525Mb
£599

All NEW GASTEINER
Hard Drive for Atari ST, STFM, STE, MEGA ST, MEGA STE & the formidable FALCON 030.

Award winner for BEST HARDWARE 1993 – ST Review

The All NEW GASTEINER Hard Drive has all the following features:

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5. Sleeve bearing Fan (17CFM)
6. Dual SCSI Port
7. Internal 5% Tolerance P.S.U. (90-260 VAC)
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10. 12 Months back to base guarantee

GASTEINER HARD DRIVES

<table>
<thead>
<tr>
<th>Capacity</th>
<th>TT/FALCON</th>
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<tr>
<td>GHD 40Mb</td>
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<td>GHD 120Mb</td>
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<td>GHD 1080Mb</td>
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<td>GHD 1800Mb</td>
<td>£1299.00</td>
<td>£1349.00</td>
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</table>

(1) EXPERIENCE
With over 20 man years experience in the Atari Computer market. Servicing many happy customers (over 10,000) we are the foremost manufacturers of Atari Hard Drives.

(2) DESIGN
Using the latest C.A.D. Technology we consider Power Supply design, Air Flow characteristics and Drive Specifications, combined with innovative manufacturing processes, ensure that we can produce the most reliable products to the highest standards.

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• Two colour illuminating crystal ball
(TKB MT AC ONLY).
• Ergonomic Design for very comfortable operation.
• Top quality construction with micro switch buttons.
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Crystal Trackball....................£34.95
ATARI COMPUTERS

ATARI MEMORY UPGRADES
INCREASE YOUR MEMORY
ST-STF-STFM-MEGA ST + FALCON

<table>
<thead>
<tr>
<th>Size</th>
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<tr>
<td>Xtra-Ram Board (0Mb)</td>
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<td>512K to 1Mb</td>
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INCREASE YOUR MEMORY FOR ATARI STE COMPUTERS ONLY

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FALCON 030 COMPUTERS

FALCON INTERNAL HARD DRIVE
HIGH QUALITY INTERNAL 2.5" IDE HARD DRIVES FOR THE FALCON, INCLUDING MOUNTING BRACKET AND IDE CABLE

<table>
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<td>Bracket for Hard Drive</td>
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<td>IDE Cable</td>
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FALCON Eagle Sonic 32 (32MHz) Accelerator for Atari Falcon 030  £199.00

FALCON 030 EXTRAS

SCSI II Cables  £34.95
ST Monitor Cable  £15.00
SVGA Monitor Cable  £15.00
Truepaint  £33.95
Midi Cable  £12.95
Stereo Speakers  £29.95
Stereo Headphones  £16.95
4000DPI Mouse  £19.95
Dust Cover  £9.95

FORGET-ME-CLOCK II
CLOCK CARTRIDGE FOR ST-STE- FALCON

Clock with Thruport  P.O.A.
Clock with Thruport  £11.95

SOFTWARE

HI-SOFT PRODUCTS
THE CODERS MULTIPACK
(Programming)

<table>
<thead>
<tr>
<th>Component</th>
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<td>Power Basic</td>
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<td>Tempus II</td>
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<td>Devpac 2</td>
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THE HOME OFFICE MULTIPACK
(Business Applications)

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<td>K-Spread 2</td>
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<td>Harleklin 2</td>
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<td>K-Graph 3</td>
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THE MEDIA MULTIPACK
(Video/Music)

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<td>Video Master</td>
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THE DISK MULTIPACK
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NEW PRODUCTS

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WORD PROCESSORS

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<td>Word Writer</td>
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<td>1st Word Plus v3.2</td>
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DTP SOFTWARE

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<td>Pagestream v2.2</td>
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<td>O.C.R. Software</td>
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<td>Touch-up Upgrade</td>
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<td>Calendar + Stationery</td>
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<td>Art Library</td>
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<td>Easy Tools</td>
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<td>That's Fun Face</td>
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<td>Family Curriculum Software</td>
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BITS AND PIECES

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<td>Internal Power Supply for Atari ST, STF, STFM, STE</td>
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<td>STE Motherboard</td>
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<td>TOS 206 STE</td>
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ACCESSORIES

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<td>Twin Joystick Ext. Cable</td>
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<td>Mono Colour Switchbox</td>
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<td>Printer Cable</td>
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<td>Null Modem Cable</td>
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<td>Serial Cable</td>
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<td>Philips/Atari Cable</td>
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<td>Scart Cable</td>
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<td>3.5&quot; External Disk Drive</td>
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<td>Blitz Turbo</td>
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<td>Power Cable</td>
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<td>Mouse Mat (picture)</td>
<td>£5.00</td>
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<tr>
<td>Box 10 Disks</td>
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<td>Dust Covers (all sorts)</td>
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<td>DMA Cable</td>
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<td>SCSI Cable</td>
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<td>Centronics to Centronics Cable</td>
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<td>Optical Mouse Mat</td>
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<td>ST-IV Cable</td>
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<td>Printer Switchbox</td>
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<tr>
<td>Auto Printer Switchbox</td>
<td>£14.95</td>
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<tr>
<td>Disk Box (80 capacity)</td>
<td>£6.95</td>
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<tr>
<td>Disk Box (100 capacity)</td>
<td>£9.95</td>
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</tbody>
</table>

AUTOMOUSE-JOYSTICK SWITCH

Allows you to instantly select either your mouse or joystick by a simple click on your mouse. You won't need to fuss around under or behind your computer to swap your mouse and joystick cable ever again, and also it saves your joystick port. £9.95

BUILD YOUR OWN HARD DRIVE FOR ATARI COMPUTERS

<table>
<thead>
<tr>
<th>Component</th>
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<tr>
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<td>SCSI Cable</td>
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<td>Power Cable</td>
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<td>SCSI to Centronics Cable</td>
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<tr>
<td>G.E. Soft Host Adaptor</td>
<td>£59.95</td>
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<tr>
<td>SCSI II Cable for Falcon</td>
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<td>Top Link Controller</td>
<td>£75.00</td>
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MONITORS

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<td>Gasteiner GM148 with Sound</td>
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<td>Microware 1440 Multisync</td>
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<td>Commodore 1084 ST Colour</td>
<td>£199.00</td>
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<tr>
<td>SVGA Mono for Falcon</td>
<td>£120.00</td>
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Custom computing

Fancy 24-bit graphics? Like a faster processor? Want a bigger drive? Need more RAM? Customising your ST and upgrading its performance is on page 17

DIY video port

Give your STE or STFM a video port and cut out those cable-swapping nightmares with this smart ‘how to’ guide on page 78

Nova card

16/32’s long-awaited 24-bit graphics card is here! View the results on page 50

A classified bargain

There are thousands of ST bargains just waiting to be snapped up - in your local paper! Explore the classified bargain basement with our exhaustive second-hand buyers’ guide on page 34

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7 SMART PROGRAMS ON DISK

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84 GAMEBUSTERS
Captain Blunder may be dead, but his memory lives on with the highest quality games tips known to man.

ST Answers
Help! You need somebody's help? Then check out ST Answers - the world's top technical troubleshooter!

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Future Publishing works very closely with manufacturers to ensure that no genuine manufacturer's defects, whether by the very best in the business.

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Medieval Chess

Medieval Chess is a great shareware game that adds a new twist to the game of chess: instead of taking pieces in the normal way you actually have to fight for the square you land on, and there's no guarantee that you'll win.

Before you do anything else make a back-up copy of your Cover Disk and extract Medieval Chess to a blank disk using the ST FORMAT menu program — see the boxout on the next page for full instructions for using the menu program. Once you have created your Medieval Chess disk click on MEDIEVAL.PRG to start the game.

When the game has loaded a scroll appears enabling you to choose the number of players, the colour of your opponent and the difficulty level of your ST if you elect to play the computer. If you make a mistake you can go back and select again. Other choices are to begin the game or quit.

Making a move

White always makes the first move, as in traditional chess. With the cursor appearing over the king, use the joystick to move the cursor over the piece you want to move and press the <Fire> button. To deselect the piece press <Fire> again. You can now use the joystick to move the piece to the destination square. If you try an illegal move, the piece moves back to its starting square.

When you land on an occupied square the game switches to Fight mode. A sword on the left of the screen shows the strength of the black player while the sword on the right displays the white's strength. If the handle of your sword turns red it means you are recharging and cannot fire.

Move around using the joystick, and attack your opponent using the <Fire> button. Solid areas can act as a shield to block projectile weapons but these blocks disintegrate after several hits.

Rules and regulations

The rules are simple: defeat the enemy king in battle using the traditional moves used in chess, augmented by a hand-to-hand combat section. When you are in an attack screen the piece that initiates the move has a strength advantage, except when a king is attacked. Each piece has different strengths, weapons, recharge times, speed and damage capabilities, and each damaged piece gradually heals as the game progresses.

Once the final battle is fought, the winning king is awarded a shrubbery by the Knights that say "Ni!" (who else?) and goes on to the quarter finals.

A FEW LITTLE RULE CHANGES

Medieval Chess is based on the normal rules of traditional chess, except for a few subtle but important differences.

There is no check or checkmate, instead you have to defeat your opponent's king in combat. When a pawn reaches the far side of the board it is replaced by a piece that has previously been taken, or if no other piece has been taken the pawn is replaced as soon as you lose a piece. Finally, the en-passant rule has been discarded. When you land on an occupied square you don't automatically take the piece. Instead, the two pieces fight it out in combat.

All other normal chess rules apply, whatever they are...
Now we've made it really easy for you to copy and extract programs from our Cover Disk and Wonderdisk. Just follow the ten steps below and make sure you have some blank formatted disks ready.

We've assumed a double sided, single drive system in medium resolution for these instructions. If your ST is in low resolution then switch to medium resolution using the Preferences command in the Options menu at the Desktop.

You can use the menu program to copy files to an external disk drive or a hard drive. Select the destination drive using the file selector in the usual way.

### FASTCOPY 3

**BY: MARTIN BACKSCHAT**

**RESOLUTION: MEDIUM OR HIGH RESOLUTION**

**MACHINE: ALL STS, HARD DRIVE INSTALLABLE**

**MINIMUM MEMORY: 512K**

**FOLDER: FASTCOPY**

### FINDING YOUR WAY AROUND FASTCOPY

**Fastcopy 3 has so many knobs, buttons and boxes that you can easily get baffled over which button does what. Here's a quick guide to each of the controls and its keyboard short cut.**

1. Status Bar: Indicates the amount of free system RAM and the status of the currently selected option.
2. Bar Graph: Displays the current state of the scan, copy or format.
3. Copy Disk: Select this button to copy a disk. You can also press F1 or Return to activate the Copy function.
4. Scan Disk: Checks through a directory for physical and data errors. Key F2.
5. Format Disk: Select this button to, or format a disk. Press key F3.
6. Directory: Read the directory of Drive A or Drive B. Press key F6.
8. New Conf: Reads a disk format and copies it to a blank disk. Press key F5.
9. Virus Check: Checks a disk for a virus. Slightly out of date so use UVK. Press key F7.
13. Verify Destination: Makes sure that data on disk matches data in RAM. Key F9.
14. Source: Selects Drive A or B as source drive and sets the drive step rate.
15. Disk Configuration: Selects the number of sides, sectors and tracks. Key F5.
18. Multiple Copy: Makes more than one backup of a disk. Key F7.
19. Dest: Selects Drive A or B as destination disk and sets the drive step rate.
20. Get Sectors: Reads an entire disk or just the used sectors. Press key F6.

