Microprose Formula One Grand Prix and neither will allow installation on my hard disk. It would be nice to run this kind of game from it as it would save loading times and keep me interested in the games themselves.

I can understand the need to avoid piracy, but both of these games are capable of being installed onto PCs and Grand Prix will even go onto an Amiga hard disk! They both have another form of protection by using a colour card or the manual, so that can't be the reason.

Why can't we enjoy this feature when, I think there is a higher proportion of ST owners with hard disks than Amiga owners.

Jim Scott, Nottingham.

We agree with you, Jim. It's very annoying, especially, as you say, Grand Prix can be installed on every other system and has manual protection too!

Experimentation with Goblins 2 shows that if you copy the files into a folder on your hard disk (we called ours GOBLINS.2) and copy the loading program from the AUTO folder to the same folder, you can then run it from that partition by simply double clicking on GOADER.PRG.

There could well be other programs that will let you run them in this way, but make sure they are for your own use only. You still need the manual or colour card to play them and piracy is theft and most definitely frowned upon.

QUALITY COVER DISKS

Isn't it strange how people's reasons for buying a magazine like ST Review differ?

Peter Lee, in the March 1993 issue, complains that the cover disks were becoming boring with too much serious software. It was precisely because of the quality of the software on the cover disks that prompted me to buy your magazine in the first place. I almost wrote to you a couple of months ago to urge you to continue to provide such quality. It was a result of your producing Timeworks DTP that I upgraded to version two at a discount price. I simply could not afford the full retail price, and this gave me an affordable way to upgrade.

The Cyber Series of programs was another master stroke on your part! appreciate how difficult it is to achieve a balance, but so long as you continue to provide such quality cover disks I shall continue to buy your first class magazine.

J Bernard Melling, Blackpool.

We appreciate what you say, but we would like to think that you also buy the magazine for what we pack between the covers!

A WORD OF WARNING

Please use this letter as a warning to other ST owners who have the need to send their machines off for repair.

I had cause to send mine off and I chose, from all those advertised in the various related magazines, WTS Electronics Ltd in Luton, Beds. My ST was collected by carrier on 16th October 1992 and after over £6.00 in telephone calls, I received my "repaired" computer on 24th November.

Repaired? It was working, despite a faulty connection in the mouse port from where I run the external disk drive and a loose space bar. I thought I could live with it until I realised that I was running out of memory. The one megabyte of RAM was not registering.

After a number of letters and telephone calls, the machine was returned to WTS to get the repair repaired on 15th December. This time, it took until 12th January to return the computer. The first thing I tested was the memory upgrade, which still wasn't showing.

A strongly worded letter was sent off on the same day and I was surprised by a response on the 15th, albeit only asking for a job number. This was supplied the following day. I waited and I waited until I got fed up. Another call made it clear that WTS were not going to get stung for the shipping costs.

I sent the job back to WTS on the 15th February and, at the time of writing I have heard nothing. I am not decrying WTS Electronics Ltd, that is for others to do when looking for a reliable repair agent.

Mr D. Hodgson, Whitehaven, Cumbria

We rang WTS to hear their side of the story and spoke to the Managing Director, Dave Pleece. He checked your file and told me that when your ST was returned after the first problem, it was thoroughly tested over a period of two weeks and no faults were found. Your computer has now been returned to you and, at the time of writing, no further problems have been reported.

BALANCING ACT

I have been reading your magazine since the first issue and felt it was about time I wrote to you and expressed my opinion. Since the early days, a lot has been said about the balance of games and serious articles in your hallowed pages. Some insist that there's not enough games coverage and some say there's too much. I'd like to explain why I think you have the mix right.

I bought my 1040 STFM in 1989 and have been a regular reader of ST magazines, although I mostly used my machine for playing games and typing the odd letter. Then along came ST Review and I realised, not only through the excellent software on the cover disks (from about issue four onwards), but also through the simple, easy to follow tutorials. I now program in HiSoft BASIC in my own limited way, write articles for my college paper and even design my own posters and signs using Timeworks DTP.

I now realise there's a lot more to the ST than first appears and I would like to encourage others to enjoy all the aspects of a great home computer. I'm thinking of buying a Falcon, safe in the knowledge that it won't just be a "glorified console with keys".

Steve Jeffries, Bodmin, Cornwall.

How refreshing it is to hear from someone in your posi-

tion. It's nice to think that our readers are learning that the ST has a wealth of programs from simply being able to kill aliens through to music, DTP and beyond. The Falcon certainly holds promise but software support must continue for the ST as well if both machines are to be kept alive. And not just with sales of games...

TIME FOR A COMPLIMENT

I would like to thank you for providing us with the opportunity to upgrade our computers with your great offers. I have a 520 STFM and I have just bought a memory upgrade and a clock cartridge and I'm delighted with both. I never realised that something as simple as a clock could make so much difference to using the computer. I write letters and all of them are now automatically stored with the correct time and date without me having to put it in every time I use the machine. I thoroughly recommend that if anyone is using their computer for anything other than just playing games, this is an essential add-on to the system.