### FILES: FCOPY.3.PRG

**SIZE: 24K**

**GET STARTED WITH: SEE BELOW**

Sometimes the programs we squeeze on the Cover Disk are so big you have to format disks in a special way to cram all the information on them – called extended formatting. You can’t create extended formats using your ST’s built-in Format command in the File menu; it can only create 80 track, 9 sector formats. To get more data on to a disk you can add extra tracks or extra sectors, but you need to use a separate disk formatter. We use an 80 track, 10 sector format for our disks because we find this to be the most efficient and reliable size.

Fastcopy 3 is probably the best PD disk formatter you can get. It’s fast, efficient and enables you to make back-up copies of unprotected disks. Almost every function is activated from a mouse-click on the screen, making it really easy to use. So, if you haven’t got enough room to cram all of Klingon War on to a disk, use Fastcopy 3 to create an extended format disk.
SYNTH SOUNDS

BY: CYBERDYNE SOFTWARE
SYSTEMS
RESOLUTION: MEDIUM OR HIGH RESOLUTION
MACHINE: ALL STS, HARD DRIVE INSTALLABLE
MINIMUM MEMORY: 512K
FOLDER: SYNTHS
FILES: KORG.LZH
UNCOMPRESSED SIZE: 82K
GET STARTED WITH:
SEE BELOW

Ten more super samples for you to use with Quarter – this time all sounds sampled from a Korg synth. All you need to do is load them into the Voices program that came with Quarter on Cover Disk 5, then you can create your own unique brand of techno rock. If you’re not sure how to use the Voices program, see the Masterclass in ST FORMAT 80 (turn to page 90 if you missed it).

To unpack the file, select the Synths option using the Cover Disk menu program, select your destination disk and sit back while the file is copied and unpacked for you. Easy peasy. Even Yeltsin could do it.

MAKE 1MBYTE

BY: RANDY Mears
RESOLUTION: ALL
RESOLUTIONS
MACHINE: ALL STS
MINIMUM MEMORY: 2MBYTES
FOLDER: MAKE.1MB
FILES: MAKE.1MB.TOS
SIZE: 2K
GET STARTED WITH:
SEE BELOW

Okay. Some games don’t like running on an ST with more than 1MByte of memory installed. Railroad Tycoon, for example, crashes whenever it detects the extra memory. The game checks to see if there is 1MByte of RAM installed, because it needs that amount to run, but if it detects a figure that doesn’t agree exactly with 1MByte it refuses to run, even if you have more.

That’s where Make 1MByte comes in. It enables the extra RAM so that your ST thinks it only has 1MByte of RAM, which enables picky software to run. To set up the program double-click on MAKE.1MB.TOS, press <Y> at the command and reset your ST with the game disk in the drive. The game should run and load normally. To remove Make 1MByte from memory switch off your ST for at least 30 seconds.

ALBION

BY: CARL J HAFNER
RESOLUTION: MEDIUM OR HIGH RESOLUTIONS
MACHINE: ALL STS, HARD DRIVE INSTALLABLE
MINIMUM MEMORY: 512K
FOLDER: ALBION-X
FILES: ALBION.PRG, ALBION.TXT, NEWTERMS.TXT, OTHERTL.TXT
SIZE: 90K
GET STARTED WITH:
ALBION.TXT, SEE BELOW

Using Albion you can alter file names, stamp them with a new date, write-protect them, hide them, alter the fastload bit and even trash the odd file. Er, that means to delete it so it becomes unrecoverable, gone forever, beyond all hope of rescue.

Albion’s a nifty little program with loads of nips and tucks to surprise you when you use it. When you load the program the first thing you have to do is select a drive letter from the line at the top of the function window. Now you must select a file to work on. To do this, click on the Select button and use the file selector to choose the file to be modified.

Apart from changing file names and attributes you can use Albion to give each of your floppy disks a unique name using the full Atari character set. Use the Locate Volume to find the disk name, edit it in the Filename line and write it to the disk using the Create Volume button. Simple (says Boris).
COVER DISK BACKUP

BY: BRIAN TILLEY
RESOLUTION: ALL RESOLUTIONS
MACHINE: ALL STS, HARD DRIVE INSTALLABLE
MINIMUM MEMORY: 512K
FOLDER: CD_BACK
FILES: CD_BACK.TOS
SIZE: 13K
GET STARTED WITH: SEE BELOW

It’s imperative that you protect your Cover Disk data. Stop what you are doing right now and use the Cover Disk Backup program to make working copies of your Cover Disk. All you have to do is double-click on CD_BACK.TOS and follow the on-screen instructions to make a secure backup of your disk – in fact, you’d better make it two copies just to be on the safe side.

While you’re at it make backups of your Wonderdisk too. What do you mean you haven’t got a Wonderdisk? All you have to do is subscribe to get twice as much ST FORMAT Cover Disk software. Turn to page 88 now.

You can even use our Cover Disk Backup program to make copies of all your favourite PD and Shareware software – two copies are always better than one.

THE ULTIMATE CONVERTER

BY: KEVIN MILLIGAN
RESOLUTION: MEDIUM AND HIGH RESOLUTION
MACHINE: ALL STS, HARD DRIVE INSTALLABLE
MINIMUM MEMORY: 512K
FOLDER: TUC102
FILES: TUC.TTP, TUC.TXT, SAMPLES.TXT, 18 OTHER TUC AND SAMPLE FILES
SIZE: 66K
GET STARTED WITH: TUC.TXT, SAMPLES.TXT, SEE BELOW

TUC is probably the best file conversion program for the ST, enabling you to convert PC word processor files in that have been created in WordStar, WordPerfect and RTF (Rich Text Format) to formats useable on the ST. It also converts 1st Word, Protext 4.3 and Write On to RTF and WordStar formats, enabling you to move text both ways.

Because TUC is a TTP program, you have to enter command parameters in the command line after you run the program. Full instructions for use are included in the TUC.TXT, and don’t forget to send off the Shareware fee if you find the program useful (otherwise Boris might cry).

EASY FOR YOU TO SAY

BY: AUTOMATED SAUSAGE SOFTWARE
RESOLUTION: HIGH RESOLUTION
MACHINE: ALL STS, NEEDS DIGIT 1.1 DEMO
MINIMUM MEMORY: 1MBYTE
FOLDER: DIGIT
FILES: EZ4U2SAY.LZH, EZ4U2SAY.TXT
UNCOMPRESSED SIZE: 109K
GET STARTED WITH: EZ4U2SAY.TXT, SEE BELOW

Our slightly mad MIDI and music maestro, Andy Curtis, has come up with a stunning little song for you to try out using the Digit demo we gave you last month. All you have to do is use the "Hey, boogie on down to the cool sounds of Easy For You To Say by Andy Curtis and the Automated Sausage Software. Groovy.

TEN TIPS FOR COVER DISK SATISFACTION

1. Write-protect your Cover Disk by sliding the black tab so you can see through the hole. This prevents you from accidentally erasing data.
2. Make a back-up copy using the Cover Disk Backup program (see the instructions above).
3. Always read the instructions for the program you are using, found either on the Cover Disk pages or in any document file on the disk.
4. Never run software directly from the Cover Disk except the Backup program, and always use your back-up disk.
5. Never, ever try to deconstruct self-extracting TOS files on the Cover Disk. Always copy them to a blank disk.
6. If you have any general problems with your ST, consult your manual. If you are still stuck then write to ST Answers, 30 Monnow Street, Bath, BA1 2BW.
7. If you can’t load, copy or back-up your Cover Disk programs then you may have a faulty disk – it happens sometimes.

Send the disk and a signed self-addressed envelope to:
ST FORMAT September Disk Returns, PO Box 21, Daventry, NN11 8BU.
We pay the return postage. Please, please, please don’t send faulty disks to our Bath or Daventry offices because we don’t keep stocks of Cover Disks there.

8. If you are having problems with a Cover Disk program go back and read the Cover Dish pages and any DOC files on the disk. If you still can’t get the program running, call the ST FORMAT Cover Disk Hotline on 0225 442244 on Wednesdays between 2pm and 6pm only – we can’t accept calls at any other time.

9. If you have other hardware or software queries, contact the manufacturer or publisher. Alternatively, ring the official Atari Helpline on 031 332 9222 between 6pm and 11pm Monday to Saturday and 8pm and 1pm on Sundays.

10. All ST FORMAT Cover Disks are double-sided. If you have an old STFDM and cannot read the Cover Disk then you should upgrade your ST to a double-sided drive – it really is worth it.

WE WANT YOUR PROGRAMS

We pay for your software – so if you’ve got anything that’s good, original and preferably short that you think really deserves to go on STF’s Cover Disk, send it with this form and full documentation to Nick Peers, ST FORMAT, Cover Disk, 30 Monnow Street, Bath, Avon BA1 2BW.

Name__________________________
Address________________________
Phone__________________________
Program title____________________
Program tote size in K____________________

On a separate sheet, explain concisely what the program does and why you happen to think it’s so brilliant.

Remember that we include all disk and paper documentation. We want your name and address on the disk. Use a virus free disk. Keep a copy of your program, because contributions are non-returnable. Enclose an attractive bribe. Not that it makes a difference, of course.

Please sign the following declaration: This program is submitted for publication in ST FORMAT. It is wholly my own work and I hereby agree to indemnify Future Publishing against any legal action should copyright problems arise.

Signed__________________________
ELSPA Prove They’re Rock Hard

by Simon Forrester

Following their new initiatives on breaking piracy in the UK, ELSPA (European Leisure Software Publishers Association) have recently carried out three successful raids, in which they discovered 500 CDs with a collective worth of £10 million. That’s £20,000 in worth of software on each CD.

ELSPA’s Crime Unit Head, Jon Loader, sees this as justification of the fears he voiced last month: “The retrieval of £10 million of software on just 500 CDs perfectly illustrates the enormous threat posed to the commercial software industry, and, yet again, we have referred material to police anti-pornography departments.”

Then They Waste Some Small Fry

ELSPA haven’t just been sorting out £10m CD frauds, though. As a matter of pride, Philip Richards was recently convicted of attempting to sell four pirated pieces of software, and received a £50 fine. That showed him then, didn’t it.

The Competition Grows and Grows

If you’re interested in PD and shareware you may well be interested to hear of ST Handbook, a recently-launched bimonthly, dealing with all things free or as near as dammit.

Apart from the fact that everything they’ve reviewed appears to have been “great”, the most memorable thing in issue 3 of the ST Handbook is the ST Ranger. For example: “After a period of intense rehabilitation, Eddie Sparks is once again ready for active service. Barely recognisable from his previous incarnation, he can now resume his fight against the criminal underworld...”

“I’m sorry,” came the voice, “this is a new ST format and we need the old one to work properly.”

“Somebody is flooding the ST PD market with a deadly virus. It’s wiping out masses of software. Find out who is doing it and eliminate them and the virus!”

The coverdisk smacks of PD at its most propeller-headed – a Pacman clone, an Op Wolf rip-off, and various utilities serving only vaguely useful purposes. We rec-

ommend you take a look through at least one issue, if not more. After all, at £2, what have you got to lose? (£2 for a start – Ed)

You can order copies from either Riverdene PDL (address in the story to the left) or contact STH directly for more information at: 1 Fordhouse Lane, Sturchley, Birmingham, B30 2NH.
STs COME ON STRONG AT THE FES

by Trenton Webb

The forthcoming Future Entertainment Show (Earl's Court, 26-30 October 1994) is now to feature its very own ST specific ‘village’. As the list of events and exhibitors is finalised an Atari dedicated area has been designated, so all the best ST software and hardware can be grouped together.

ST FORMAT and Future Music will be the hosts, giving demonstrations and answering your questions; while software publishers and hardware manufacturers will be showing off their hottest titles, giving tutorials on some of their classics and no doubt offering big savings on kit of all kinds. The exact details of who, what and when have yet to be confirmed – but every major player in the ST world should be there. The Future Entertainment Show will have something even for those sad folks that aren’t into STs. Every flavour of computer format – Amiga, PC, Mac – will be catered for, as will each and every console – including the 3DO, CDI 450, Super Game Boy, Mega Drive 32 and Jaguar.

The FES is your chance to see the best that computing has to offer, enter a host of competitions and grab some major bargains all in one day. Tickets are £6 in advance and £7 on the day or, if you fancy saving some cash and guaranteeing your place, then call 0369 4235. Miss out and your ST will hate you forever!

THE RIGHT CONNECTIONS

One of the biggest problems with a new release like the Jaguar is that ST owners, who are used to Philips or Atari monitors, will have to return to the terror of a TV running on composite video. What is actu-

Connections that go from the Jaguar to just about anything you care to think of

ally a clear, sharp, high resolution image becomes a fuzzy mess of blurred colour and strangled sound, and there’s only one thing you can do in a situation like this. (Well, two, if you count losing your lunch.) Lightwave are one of those companies that delight in making leads for every application. This time, they’ve come up with connections that go from the Jaguar to just about anything you care to think of: RGB monitor (£13.95); SCART TV (£13.95); Hoover and Indesit washing machines (£25.37); and even composite video (£10.95). Call Lightwave for a chat about it on 0111 630 5063.

Going Live

News International Exhibitions Ltd, in cooperation with papers like The News of the World and The Sun, are getting all excited about Live ’94, the consumer electronics show to be held at Earl's Court for six days from 20 September.

The show will cover everything electronic, from mobile phones to videogames

Family tickets will cost £16, and the show will cover everything electronic, from mobile phones to videogames, to a soothing background supplied by Capital (euch) Radio’s top DJs and live bands. Beats dead bands, I suppose.
The War Continues
by Simon Forrester

Any of you that have been following the computer entertainment market over recent times can’t have failed to notice the dramatic increase in market dominance by consoles. Despite the fact that these are processors with simply one cart slot and a few joypads (look no keyboard), they’re catching on with everyone from the age of nine upwards. In fact, it’s beginning to look like home computers are becoming a thing of the past.

But the next time some snotty little kid tries to shove a console in your face, set them straight on a few home computers still hold 37.8% of the market, a figure that doesn’t look like dropping facts, courtesy of Gallup and ELSPA. Firstly, the UK leisure market leader as far as percentage of sales is concerned is still a home computer — the Amiga. Secondly, home computers still hold 37.8% of the market, a figure that, while having to compete with the wildly fluctuating popularity of the consoles, doesn’t look like dropping.

Finally, though the world seems to be going crazy about the possibilities of storing 650MB on one CD, formats supporting this new technological revolution still only account for 5% of total UK market sales by unit.

Of a musical bent

Software Technology, the self-appointed leading UK Atari and Amiga music specialists, have recently announced the release of their score printing kit for Breakthru users, and are charging £49.95. (Though as we write, this raises some issues.)

Other latest releases stocked by Software Technology include hard disk utilities for back up and speed up, the Novation Bass Station MIDI control system, and some new sequencers, sample libraries and samplers.

We could give several pages over to their full stock list, but they’d be much happier to send it all to you yourselves. Write for full details at: Freepost MR9455, Manchester, M1 8DJ, or, failing that, call 061 236 2515 and get the hard sell directly from them.

THE BLACK SCORPIONS

They’re mean. They rode into town with their backs to the wind and their spurs a-jingling. Black Scorpion. They’re hard living, hard drinking desperadoes, and they’re releasing two new Falcon utilities: BSS Debug and DETrious.

BSS Debug, costing £39.95 from August onwards, is a 68030 symbolic debugger for all you frustrated Falcon owners who know exactly what a symbolic debugger is, and really need one.

DETrious is a totally different kettle of fish, replacing the mon-

A desktop, huh? You should have seen the bits we had to hide from view.

Is it (a) the Black Scorpions’ (bad name, huh?) debugger or (b) a grab full of boring techies driven crazy.

stously bad GEM, and finally giving Falcon users an interface they can understand and use to do more than just copy the occasional file. In fact, DETrious looks like it takes off where GEM stops (that’s right at the beginning, then). Billed as the cyber-iconic file manager, it’ll cost between £40 and £50, and should be available from September at the latest.

If you’re feeling really brave, you can talk to Black Scorpion on 021 414 1630.
Now We Are Ten
by Simon Forrester

On 29 June 1994 Peterborough exploded. What was once a quiet, peaceful Midlands town turned into the party nightmare from hell, as Arnor celebrated its tenth birthday. Of course, they couldn’t celebrate 3,653 days of constant selling without upgrading their flagship title, Protext. That’s right – version 6.5 is now available from Arnor for a mere £99. (Writer doesn’t fall off seat – it’s an excellent package.) The new version boasts several advantages over version 6.0, including: graphical print preview; automatic spelling and typo correction; automatic expansion of abbreviations; search and replace multiple files.

Now that Protext features a full WYSIWYG page preview option, which covers size, style, and graphics, there’s no reason why you should ever use anything else. Upgrades for version 6.0 owners will cost £35.25, and brand new copies of 6.5 will set you back £99. Contact Arnor on 0733 88909.

Buy Protext, lads, and you’ll get lots of girls. Buy Protext, girls, and...

V-ICTARI-ous

There are PD user groups by the bucketload, and probably more fanzines than there are readers, but you don’t often see programming user groups now do you? ICTARI, however, is a group for anyone who programs their ST in absolutely any language. Each month, members receive a disk full of source code, programming tips, Q&A and other useful programming bits ‘n’ bobs. Probably the most surprising thing about the group is that it’s entirely free to join – all you have to pay for is the postage of the disk. For more information, send an SAE to ICTARI User Group, 63 Woolbridge Road, Ashley Heath, Ringwood, Hants, BH24 2LX.

FACE FACTTS

If you’re a Falcon user you’ll already know of the Falcon Fact File, a system whereby Falcon users can get in touch with like-minded owners across the globe to exchange information, help, and software. The organisers of the system are so pleased with its outstanding success that they’ve decided to extend the service to Atari TT owners. The service really comes into its own when faced with a user base as small as the TT’s, because the machine receives little attention from the rest of the ST industry.

The Falcon Fact File (incorporating the new machine with just a slip of typography) works by publishing a quarterly database of every member on the board, as well as providing members with disks full of the latest PD.

For more information, or a form for free membership, write to: The PFF, 11 Pound Meadow, Whitchurch, Hampshire, RG28 7LG. Include an SAE or your international equivalent.

MAGE

An all new platform games construction kit. Can this be creator you’ve been waiting for?

3D CONSTRUCTION KIT v1 & 2

Incentive’s Kit looks to be the ultimate 3D package, but how good is it in the real world?

Plus: STAC, Shoot ‘Em Up Construction Kit, STOS and many, many more

If you want to get into coding but want a head start then check out ST FORMAT October.

On sale Tuesday 13th September.
Every summer, Chicago plays host to the CES, an industry conference at which everyone in the video games business blogs on about what they’ll be doing over the next six months.

Atari were there, as was Tim Tucker for ST FORMAT...

A few months ago it was starting to look like the four or five games already available for the Jaguar were all we’d be seeing, and that we’d be more likely to see “virtual reality holo-grammic information superhighways” in the home before actually getting to play the smart games like Alien Vs Predator on the Jaguar. However, Atari’s presence at the recent CES did much to allay fears that software is not forthcoming. There were over 26 titles on show, and the promise of this number reaching 30 by the end of the year, with nearly ten of them from Atari themselves.

beat’em-up with quite stunning visuals. Other titles from the guys that made your ST include Club Drive, an unusual 3D polygon racing game, and Wolfenstein, predecessor to Doom, and a damn fine game in its own right. In fact, Wolfenstein, in its own subtly anti-Nazi way, goes furthest to illustrate the difference in power between the 64-bit monster-cat-type-thing and the 16-bitters before it. Compare this to the blockily bitmapped SNES version, or even the PC original, and you’ll soon realise that you did the right thing buying a Jaguar.

Atari were also displaying Blue Lightning, a flight sim shooter, Battlezone 2000, the update of the classic arcade 3D tank game, and Space Wars, a two-player shoot’em-up.

From third parties, there are three platform games on the way, including the bafflingly popular Zool, the bouncing bobcat Bubsy, plus a brand new creation from UBI Soft known as Rayman, perhaps the most colourful and graphically superior platformer. Also soon to be on the prowl is Ruiner, a pinball game (oh yes), White Men Can’t Jump (which Jean Richens of Atari described, rather enticingly, as Virtua Basketbally) and Graham Gooch’s World Class Cricket, possibly a console first in enabling you to participate in the noble sport without falling asleep with one of those stupid hats over your face.

Despite all this, Doom’s still the most exciting game to be chain-sawing its way on to the Jaguar, and soon up to 32 players will be able to link up their Jags and indulge in multi-player mayhem. See the box on Jaguar hardware for more details.

JAGUAR HARDWARE

The CES was the venue for the presentation of the final CD-ROM drive for the Jaguar. This is like any other CD-ROM drive, except it slots into the cartridge port on the Jag and makes it look a bit like a toilet. Jean Richens of Atari took us through the potential of the new machine: “It will be out in November in the US at a highly competitive $189, and should be in Europe sometime in December or January next year.” It’s a stupendous product for three reasons: 1) because of its attractive price, 2) because it supports video games, music CDs and movie CDs, and 3) because it’s the only new CD player with a built-in cartridge port. This port makes it possible to record games, and also enlarge the capacity by having both a CD and cartridge running a game simultaneously.”

Jean reckons there’ll be four or five CD titles on launch, including Demolition Man, Creature Shock, but there should soon be a lot more, with at least 30 companies currently developing for the new CD system.

One of the first real developments for CD games is something called Clickpak, which enables developers to include up to three hours of video film in their games. We saw this working, and it’s a damn sight better quality than the current state of video on CD. For actual movies, though, you’ll have to wait until MPEG becomes available sometime in 1995.

Another announcement from Atari concerned a voice data modem for the Jaguar. Sounding more like something you’d expect to see on your ST, this nifty little device enables players to link up over the telephone while speaking at the same time, coming with a headset and microphone (so you can shout “Get ya, ya bast” while slaying the blokes down the road from the comfort of your own bedroom). It will enable up to 32 players to play on the same game via telecom link, in games such as Doom, Blue Lightning and Battle Core Schmart!
Monochrome Monitors

The award winning SM14 is a perfect replacement for the Atari ST/Mega. This monitor not only exceeds the original specifications. The 14" high resolution, paperwhite GST (Flatte, Square, Timer) gives a perfectly centred, crisp, sharp image without blurring at the edges. The SM14 comes without, and the SM14s with, a speaker. The SM14s is for the Falcon. A Tilt and Swivel stand comes as standard.

The special version for ST/Mega ST installed with Overscan, the screen enhancer, gives a 40% bigger display. All monitors come as a plug-in-and-go unit, complete with Atari plug, and no adaptors are necessary.

Essential Buy, £98.95
ST Review, May 93
SM14/F without audio £129.95
SM14s with audio £149.95

OverScan ST £33.95

Minis - Hard Drive System

The Minis Hard Drive System comes with drive capacities ranging from 40Mb up to 1800Mb. This full SCSI system is hard drive compatible with all Atari computers, Amiga, Mac, PC etc. They are unrivalled in size, noise, speed, and style and come with a thruput for expansion.