Bill Wineman, Kingston, Surrey.

Another satisfied customer! It's nice to know that you appreciate the offers - in fact, over 3,500 of you have bought memory upgrades, mice and the like via our Offers page over the last six issues. We try to bring you products that enhance your system without emptying your pocket.

The standard ST is capable of being upgraded to four megabytes in total. At the moment, this is the maximum available for the STFM, but the Mega and STE are capable of being upgraded to 12 megabytes (see feature in this issue). When an upgrade is available for the STFM, be sure that it will be in the news pages of your favourite magazine.

As for the clock cartridge, it's actually manufactured by a well-known company and was given an "essential buy" award when we reviewed it in an earlier issue.

GOT SOMETHING TO SAY?

If you have something to say about ST Review, the ST scene or anything else, drop us a line here at our new address and tell the world through these pages. Write to Points Of View, Atari ST Review, Europa House, Adlington Park, Macclesfield SK10 4NP. Please note that whilst we try and answer every letter, this is not always possible. We reserve the right to edit letters for reasons of space. Personal correspondence cannot be entered into, so don't send stamps or SAEs.

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THE BLITTER END

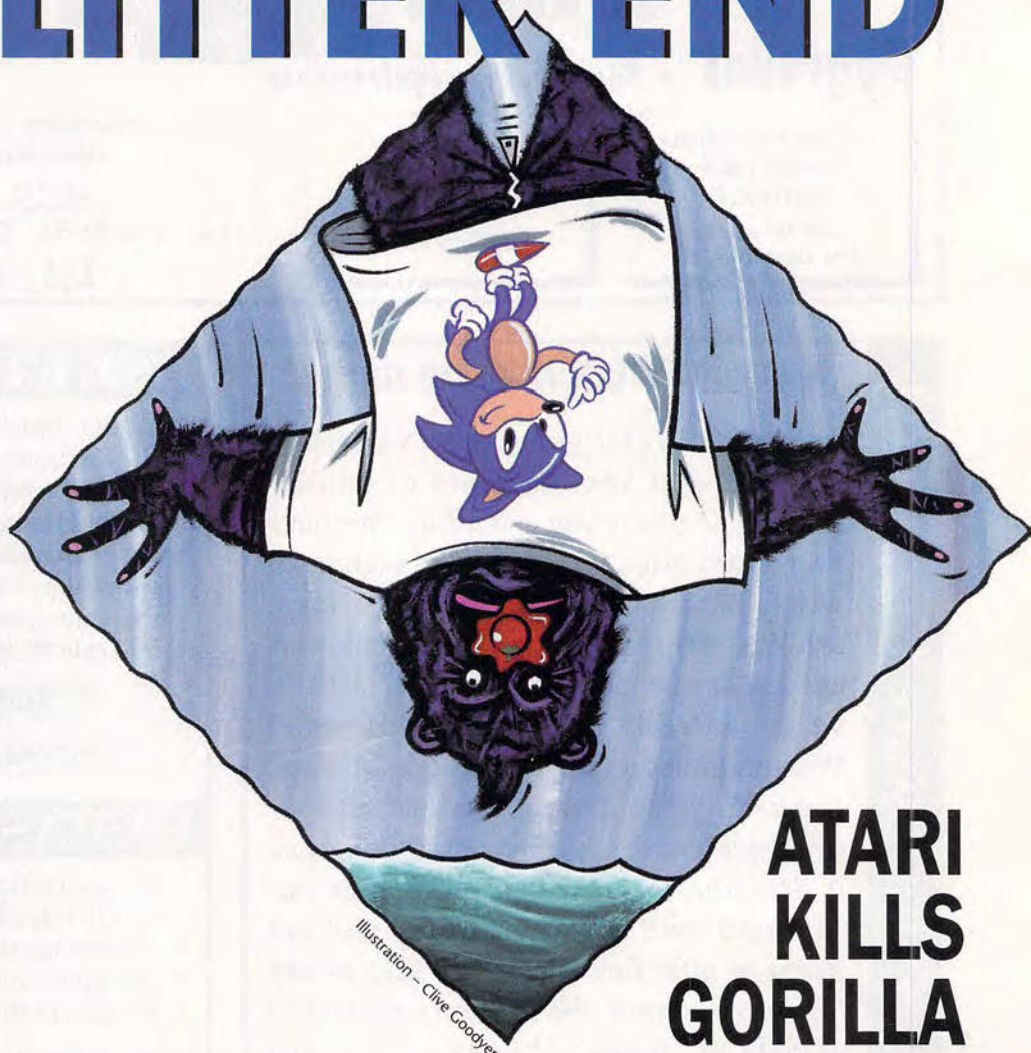
Red Nose Day always causes people to do silly things they regret afterwards...

ARE YOU WAITING FOR A PRIZE?

Due to the change of Publisher and the move from London to Macclesfield, some records have been filed and can't be located instantly. If your name has appeared in the magazine and you have not yet received your prize, please accept our sincere apologies and write to:

Where's My Prize?, Atari ST Review, Europress Enterprise, Europa House, Adlington Park, Macclesfield SK10 4NP.