It is the only hard drive a minimalist might recommend for an Essential Buy of '92 - Atari ST Review Christmas '93, and a Gold Award of '93 - ST Format Feb. '94

GOLD AWARD ST Format

Falcon Add-ons

Falcon Wing 0Mb £49.95
Falcon Wing 1Mb £179.00
Falcon Wing 14Mb & Call
 BlowUp 030 - Software £15.00
 BlowUp 030 - Hard 1 £49.95
 BlowUp 030 - Hard 2 £69.95
 14" Monitors from £99.95
 NEW 15" & 17"DEK Monitors & Call
 Clarity 16 £99.95
 Cubase Audio (New V1.10) In Stock
 FDI - Flight Digital Interface £233.85
 FA-8 Falcon Analog In & Out £35.13

Communications

Comms Software
ConBox v2.4x £29.95
Includes printed manual and registration

Fax Software (requires Fax Modem)
 Straight Fax v2.10 £79.95
 Straight Fax upgrade to v2.1 £25.95

NEW - Exchangeable SyQuest Drives
105Mb, 14.4M Drive, Inc cert £39.90
105Mb Card £39.95
270Mb Drive inc Cert. £59.99

Specials

The Jaguar & Games are now in Stock
128 Mhz Accelerator £179.95
128 STe £399.99
14.4Mb Floppy Drive Kit £69.95
The Translator £69.99
HD-Drive Software £19.95
ICD Link II in Stock £89.95
ICD Pro £179.95
Falcon Tower Kit £159.95
Falcon 4Mb, 32Mb Tower £799.00
Falcon 4Mb, 32Mb Desktop £89.95

To order and for further information telephone or write to:

Mall Order Telephone
0753-832212

System Solutions
Windor Business Centre, Ventifitt Road, Windsor, SL4 1SE
Fax: 0753-832244
or come to our London Showroom at:
The Desktop Centre
17-19 Blackwater Street, London, NW2 8RM
Tel: 081-6333155 Fax: 081-6336936
All prices include V.A.T
_for small accessories, please add 12.6% VAT
_for large orders, please add 6.6% VAT

MagiC - Multitasking Operating System

"It's like running an accelerator and getting the multitasking thrown in for free." ST USER, Feb. 1994
MagiC is a full TOS replacement, a very fast disk filing system, has accelerated serial, midi and printing routines, and is, of course, a true pre-emptive multitasking system.

MagiC Desk, a replacement desktop and a powerful command shell have been included. MagiC runs on all ST, Mega and TT computers with 512Kb, but 2Mb is recommended for a useful working system. The falcon version is expected later this year.

"If you want a multi-tasking system that works simply and reliably, then MagiC is for you." ST Review, June 1994.

MagiC (Intro price) £89.95
MagiC and NVDI £189.95
MagiC and Kobold £339.95
NB: Excellent with Calamus SL. Similar to Notator Logic, but not with Notator SL and not yet compatible with Cubase.

NVDI

NVDI replaces the Atari display routines. Screen updates with NVDI are 10 times faster. Works with all TOS versions on all Atari ST, MegaST, TT and Falcon 030 computers.

Cubase and Notator compatible.

NVDI is unique handling of the Atari file system gives a speeded up system when copying, moving and deleting files. Copies 1000 files, (10Mb) in 45sec, (GEMDOS 5.53m) Use Kobold for Backups, Formatting Ploppies, Move/Copying, Updates, Timed Jobs, etc.. It also includes a script learn function to automate repetitive functions. Can be run as an .ACC or .PRG

Kobold 2.5 (Intro Price) £49.95

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<td>£79.95</td>
<td>520 STE to 2 Meg</td>
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We shall try to beat any genuine advertised Falcon prices

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How do you turbocharge your ST? There are seven distinct areas, all of which will enhance your machine’s performance and even its appearance. Simply find the icon that matches the area that you’re interested in and drive, man, drive!

ACCELERATORS: Feel the need for speed. Make your ST run faster than you thought possible with both soft and hardware. Hit the metal on page 22.

MEMORY: The more RAM your ST is packing, the more you can do with it. It’s that simple! Find out all you need to know to RAMP up your ST on page 18.

OPERATING SYSTEMS: Petrol or methanol? Put a tiger into your computer’s tank by adding a brand new operating system. “Fill ‘er up then, Jacko” on page 23.

DRIVES: Hard or floppy, it really doesn’t matter. The more drives you have, the more data you can cram into your machine, and faster. Turn to page 19.

GRAPHICS AND DISPLAYS: Flash colours that look cool too. The full range of graphics cards and monitors is stripped down and given the full MOT on page 24.

SYSTEM ENHANCEMENTS: GEM is all well and good, but there is a host of sophisticated ways to make your ST motor. Fire up the engine on page 20.

PHYSICAL: Change your ST’s appearance and performance. Everything’s covered, from bodywork through to fluffy dice (well almost). The forecourt shop is on page 26.
 MEMORY UPGRADES

If you only have half a meg of memory inside your ST you’re working in a sadly handicapped environment - there are almost no new games or serious software under development that are able to run on a standard 512K ST.

You need at least 1MByte of memory for so many different programs that you’re missing out if you only have 512K. For instance, with 1MByte you can run DTP programs like Calamus, use powerful graphics applications like POV 2 and Xenomorph, use top-of-the-range MIDI software, play fantastic 1MByte games like Civilization and Lemmings, create long sound samples, fill every Desk Accessory slot and run gigantic RAMdisks.

Go the whole hog
The obvious thing to do is upgrade your STE or STFM to at least 1MByte, 2MBytes or 4MBytes of RAM. It’s not that expensive to upgrade your ST; if you shop around you can get two 256K SIMMs for an ST for as little as £10, and a half megabyte upgrade for an STFM can cost as little as £40. You really should consider going the whole hog and upgrade to the maximum RAM your machine can take - 4MBytes for STs and 16MBytes for Falcons. Almost all upgrades use SIMMs so it can be inexpensive to buy a bare board and source the SIMMs yourself - SIMM prices constantly change so it pays to shop around for the best buy.

It’s so easy
Upgrading your STE is easy. Take off the lid, remove the power supply cover and plug in the SIMMs. Upgrading an STFM isn’t quite so simple, but it isn’t too hard to do yourself. In almost all cases you just plug the upgrade over two chips on the motherboard.

If you want to see how easy it is to upgrade an STFM take a look at the Megabyte Blues feature in ST FORMAT #8.

Marpet XtraRAM +8
- AVAILABLE FROM: Marpet Developments 0 423 712000
- PRICE: £59 unpopulated SIMM prices on application

Marpet XtraRAM Deluxe
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FalconWing 4/16MByte upgrade
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- PRICE: Unpopulated £49 Call for SIMM prices
DRIVES

Hard drives are desirable things. Massive data storage, fast loading time, being able to keep all of your programs and data files together, and showing that huge pile of floppies in the cupboard for good - all this and more is yours with a hard drive. You really need a hard drive to get the best from modern applications like Calamus SL, Protext 6 or SpeedoG-DOS. Lots of recent games like Elite 2 can run from hard drive, too. Try using a friend's. You'll be hooked...

All modern hard drives come fully cased, formatted ready for use, and with any cables you need. To use one straight away you just plug it into the DMA port on the back of your ST, or the SCSI port on your Falcon.

MiniS Tower Drives

Odd-looking drives these, housed in upright mini-tower cases rather than chunky desktop boxes, and better for it. Like the Gasteiner drives, they have no internal host adaptor, but System Solutions supply the ICD link for your ST, while Falcons and TTs just plug in and go. The MiniS drives are cokers, and at a good price to boot.

Protar Series 2

Protar's software isn't quite up to ICD standard (see the ICD FaST drives to the right), but the drives are extremely well built, reliable and almost silent in use. They also have a SCSI through-port for daisy-chaining other drives, and ample space in the case for adding another internal mechanism (such as another drive, for example).

Gasteiner Drives

Housed in upright cases like the MiniS drives, the Gasteiner models are examples of solid engineering. The drives plug straight into a Falcon but you'll need the Top Link host adaptor to use them with an ST; costing you £30 extra. The GeSoft software is probably the weakest of the bunch, but the drive itself is an excellent piece of kit.

HOST ADAPTORS

Atari didn't fit a SCSI interface on the ST, so all drives need a host adaptor to talk to a hard drive. Unless you're planning to fit extra drives into the case at a later date, you don't need to worry much. If you are planning to fit an extra drive, check with the suppliers (listed above) whether the drive you're thinking of will work with the adaptor supplied. Some of them don't seem to like talking to certain drive types, so it's always worth checking first.

ICD FaST Drives

Supplied with built-in clock and the excellent ICD caching management software. Quiet, reliable and fast, if a tad expensive. Solid cases, and small enough for all desks.

MiniS Tower Drives

AVAILABLE FROM:
System Solutions
0753 832212
PRICE:
£49.95 for a 120Mb Falcon drive and £28.50 for STs. Call for other sizes

Protar Series 2

AVAILABLE FROM:
Analogic Computers
081 546 9575
PRICE:
From £299.95 for 120Mb to £449.95 for 240Mb Call for smaller or larger drives

Gasteiner Drives

AVAILABLE FROM:
Gasteiner 081 345600
PRICE:
£170Mb £259 for TT/Falcon, £299 including Top Link for STs

HOST ADAPTORS

Atari didn't fit a SCSI interface on the ST, so all drives need a host adaptor to talk to a hard drive. Unless you're planning to fit extra drives into the case at a later date, you don't need to worry much. If you are planning to fit an extra drive, check with the suppliers (listed above) whether the drive you're thinking of will work with the adaptor supplied. Some of them don't seem to like talking to certain drive types, so it's always worth checking first.

ICD FaST Drives

AVAILABLE FROM:
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HIGH DENSITY DRIVES

Disk drives are great; you can move huge amounts of data between a floppy disk and your ST at high speeds and you can store 800K on a standard DD (double-density) floppy disk. But with the world being the way it is, 800K is not enough for really large files and programs used for today's serious graphics applications. Indeed, a single 24-bit Targa picture file can be several megabytes in size.

The answer is to install an HD (high density) drive in your ST. An HD disk can store twice as much data as a DD disk, meaning that you can work with larger files and store more data in your disk box. The drive controllers in almost all STFs and all STEs can run at the higher clock speed required by an HD drive, but bear in mind that the drives themselves are difficult to install, involving some soldering directly to the main circuit board. Installing the drives is not a job for a novice - ask your supplier to quote an installation fee.

Elco HD Drive Kit

Reviewed back in STF 36, this kit includes a small board containing a 16MHz clock to increase the speed of the disk drive controller, a large bunch of wires to solder to your circuit board - not a job for the faint-hearted - and a compatible HD drive and driver software. A good professional kit.

Elco HD Drive Kit

AVAILABLE FROM:
System Solutions
0753 832212
PRICE:
£79.95 inc HD drive

Bitz HD Drive Kit

This works in a different way to the Elco kit and is easier to install (see the installation guide in STF 54), but is still no job for the amateur. A small board is soldered to the WD1772 drive controller chip with just three wires to connect to the circuit board. A hard drive and Bitz formatting software is supplied.
REPLACEMENT DESKTOP SYSTEMS

To really benefit from a new desktop you will need a hard drive and at least 2MBytes of memory. Have a look at the three offerings reviewed here. There’s sure to be one to suit your needs and your pocket.

Adding a replacement desktop is one of the easiest ways of customising your ST. They can add some new tricks to your old GEM-based repertoire and some colour too.

All of these replacement desktops are simple to install. Just stick the program you choose in an Auto folder on your boot drive and it will load automatically at boot up.

Teradesk

Teradesk is a truly excellent replacement desktop with many advanced features, and it’s in the Public Domain. It is without equal in the free software category and also strongly challenges commercial offerings. Programs and folders can be dragged on to the desktop, and alternative GDOS fonts used for window text displays (if installed). The desktop pattern can be changed, as can the colours if used in low or medium resolution. Multiple icon handling is excellent; many are available in the PD and a good few are supplied with the program. Full documentation listing keyboard short cuts is also provided. Teradesk will run from wherever you put it. Place all the files in a folder and simply run the program at boot up. Get the software from all good PD Libraries: the current version is v1.38.

Teradesk

- AVAILABLE FROM: all good PD libraries
- PRICE: PD prices

Neodesk 3

Neodesk is fully multitasking compatible and comes with a suite of utilities. Backdrop pictures can be used but there are limitations on the number of applications that can be run from icons on the desktop. A host of great features like the desktop notepad, makes Neodesk great value for money. Neodesk 4 is soon to be available in the UK and will offer yet more useful functions to its already friendly desktop environment.

Neodesk can run from anywhere on your drive as long as a supplied cookie jar program and a program called Neoload are run from the Auto folder at boot up.

Neodesk 3

- FROM: Compo Software
- PRICE: £19.99

Ease

Although it lacks several features, Ease is still the best ST desktop package available – offering multitasking and GDOS compatibility, and with power features coming out of its ears. It’s written in 100% assembler code, ensuring that the functions are all lightning fast, and there’s also an on-line help facility. Ease will run from the folder of your choice and it keeps all its files within that folder.

Ease

- AVAILABLE FROM: System Solutions
- PRICE: £75

FILE SELECTORS

One of the cheapest and easiest things you can upgrade on your ST is the file selector. If you use any serious applications you’ll feel the benefit. The standard file selector leaves much to be desired.

Every time you need to load a file into an application you will be presented with the file selector. The options open to you at this point vary according to which one you have loaded.

LGFS - a reliable and very straightforward file selector, available from most PD Libraries.

Little Green File Selector

This is a competent old favourite and is freely available in the PD or on BBS systems. Nice clear presentation of the available masks and paths coupled with a colour display in low or medium resolution makes it an excellent and straightforward choice. This file selector’s particularly popular among the STF staff, for some reason.

Little Green File Selector

- AVAILABLE FROM: all good PD libraries
- PRICE: PD prices

Selectric

This nifty German offering is Shareware, so you can try before you buy. All the active drives are displayed, and several masks and pre-defined paths are available. Add to this the facility to copy, move and delete files, the ability to create folders and a complete set of intelligent keyboard short cuts, and you have a powerful program. There are also loads of configuration options included. Definitely one for the tech-heads.

Selectric

- AVAILABLE FROM: all good PD libraries
- PRICE: £13

UIS 3

This is a commercial offering and it’s quite a package. The keyboard short cuts are not handled quite as well as they are by Selectric, but it offers most of the features listed above. UIS has one extra advantage – a Disk Format option which can be a life-saver. The screen layout is simple and easy to follow, with a selection of text sizes and displays, and the comprehensive manual will get you started in no time.

UIS 3

- AVAILABLE FROM: FasT Club
- PRICE: £14.95

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Prices subject to change without notice.
ACCELERATORS

SOFTWARE ACCELERATORS

If you've ever noticed how slow GEM can be and you'd like that extra kick of speed without splashing out for a hardware accelerator, a software solution could be for you. Software accelerators don't increase the actual speed of your ST, instead they replace most of the old 'C' code in TOS (which deals with screen display and suchlike) with blazingly fast assembly language routines. That DTP program with the slow-o-o-o-owl screen updates can be given new life; graphics applications can be supercharged; GDOS programs can be given a big speed injection; even the humbling Desktop will scream along. Most games won't benefit, but if you use your ST at all seriously you'll wonder how you ever did without one.

Installation
Installing a software accelerator is simple; just drop the program into your Auto folder and re-boot. Both programs featured here come with helpful configuration Accessories, too. Just re-boot your machine and sit back and enjoy.

NVDi 2.5
Completely replaces the old VDI (Virtual Device Interface) code with turbocharged routines. The speed increase over a non-NVDI machine fair slaps you in the face. NVDi also offers a much faster replacement for standard GDOS, enabling you to use snazzy fonts on the Desktop and in programs, and can be configured at will with the supplied Desk Accessory and XControl CPX modules. It's compatible with 99.9% of software, and if you have a problem you can easily turn it off. Installation is easy with the supplied program. It's fast, slick, and we cry whenever we have to use an ST without it. Cracking stuff.

Warp9
A useful accelerator from the Codehead stable, but not quite in the NVDi league. It doesn't offer a GDOS replacement, but it does provide alternative screen fonts, mouse acceleration, a screen saver and it can replace the boring Desktop with a picture. The screen saver is a neat feature, making use of "Extend-O-Save" modules - little add-on bits of program code - to provide lots of different effects, and there are lots of free modules available from PD Libraries and BBS systems. Not as fast as NVDi, but still a worthwhile speed improvement, and cheaper with it.

HARDWARE ACCELERATORS

Installing a hardware accelerator inside your ST can drastically improve the operating speed of any software that's particularly processor intensive. Typical software that benefits from a hardware accelerator includes desktop publishing software like Calamus, S and SL, spreadsheets, graphically rich packages like Studio Photo, True Image and DA's Vector Professional and word processors and document processors like AtariWorks and Papyrus Gold.

ICD AdSpeed STE
When we reviewed the ICD AdSpeed STE back in issue 42 we gave it a respectable 81%, and that excellent score still holds up despite the fact that it was almost two years ago that we tested this 16MHz accelerator.

Installing the board in your STE is simple. Just remove the Motorola 68000 chip from its PLCC socket and replace it with the AdSpeed board - it only fits in one way around so you can't make a hash of it. An additional socket on the board enables you to add an optional 68881 maths coprocessor, although there is very little software that utilises the extra maths functions apart from some of the newer graphics software designed for the Falcon. We thoroughly recommend this upgrade for your STE. An oldie but definitely a goodie.

T-28 and T-36 Accelerators
System Solutions' T-28 and T-36 are currently in the middle of a redesign, although the new versions are expected to be in stock "any day now".

The new boards are designed primarily for the STFM and MegaST and run at speeds of 23MHz and 36MHz, accelerating your ST to 3.5 times and 4.5 times its normal operating speed - a fantastic increase in processing power. The board fits over the Motorola 68000 of the STFM and MegaST, which means you have to solder a socket on to the chip and then plug the board over the top. This isn't an easy job, and you're better off sending your ST to System Solutions for safe, pain-free installation.

An STE adaptor is promised in the near future enabling these high-speed boards to be used in any ST. Watch out for a review of the new T 1 range of accelerators in ST FORMAT soon.

T-28 and T-36 Accelerators
• AVAILABLE FROM: System Solutions 0753 832212 • PRICE: £199.99
All computers need an operating system. The OS provides an environment within which you run programs, copy files, plug in and control peripheral devices and do all the other things STs do. Shortly after the ST first appeared, its own operating system TOS (The Operating System) was hailed as a modern marvel, because although the first STs had to load this operating system from disk like most other machines, soon TOS was provided on a chip inside the ST. So as soon as you switched on your ST you were ready to go, with no time or memory loss in loading the OS.

New and better versions of TOS have been released for the ST over the years, the latest one being v2.06. But lately there’s been a rush of brand new OSs and, to prove how things go round in circles, instead of being plugged in they’re loaded from disk. Installation is resulting easy, with no hardware modifications needed, but you will need plenty of RAM to use them. They provide new and improved features that you don’t get in standard TOS, but you may not need them unless you’re a ‘power user’. Check out what they do, and see if you’re tempted.

**TOS UPGRADES**

Back in STF61 - turn to page if you missed it - we told you all about the benefits of upgrading your ST to TOS 2.06. A much better Desktop with keyboard short cuts, improved file handling and custom designed icons are only a few of the benefits you can get from a TOS upgrade. The modern breed of TOS upgrades are switchable too, so you can easily go back to your old TOS if you find a program that’s unhappy with TOS 2, like older software written in STOS. STF 62 also gave you comprehensive guides to fitting and using TOS 2, and we even showed you how to design your own Desktop icons.

**TBoard 64 STFM/68 STE Upgrade**

This board involves a soldering iron job–installation isn’t that hard if your ST has socketed ROMs, but if they’re surface mounted, it’s a little fiddly. As it’s software switched there’s no messy drilling to fit a switch. A recommended board, but check to see if you have socketed ROM chips before deciding.

**Amitar Solderless STE/STFM TOS Switcher**

A good piece of design, this - no soldering to do, and you can fit it in under an hour with no technical knowledge. You need to drill a hole to mount the toggle switch, but that’s as hard as it gets. Analogic Computers supply a TOS 2 manual, and for £3 they can also supply you with a PD disk with all the TOS 2 software you need. The STFM version fits on to the Glue chip using simple connectors, and covers all variants of the FM motherboard. Hassle free and brilliant.

**MultiTOS**

MultiTOS is Atari’s own replacement operating system for all Atari Motorola 68020 based machines, the Falcon and the TIT - making it one of the most versatile. Though a new version of TOS, MultiTOS differs from other multitasking software in that it actually runs both tasks at once using high speed switching between them. (Others normally let you work on the top application while the bottom one freezes.) MultiTOS’ adaptive prioritisation contributes to make all multitask operations efficient, while it has also been written to take advantage of a feature of the 68030.
Your ST or Falcon is useless without a monitor. Televisions were never designed to display your ST's output and, while they may give passable results for games software, for serious applications like art, DTP or WP work you really need a proper monitor. We ran a big feature on monitors in STF 37, but since then much has changed, and many excellent units have been discontinued. Look out for second-hand ones in your local newspaper small ads (for tips see page 34). You might even spot an old Atari mono SM124 or SM125 monitor going cheap - these are great for serious apps.

In with the new
ST owners have to rely on the nearest equivalent monitor from non-Atari sources, which have certain drawbacks. Because they weren't primarily designed to be used this way, some lack sound output and need an add-on unit to provide noise. Check the correct cable and/or interface is supplied, as PC monitors often have the wrong connections. Tell the dealer what ST you have before you buy, and make sure the monitor offered is guaranteed compatible with it.

Microvitec 1438 Multisync
Multisync monitors can be plugged into virtually any computer because they're designed to accept a wide range of outputs. This particular model can display your ST's high, medium and low res programs, but you need the ST Multisync Switchbox to switch between them (£19.99, also from Ladbroke). It also works with a Falcon in all its video modes. Compact and affordable.

Dataview 28 SVGA
SVGA monitors provide pleasing displays: detailed and colourful. Depending on what adapter you buy with it, you can use this monitor with your STE and even the Falcon, and the various cables cost between £10 and £20 each. Should you wish to stop at that low, you can use it with any PC too. Although expensive, it's worth it if you want colour SVGA for your ST, and if you upgrade to a Falcon you can still use it with that.

Dataview Mono
Ladbroke Computing have taken a mono PC monitor and adapted it fairly successfully for STs. Although the display is off-white rather than paper-white, it gives a clear, flat, steady picture for all high-res programs. With a 14-inch screen it has a larger image than Atari's old monitors, and comes on a tilting stand. Sound output comes from a small interface, and although not loud it's good enough to hear the keyclicks. Ladbroke can supply add-on speakers.