Please tell us what prize you are expecting, which issue the competition was in and also which issue stated that you were a winner. We will look into it and dispatch your goodies as soon as possible.



ATARI KILLS GORILLA

Many events were held around the country on March 12th, Comic Relief Red Nose Day. Among them was a charity battle at Harlow Swimming Pool in Essex, between several members of the Home Computing industry.

The "It's A Knock-out" style event took place between Atari, Sega, Nintendo, US Gold, Microprose, Electronic Arts and the organisers, mail order retailer Special Reserve (who, surprise, surprise, eventually won!).

However, the biggest cheer of the night was reserved for Atari and Electronic Arts, following a reconnaissance raid on Sega. Their mascot, a huge cuddly ape brandishing a Sonic 2 T-Shirt, was hijacked and forced to go swimming in the deep end!

Second place was taken by Electronic Arts and third was Sega, who just clinched the position from Atari, whose lane was mysteriously blocked by...a huge cuddly ape.

DEAR NEWSAGENT

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Newsagents note: *Atari ST Review* is a Europress Enterprise publication and is distributed by Comag. If you have any problems obtaining a copy, please contact us.

SEEN AND HEARD

Do you have an amusing story regarding the ST? The Blitter End is designed to leave you with a smile while you wait for the next issue of *ST Review*. We need your stories, cartoons and general information to keep the page fresh and interesting.

In return, we offer... nothing at all! Well, the chance to see your name in these hallowed pages should be all the reward you need. We may decide to reward exceptional work, but as it's the last page all the budget has been spent...

Send your piece to: *The Blitter End, Atari ST Review, Europa House, Adlington Park, Macclesfield SK10 4NP.* We obviously can't guarantee to use your work, but we'll try. We reserve the right to edit, for reasons of space, without changing the context of any piece.

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1MbSTE	£229.00
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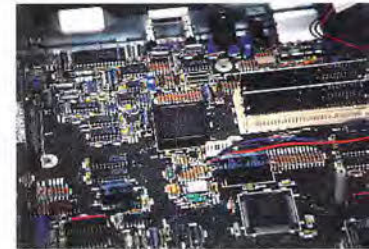
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We offer a Quotation service for £15 for which we will examine your machine and report back with an exact price for repair. If you do not wish to go ahead with the repairs then just pay the £15. However if you do go ahead then the charge is included in the minimum charge.

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



Quotation	£15.00
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Same day service	£15.00
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News & Views

from HiSoft

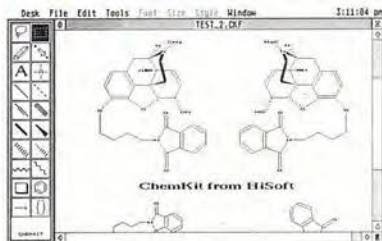
Devpac 3 £79.95

HiSoft Devpac 3 is the latest version of the popular assembler/ debugger package for all Atari 680x0 computers. Packed full of features, it is the ideal programming environment for beginners and professional programmers alike.

Improved and extended, the Devpac 3 macro assembler is now often 40% faster than its predecessor (without using pre-assembly), has many extra, switchable optimisations and, with the ability to pre-assemble files for inclusion, can now claim to be the fastest assembler on the Atari computers. It produces 68000 up to 68030 code (via a user option) & supports the maths co-processors.

Devpac 3 is supplied with a professional 350-page, wire-bound manual, all the necessary include files for your system (ST/STe/TT/Falcon030), GST and Lattice linkers, various utilities, example programs and a complete 68000 Pocket Programmer's Reference Guide. Call or write for more details.

ChemKit £39.95



A new package that many chemists and students of chemistry have been waiting for; ChemKit allows the easy creation, amendment and printing of any chemical structure.

Using a wide variety of flexible drawing primitives together with GDOS text, this package is a boon for anybody involved in producing chemical drawings. ChemKit runs on any ST/TT/Falcon030 and needs 1Mb memory.

Books from HiSoft

We have a number of excellent books for the ST/Falcon in stock at the moment.

These include C-manship by Clayton Walnut, ideal for the C enthusiast or the beginner; Program Design Techniques by Paul Overaa, an informative book on how to write well-structured programs in most languages; Real-Time 3D Graphics by Andrew Tyler, shows you how to create vivid solid 3D colour graphics while the Motorola 680x0 Programmer's Reference and the Motorola DSP 56000 Reference are the bibles for 680x0 assembler and DSP programmers. Please call us or write to us for pricing details on these titles.

When only the Best will do...

Falcons from HiSoft

Yes, we have them - now! In what is an unusual step for us, we have decided to stock both the 1Mb and the 4Mb/65Mb HD versions, the retail prices of which are £599 and £999 inclusive.

We have un-rivalled (in the UK at least) knowledge of the Falcon hardware, its operating system and the tools that will be available for this amazing machine; in addition, we firmly believe in quality of customer service, both before and after a sale. So why not give us a call to discuss the benefits of this superb new computer and how it can best meet your requirements?

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The True Colour Paint Package

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