Viewtek Greyscale
Here's a novelty: a monitor for ST medium and low res software that displays in black and white and unlimited shades of grey. This low-cost solution comes with a choice of interface, so you can plug it into your ST or STE. The 12-inch screen provides a steady picture, and built-in stereo speakers provide sound output. A tilt-and-turn stand costs an extra £15.99. A mono emulator program enables you to run high-res ST programs.

Dataview 28 SVGA

Dataview Mono

Viewtek Greyscale

GRAPhICS CARDs

Graphics cards are used to increase the resolution or the available palette of your ST, or both. There are two graphics cards around for your ST at the moment: a high-resolution mono card and a colour card enabling you to upgrade your MegaST or MegaSTE to 24-bit graphics with a palette of 16.7 million colours - 18,771,216 of them to be precise. Graphics cards are an expensive option, but the results you see on screen are worth the high initial outlay. Graphics cards are usually designed for the MegaST or the MegaSTE, with adaptors available for the standard ST. The STFM currently has no cards available for it.

Reflex Graphics Card
Titan Designs' Reflex Graphics Card has been around for quite a while now, but it's still the only real contender if you want to connect your MegaST or STE (with adaptor) to a large-screen A3 or A4 monitor.

The card is a high-resolution-only device and enables you to see more of the document on screen when you are using DTP programs like Callas M or powerful document processors like Papyrus Gold. A great advantage of the Reflex system is that it increases the resolution on a standard Atari monochrome monitor, so you don't have to buy a large-screen monitor to use it.

The board simply plugs into the MegaST's expansion slot, while an adaptor that plugs into the STE enables you to plug in the Reflex card in the same way - providing a MegaST expansion slot for your STE. We showed you how to install the Reflex card back in ST FORMAT 45. This is a great card that thoroughly deserves its ST FORMAT Gold rating.

Nova Graphics Card
A colour card enables you to enter the world of high-quality 24-bit graphics on your MegaSTE, turning it into a professional standard graphics workstation. There's plenty of software you can use with the colour cards including Xenomorf 2, Prism Paint 2, DA's Vector, DA's Layout, DA's Picture and Chagall.

The Nova card is available in MegaSTE and MegaSTE config and plugs into the respective slots. There is an STE adaptor “on the way” - no definite release date yet. The Nova is an expensive board, but then 24-bit graphics are an expensive option. See the full review on page 50.

Nova Graphics Card

© Graphics cards may be a little pricey but the benefits are huge.
ALTERNATIVE DEVICES

Your ST is a great computer but it has the undeserved reputation of being a games machine. Although you can play games with it - and some damn good ones too - it is designed to be a professional working computer.

However, the design of the standard STFM/STE has done nothing to enhance the ST’s prospects as a serious contender in the business world. Where are the expansion slots for graphics cards, internal hard drives, networking boards, video cards and all the other paraphernalia? Sure, there’s the MegaST and MegaSTE with their single slots, but how many people actually have one of these expandable STs? Less than 2 per cent in the UK, that’s how many. What’s needed is a way of getting your ST out of its case and into a more expandable and professional unit. Just take a look at these two options.

Lighthouse Tower

This is the first and, arguably, the best alternative case for your STFM, STE or MegaST. The Lighthouse Tower is a massive design, which stands on the floor with room inside for any peripheral or add-on you care to think of. The Tower comes in a variety of configurations with various add-on boards enabling you to upgrade your ST so that it’s almost unrecognisable - PC owners are amazed when you tell them there’s an ST lurking inside the case.

The Lighthouse Tower is a complex beast to build. You have to strip down your ST and remount all the components in the new case - a daunting task that we demonstrated to perfection in our DIY upgrade feature in ST FORMAT 52. The amount of gear you can install inside is incredible - this is a serious kit for your ST.

Desk Topper

This is a less expensive option than the Tower. Simply remove the top half of your ST’s case and re-site it in the base of the Desk Topper. You can remount the floppy drive in the front of the case and there’s plenty of room inside for hard drives and other upgrades. Then your monitor sits on top and the keyboard is remounted in separate case. See the full review in next month’s issue of ST FORMAT.

INPUT DEVICES

You’ve speeded your machine up, increased its storage capacity, you’ve given it a graphics card to die for, and you’ve put it in a big enough box to signify its power. In hot rod terms, it’s time to add the furry dice (no!). Yes.

Due to the nature of the stuff featured here, you won’t have any problems fitting parts or getting things to work. Occasionally, something comes along that isn’t Atari-compatible, but you can pick up a conversion cable for a couple of quid at any electronics shop. Read on, then, knowing that plugging something in is as complicated as it gets.

Gastener Mice

Gastener Mice are a great product. They may seem strange at first, but Gastener market two different mice for a reason - the more you pay, the more sensitive your mouse is to movement. Though it is more expensive, the £15 model senses 400 DPI (units of movement per inch), whereas the £7 model only works with 280 DPI.

This means that if you’re happy to shell out £5 more then you’ll get a mouse that’s not only well designed, small (but perfectly formed), and with the buttons in the right places, but sensitive enough for any ST application.

TKB-MT-A Trackball

You can think of a trackball as an upturned mouse, except that instead of pushing the box around you move the ball with your hand, the box staying perfectly still on the table. The only real problem trackballs have is that clicking on something and dragging it elsewhere is a problem, as you’re moving the ball while holding down the button. To solve this problem, Alfa Data (the manufacturer) have added a third button, that will act as the left button but will stay depressed (sort).

Lighthouse Tower

AVAILABLE FROM:
Gastener
081 345 6000
PRICE: £19.99 and £14.99

Alfa Data

Real-Time Clock

An utterly groovy little ST-specific add-on that’ll keep time while your ST is turned off, enabling it to keep an accurate clock at all times. A real-time clock, then, is an essential piece of kit for anyone wanting to time anything else from their ST (bulletin boards, logs, that sort of thing). Coming with its own software, it has to be one of the best alarm clocks around - after all, it’ll have an ST strapped on to the back.

Auto Mouse/Joystick Switch

This toggles control between a joystick or mouse when Fire is pressed on either one. If you’re a fan of two-joystick games, this saves all that torturous plug swapping, carrying out the whole operation fully automatically.

TKB-MT-A Trackball

AVAILABLE FROM:
Gastener
081 345 6000
PRICE: £29.90

Optical Pen Mouse

For those of you who are far too arty to use a mouse, the Optical Pen Mouse works as a pen that can be run over a patterned board, and detects its movements in the same way as a mouse. The only real drawback with this model is that the tip is square, making the whole thing a little uncomfortable to use. Apart from that, it makes the perfect alternative for free-hand art work where mice fear to tread (damned awkward things).

Alfa Data

Real-Time Clock

AVAILABLE FROM:
Gastener
081 345 6000
PRICE: £11.99

Auto Mouse/Joystick Switch

AVAILABLE FROM:
Guess who
081 345 6000
PRICE: £9.99

Optical Pen Mouse

AVAILABLE FROM:
Guess who
081 345 6000
PRICE: £29.95
DA’s Vector
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£159.00

DA’s Vector Pro
Multimedia
£249.00

DA’s Picture
Paint / Photo Retouching
£149.00

DA’s Falcon Colour System
DA’s Picture + Matrix ScreenEye + ScreenEye-Module
£355.00

DA’s Falcon Video System
DA’s Vector Pro + DA’s Picture + Matrix ScreenEye + ScreenEye-Module
£529.00

DA’s DTP System Black & White
DA’s Repro BW + DA’s Layout BW
£299.00

DA’s DTP System Colour
DA’s Repro CD + DA’s Layout CD
£499.00

GT Look: II Scanning Software
£250.00

● Brand New! DA’s Layout TC (True Colour)
Price to be announced

● Just Released! Chagall Ltd
£59.00

● Coming Soon! Janus ST Emulator for PC
Hardware 68000 Processor 16Mhz

Tabby Graphics Tablet & Quill
£69.99

InShape Intro Falcon Version (FPU required)
3D Modelling and Rendering Program
£149.00

InShape Intro (With Maths Co-Pro 68882)
£199.00

InShape TT Version
£252.63

Digit Soundtracker
Atari Sample Soundtracker
£29.95

Music Mon 2
Atari Chip Soundtracker
£29.95

Perfect Keys Interface
PC AT Keyboard Interface
£69.00

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Inc. GT-Look:II & DA’s Picture Photo Retouching Software
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Memory Expansion Board (4Mb or 14Mb)
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PLEASE SEND COMPLETED COUPON TO: CGS ComputerBild, 231 Northborough Road, Norbury, London SW16 4TU
Three people know the answer to the 3D question. One is mad, one is dead and Simon Forrester knows - but he's forgotten. Or has he?

Slowly, you sneak forward, inching your way to a clear line of fire. Luckily, the fighter with more guns than a South American border patrol is facing the other way - so you actually stand a chance of beating the thing. As your finger slides over the trigger, a shaft of laser fire erupts from the belly of your craft. Your opponent turns and fires back, as three missiles clear their housing and scream towards him. You can sit back now, and watch him try to outrun a deadly tracking missile. Boom!

Anyone who's played any 3D game knows the feeling. There's no more flat gaming - suddenly you're transported into the 3D world of the computer game, where you can hide, outrun, surprise and destroy your opponent in a 3D environment. And everyone wants to be a top games programmer, don't they? Everybody would like the feeling of seeing their game get good reviews and high ratings, and a 3D game is a damned good way of going about it. Over the next few pages you'll learn everything there is to know about creating and animating your own 3D images. Almost.

The language we're going to use is largely irrelevant here. You'll need a compiled language of some sort, if not assembly itself. However, anyone thinking "that's OK, I'll use BASIC" is going to be very disappointed with the speed of their finished work - you could create 3D images in the language, but without a damned good compiler it'll just be too slow to animate in any game. Sorry about that.

Before we go any further, we're going to need to reduce our mountain down to a set of shapes we can draw quickly and easily on screen. The easiest way to look at anything is as a set of 2D polygons: geometric shapes with any number of sides. For a clearer idea of exactly what this will look like, Cybermorph features a landscape drawn with the same technique, only using filled polygons (a concept we'll explore later on).

For now, we'll simply store these polygons in the form of x, y and z co-ordinates for each point (node) of the shape. For instance, a triangle would consist of three sets of three co-ordinates, as there are three nodes each with a position in 3D space. Mountains, being utterly still for the most part, don't need to be considered as free moving objects, and so can simply be stored as a set of 'dead' shapes.

Isometric games. Everybody's seen isometric games, and if you managed to avoid the hype surrounding Head Over Heels, Ratman, Cadaver and Escape From The Planet Of The Robot Monsters, you must have been living on Mars since the ST hit the streets. The system is known as isometric because each block in our cubic world is drawn with 30° and vertical lines. This is not true 3D because you can't view our game world from any angle - only from four directions, in 90° steps.

Driving games. These are the masters of deception - they cheat in ways never before conceived by man or machine. As with skydiving, the only thing you really have to worry about is the ground. Once we've got the ground to move the way we want it to, everything else is easy. If you look at any racing...
Failing that, The Day The Earth Stopped Standing Still would be a good excuse to throw a mountain at someone, a feeling equal to playing Frontier and trying desperately to outrun a planet.

**Things that go bump in the flight**
The problems with this system start when we have an environment in which objects move of their own accord, not staying as conveniently static as a mountain ("That hill, Jeff - I could swear I saw it... naah!"). In our game, we’ll need some enemy planes to shoot down, but if these planes are to move they’ll need polygon co-ordinates that can be easily changed. Our mountain isn’t going anywhere, but a plane’s going to either move or be utterly pointless.

There is a very simple way around the problem of other moving objects, though - their co-ordinates can be recalculated in relation to the object itself rather than in relation to a fixed point (0,0,0) in the game world. This means that the plane’s position values are added to the plane’s polygon co-ordinates, and the result is the polygon’s position in 3D space. If the object rotates, the co-ordinates will quite obvi-

**IMAGE TYPES**

Those just getting used to the world of video games may benefit from a quick overview of visual systems. You see, displaying our 3D ship flying through space is a world apart (mathematically) from displaying the 2D ships used in the more standard scrolling shoot-'em-up.

When we talk about sprites, we’re actually talking about little pictures (like art package files), which we can freely move around the screen, passing over or under other images. These sprites are the basis of 80 percent of games you’ll see today. Occasionally you’ll hear sprites referred to as bitmap images, as indeed they are – they’re made up of pixels, each dot having its own colour, which is mapped into the bits of a byte.

As far as we’re concerned, sprites and bitmapped images are largely irrelevant – our display system starts with a blank screen, on to which we eventually draw lines, having the freedom to draw on any part of the screen and build up our images that way. The easy way to look at the difference between the two systems is that the vector system works in freely drawn lines, whereas a sprite is a rigid picture that cannot be altered, only moved. So, whereas with a 3D vector system you could view a ship from any distance or angle, a sprite system would require every possible viewpoint of an object to be stored as pictures beforehand. That’s a lot of images.

**Dungeon Master.** This technique is the closest to our normal 3D drawing system, but with Dungeon Master the component parts of the image have been drawn and stored beforehand. If we look at the way the map is laid out, everything works in squares, representing walls and passages of equal thickness. All we have to do is draw a block in each square location, making sure they link together aesthetically, and save each one as a sprite. This way we can build up a complete and seemingly textured mapped image from just a few sprites, dropping in walls where they’re needed.

**Spinning an object is just a matter of sine and cosine calculations, which can be done easily**

Let’s take a look at what we’ve got so far, starting in 2D space (we’ll add the third dimension later). We’ve already plotted our mountain, but we need a moving object. For simplicity’s sake our enemy craft will be just one triangle for now. If we take the centre of the shape as our origin, then the co-ordinates for the nodes would be something like (0,100), (-75,100) and (75,-100). If our triangle has rotated clockwise by 10°, then we simply multiply our x value by sin(10) and our y value by cos(10). Our triangle’s position in space will be (-400,300), so we simply add those values to our existing co-ordinates and lo, we’ve mapped our triangle at a somewhat strange angle in the full game world.

For the third dimension (we had to come to that), we need to add...
RAYTRACING

Although you'll no doubt have heard the term used excessively when game producers and computer journals talk about forthcoming releases, raytracing has little or nothing to do with computer games. The term refers to the action of bouncing logical light particles around a 3D modelled environment to calculate exactly how the scene would look if real.

Let's take a chequeered floor and some metallic spheres - the standard raytraced image that everyone knows. If you look at a sphere, you can not only see that part of it is cast in shadow (as it should be) but that it reflects the floor's chequered pattern in the way a sphere should.

As far as the creation of beautiful 3D images is concerned, raytracing is a godsend to anyone wanting their work to look a little more special, but the calculations required to draw just one frame can take anything up to a day. That isn't much help as far as our 3D game is concerned then, is it? However, all is not lost. Lightsource shading is used in many games (and elsewhere) as a quick alternative, but raytracing is currently a technique used to make your 3D-rendered sprites look more appetising.

Lo and behold, our triangle is now freely gliding through theoretical space

Pencils at the ready

It's about time we got around to drawing these things on screen really, isn't it? This is where things begin to get tricky, because although we've already calculated everything in terms of polygons in 3D space, we've now got to draw them, felt.

Step one is to create a map of everything that'll appear on screen in a 2D sense. This means pasting our objects (enemy ships, that sort of thing) into our model world (above our landscape), converting the three co-ordinates into two. This is achieved by applying any rotation or angles to our polygons, then converting the whole thing into 2D, being a flat set of points displaying the craft as it would appear from our viewing angle. This means that the polygons originate making up the craft will be distorted into what they look like from our angle as opposed to their actual shape.

Remember at this point that everything must be rotated and pasted from our viewing angle - the z axis no longer refers to the depth of an object, but becomes a straight line extending forwards from the observer. Similarly, the x axis becomes a horizon line and the y axis leads straight up.

Now it's time to add depth. You may think that's what we've been doing all along, but if we ran things as they were now, you'd never know how far away something was - things need to get smaller as they get further away. This is achieved by reducing the size of the x and y axes as the z axis increases. This will shrink objects as they get further away, giving the viewer an impression of depth and distance.

Next, we have to calculate which planes are hidden from view. There are several different ways to do this, the simplest being to make sure the nodes of a shape travel around that shape in one direction. If, when we come to draw that shape, the nodes go anti-clockwise instead of clockwise, there's no need to display the polygon, as it has its back to us - a well-designed object should have all of its planes facing out, with the backs of polygons being hidden inside the object.

Finally we have to employ a proper clipping technique. Clipping is

CAD

It's not a game design, a software house or a hot new console machine. CAD is in fact an acronym for Computer Aided Design, a system used by technical manufacturers for component design right through to vehicle aerodynamics.

The techniques used by CAD packages are similar if not identical to our system, though they deal totally in wireframed images, which are slightly different when it comes to storing the original object data. The point is that CAD shows us a use of the same techniques as we use in 3D game creation, but for a totally different and far more practical purpose.

More raytracing. With just a little software magic you can produce some stunning effects. It's only a pity it can't be done within games along with the rest of our calculations - the programmer who manages that will be rich.
VIRTUAL REALITY

Anyone following the mainstream computer press over the past few years will definitely know what an exciting prospect VR was a past tense, as the entertainment industry is busy chasing other fads now. If you were in awe of just what VR developers were managing to do with technology, don’t bother – it’s just a version of normal 3D drawing, but in stereo, and piped through an expensive headset after some poor kid has ladled twenty pound coins into a slot.

In fact, the only thing to improve in any major way was processing speed, VR requiring a lot of calculations to run fast enough to look even vaguely ‘realistic’, or update fast enough to be tolerable. But that’s it – nothing else changes.

One point though – why isn’t VR texture mapped? For some reason, although the technology and processor power is readily available, no one has seen fit to wrap bitmapped images as polygons, making the entire view look less like a computer game and more like a virtual world. If you’ve any idea why this should ever be so, we’ll take answers on a postcard to the usual address.

TWO PLAYERS

You might think that a two-player feature is a relatively small addition to game design as far as ground-breaking concepts are concerned, but this definitely isn’t the case. In fact, when programmers discovered the two computer link-up, 3D game found a whole new lease of life.

For the first time, you could actually interact with someone else in a 3D environment on screen, their movements causing movements in the new virtual world. For the first time you could look at another player on your screen, then look through their screen and see yourself being played as you’d expect to. Falcon and Stunt Car Racer are two classic examples. Both can be linked by null modem cable, and both are brilliant fun. Of course, there have been a few split-screen two-player 3D games programmed, but these have never really had the same attraction unless the players were willing to co-operate every step of the way.

So, if you need any kind of justification for writing a 3D game, the fact that you can create one of the most addictive and atmospheric two-player games ever should be reason enough – but you’re going to have to beat Stunt Car Racer! It’s something to aim for...

3D SPACE

Throughout this entire feature, you’ll have heard a lot of geometric phrases referring to the 3D space and the way we look at it. For the purposes of this feature, then, it’s time to take a quick look at how the terms all fit together.

The diagram is simple enough – a polygon in 3D space. As you can see, there are three lines intersecting it from different angles. These are our dimensions: x (width), y (height), and z (depth). Here we have a way of measuring three dimensions, as we have axes (the plural of axis, would you believe) to place co-ordinate scales along. The only thing left is rotation, which is simply as easy as saying “we want to move in a particular axis, enabling us to move our object in absolutely any dimension, and spin it.” Let’s take a 3D rectangle, and call it a car (maybe a Trabant). If we view the car travelling away from us, it can rotate only on its y axis. This is because it’s designed only to travel on flat land. If our brick was a normal plane, it could rotate on its x and z axes but not its y axis because it can roll, climb and dive, but it’s incapable of simply turning around in the way that a car would.

Depth cues

One of the tricks humans are said to use for 3D perceptual ability is an understanding of depth cue. In psychological terms, a cup is simply a clue (psychologists can’t spell it, you see). Depth cues, then, are simply the parts of an image that give away depth, the first being visibility. Though this may not seem instantly apparent, the further away objects get the dimmer they become. An object on the horizon is really only a silhouette, as things only gain light colours when they get close. The easiest way to add depth cues to an image, then, is to shade objects darker as they get further away. This

Light-source shading is vaguely similar to raytracing, but it’s possible to calculate in real time

In a little while we’ll come to texture mapping, a way of making your graphics look a little more impressive. It is a complex procedure though, and there are easier ways to smarten up your graphics, especially with a view to animation. The most widely-used method is light-source shading.

This technique is vaguely similar to raytracing, but its nature makes it possible to calculate in real time. Instead of tracing beams of light around a 3D modelled universe, we simply work out the angle of the plane we’re filling in relation to the light source (a sun, for example), and make the colour of that plane lighter or darker to correspond with its angle. That’s all there is to light-source shading, although it’s a technique that can add valuable polish to your final image. Just take a look at Cybermorph for an example.

One thing to remember about light sourcing in this way is that the light is an absolute. If we can see our own craft when we rotate it, we’ll see the effects of light sourcing on that craft. We’re not holding a torch, we’re moving underneath a sun with a constant position.

FILLED VECTORS

You may have guessed that filling vectors is not exactly such a giant leap forward. In fact, the only reason it wasn’t used at an earlier point in 3D history was that fill routines are always uselessly slow. The problem isn’t with throwing huge amounts of colour on to the screen, but with working out exactly where our blocks of colour have to stop, because it’s the process detecting for the edges of a shape that slows the process down.

The advantage we have here is that we know the exact dimensions of our areas to be filled, and as long as we’re happy to display the odd polygon and overlap another one afterwards, we should have absolutely no problem.

The easy way to do this is to draw it as a solid object anyway, casting aside our line drawings. This is achieved with a line advancing across the shape, starting at the lowest node and travelling up over the entire surface. This is only one way of quickly filling, but once up to speed it can produce some fast results. Whatever you decide to do here, bear in mind that drawing your image and then using a fill outline on the final line image is not going to help your cause – you’ll get about one frame every five seconds, everyone will hate you, and you’ll die unloved. Don’t say you weren’t warned.

Light sources

In a little while we’ll come to texture mapping, a way of making your graphics look a little more impressive. It is a complex procedure though, and there are easier ways to smarten up your graphics, especially with a view to animation. The most widely-used method is light-source shading.

This technique is vaguely similar to raytracing, but its nature makes it possible to calculate in real time. Instead of tracing beams of light around a 3D modelled universe, we simply work out the angle of the plane we’re filling in relation to the light source (a sun, for example), and make the colour of that plane lighter or darker to correspond with its angle. That’s all there is to light-source shading, although it’s a technique that can add valuable polish to your final image. Just take a look at Cybermorph for an example.

One thing to remember about light sourcing in this way is that the light is an absolute. If we can see our own craft when we rotate it, we’ll see the effects of light sourcing on that craft. We’re not holding a torch, we’re moving underneath a sun with a constant position.

Depth cues

One of the tricks humans are said to use for 3D perceptual ability is an understanding of depth cue. In psychological terms, a cup is simply a clue (psychologists can’t spell it, you see). Depth cues, then, are simply the parts of an image that give away depth, the first being visibility. Though this may not seem instantly apparent, the further away objects get the dimmer they become. An object on the horizon is really only a silhouette, as things only gain light colours when they get close. The easiest way to add depth cues to an image, then, is to shade objects darker as they get further away. This

3DIY FEATURE

ISSUE 62 ST FORMATT
3D CONSTRUCTION KIT

Why are we telling you all of this? For quite a lot of people, the easiest option for creating 3D games would be 3D Construction Kit, a package created by Incentive as a follow-up to their successful Freespace game series.

The kit comes complete with an instructional video, taking you through the landscape editor on which you build your virtual world, as well as the mini-programming language that you can use to create your front end and give qualities to objects.

Since its launch, 3D Construction Kit has been responsible for a flood of 3D games in the FD and Shareware markets, all of which, whether designed well or not from a gaming point of view, are highly polished. If your graphics routines have already been written by a company responsible for some of the most highly acclaimed games around, you can give your full attention to gameplay.

In fact, there are only a few problems with the package, the biggest one being that 3DCK is a construction kit for normal Freespace games, and probably wouldn’t handle anything that strayed too far from the standard Freespace game style – you wouldn’t have much luck designing a flight sim or anything else that has to move quickly.

Therefore, for our flight sim purposes, 3DCK isn’t really a viable option. We’d be better off sticking with wire-frame images and fast-filled polygons instead of restricting ourselves to someone else’s development system.

Texture mapping

That’s it, then. We’ve taken our mountain and drawn it, we’ve calculated freely moving objects and superimposed them into our 3D world, and drawn everything up quickly and easily. Next, we’ll be filling in our polygons, turning a previously wireframe image into a solid world. Some people won’t be satisfied to stop there, though. Some people will want to use bitmap images to decorate their craft, Frontier style.

Texture mapping (it may not be the exact term, but it’s the one we’re using) is actually quite a simple process. If we start with the information relating to the angle the polygon is viewed from, warping an image to fit that polygon is a simple task, requiring only basic image processing routines. Let’s take a look at how this works in diagram form. The system works by assuming first of all that the polygon has its flat surface towards us. For the sake of explanation I’ve added a full rectangle enclosing the shape, mainly to demonstrate exactly how the image is distorted. As you can see, all we have to do is rotate our image in 3D along with the polygon – an easy task with the right algorithm and a bit of programming know-how.

That’s it, then

So there we have it – the bare bones of a 3D game. Within the simple framework we’ve provided there are thousands of different games you can produce – from flight sims through to arcade adventures to a classic virtual beat-’em-up.

Of course, there are many things that we haven’t given you here – we could provide you with the maths, equations and algorithms for the entire operation, but that would make it STF’s game instead of yours.

All you really have to do now (apart from write an entire 3D handling system) is come up with a suitable justification for a 3D game. Using what you’ve learnt you can cover any subject you like, as if it exists in 3D, we can draw it (or at least represent it)

We’re looking forward to seeing what you can produce with this new skill of yours, but if anyone releases The Hil From Hell I’ll sue for copyright. It’s a tough world, from your aspect at least, STF

CIRCLE MATHS

You’ve read this feature, you’ve largely understood the concepts and principles behind drawing 3D, but it’s been a while since you did any trigonometry, hasn’t it? For all those who just didn’t pay any attention at school at all, we’ll go through a quick trigonometry lesson – particularly you boys at the back there.

Take a look at the diagram. As you can see, we’re working with a circle one unit wide (it doesn’t really matter what the unit is, as long as it’s a unit of some sort). Being a circle, the radius (the distance between the centre of the circle and the nearest point in the perimeter) is constant.

We can see this radius line as any line we want to calculate the angle and position of. Let’s say for example we want to work with a line at 60 per cent (east by northeast). The only skill we have to master is calculating the co-ordinates of the other end of the line. This is fantastically simple, requiring some straightforward equations. In these calculations, the start of the line (at the centre of the circle) will be (0,0), and the end will be \((x, y)\), where:

\[
x = \sin(60) \\
y = \cos(60)
\]

\(60\) relates to the angle of the line, and the \(1\) relates to the line length. If you’re performing these calculations on a computer, make sure the trig mode is set to degrees as opposed to radians or gradients, or you’ll get some very strange results indeed.

Anyway, to take this further, we can look at this whole calculation as a triangle, using the same values. If you’re following this feature as gentle reading, you won’t need to follow the precise maths, but if you’re planning to write your own 3D games, you’ll need to have a firm grasp of trigonometry. However, this brief explanation should be enough to get you through.
TRUE MULTITASKING - THE SMS2 OPERATING SYSTEM

THE DAWN OF A NEW ERA

SMS2 is a powerful object-oriented operating system with built-in GUI, hotkey system and networking. SMS2 transforms even modest ST's into real-time systems with workstation capabilities.

But what does this all mean to the user? It means that you can use your computer in the way that you want to use it rather than in the way that it forces you to use it. Suppose that you want to use your ST as a fax machine. If a fax call comes in, you are still able to carry on using your word-processor and/or database and/or spreadsheet program. The fax is simply received in the background.

For the programmer, this provides endless possibilities. You can run your program under development at the same time as editing the source code at the same time as re-compiling a later version. SMS2 is a wonderful environment to work in.

SMS2 comes on a plug-in card for the IBM port of all the ST range and supports the high-res monochrome mode. There is no complex setup up or installation. You just plug it in, switch on and 3 seconds later you have an SMS2 system which is ready to run with any expensive hardware add-ons. The system comes in FIDOSO form on the card so if you want to change the top configuration all at the same time it is simple to do. This also means that any enhancements to SMS2 can be provided on disc without the need to return the SMS2 cartridge.

It must be pointed out that SMS2 does not run CMS or TOS programs at all. This is a distinct and separate operating system which provides a powerful and yet flexible form of computing. There are already a number of commercial programs and a good range of PD software which is available now and is SMS2 compatible.

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Psst, wanna buy an ST but can’t afford to pay full whack? Fancy a colour printer but feel faint when you hear the price they’re asking? Step this way. Darren Smithson shows you all kinds of goodies to be had.

There is currently a thriving second-hand market for computers – including your humble old ST – and peripherals of all kinds, such as monitors, printers, modems, games and applications. The reasons for the growing trade in second-hand computers are vast and endless (mostly because of something called a recession), but don’t look a gift horse in the mouth, eh? Get your dosh ready and...

...stop for a moment. Actually you should perhaps take a little peek into the horse’s mouth. Before you send your cash off for anything, there are a few questions you should ask first, no matter whether you’re buying an ST and/or a peripheral for the first time, as a replacement or even to use as spare parts.

PART ONE: GETTING AN ST CHEAP

Where are these magical places selling STs off cheap then? You might be surprised. The obvious places to start are in the classified pages of ST magazines, or computer magazines like PC Mart, Micro Mart and Computer Shopper. But don’t discount local newspapers, free papers and general mart mags such as Ad Mart, Exchange & Mart. The odd ST, sometimes complete with disk drive and monitor, can show up, as well as loads of extras that your ST is able to utilise.

Local options also provide one major advantage over the others: all the equipment is based in your area, which means that you can actually ask to view what’s on offer before handing over your money. They feature products that can enhance the practical use of your ST: for example, second-hand furniture such as tables, chairs, filing cabinets. They also usually cover goods that can take both you and your ST into new realms of possibilities: second-hand camcorders, VCRs, electronic keyboards and mixing desks.

Be careful as to your selection criteria. There are many different ST configurations available, and you should look to maximise your pound as much as possible. For example, always look for expanded STs. A 520STE just doesn’t cut it any more, and even a 1040STE will find it a struggle to cope with today’s applications and operating systems. Floppy disk drives, whether internal or a second external drive, should be double-sided (able to read and write to 720K).

THE BUYER’S CHECK-LIST

When you’ve scammed through numerous ads and found yourself what looks like a great bargain, the first step’s to take a look at the kit. There are several very important questions you should ask the seller, and things to look out for.

The ST

1 Confirm all details. What kind of ST is it? How much memory does it have? Is the disk drive double-sided?

2 Confirm that the unit is in complete working order. If possible get a working demonstration. Pay particular note to the mouse and joystick ports, and the TV and monitor ports. If the seller has a printer – whether or not it’s for sale – ask for a test of the printer port.

3 Ask general questions. Why is it being sold? Ask yourself whether or not you’ll be selling it yourself one month later for the same reason.

4 Check the keyboard for dirt and especially for any signs of a spillage over it.

5 Check that the case screws are not too worn down. If they are, ask why (extra memory and a TOS upgrade may have been added over a period of time).

6 Find out when the unit was last used.

Peripherals

1 Are they compatible with the ST? How easy would it be to get the necessary drivers and interface parts?

2 If it’s a hard drive, does it have bad sectors? If it’s a modem, is it BABB-approved?

3 Is that Yamaha keyboard that you want to use with your ST-based sound studio MIDI-compatible?

4 Is that printer a standard printer, such as a Hewlett Packard DeskJet/LaserJet or a Canon BJ107? It’s more likely that Atari-based applications will support these industry standard products. If the printer isn’t a Canon or HP, check to see if it can emulate them.

5 Ask the same questions as for the ST itself regarding working order of the peripherals.

6 How much would the unit cost if you were to buy it new with a guarantee?
possible, look for STEs with TOS 2.06 upgrades, but always check whether or not the upgrade is switchable back to TOS 1.62 (or 1.06 depending on your TOS ID). This minimises software incompatibility. Anything less than TOS 1.62 should really be avoided as the early versions of TOS were frighteningly bug-ridden.

For the same reasons you should probably discount STFMis, unless you’re looking for spare parts for your STFM that is. And earlier models of the ST should definitely be discounted. As your entry level ST you should go for a 1040STE. Far more modular in its design than its predecessors, the STE is easier and cheaper to upgrade. Also, more and more games and apps are being released that take advantage of the STE’s enhanced capabilities (more even than when the STE was at the height of its production, in fact).

Having said that, if you require a little more power (say for CAD/CAM or extensive DTP work) and you spot a Mega STE or even the stunningly powerful TT going second-hand, do whatever you can to snap them up. You’re not likely to see a Falcon going second-hand, though.

Before you send your cash off for anything, there are a few questions you should ask first:

Sounds great doesn’t it? Except you don’t know what ST it is, how much memory it has, what the DOS version is, what disk drives it has or whether the monitor is high-res or colour. If what we have here is a 1040STE with a second double-sided floppy disk drive and a colour monitor then £300 is a very good price. If the monitor is a high-res mono monitor, then the £300 asking price may be just a tad too high.

Another interesting thing about this advert is the mention of “hundreds of disks”. Find out what’s on these disks, and you could save yourself a small fortune in software. Second-hand software’s covered in part two of the feature.

ATARI DON’T JUST DO STS...

Before the ST, Atari were ruling the world with their 8-bit video game systems, such as the 7800 and the 800XL. These are still going strong, costing as little as £35. There are no new games for these systems, but for a bit of nostalgia...

Look carefully and you’ll also find the odd Atari Lynx for sale. Given that this handheld unit is generally acknowledged to be technically superior to other systems, and that there is renewed interest in the product thanks to the Jaguar (translation: there are lots of new games on the way), then this could be the bargain of the year. Look for prices around £100, so long as it comes with a good selection of games.

Don’t forget, you may find a STACY or even an ST Book and/or ST PAD (if those products were ever released in the UK). If you’re out and about a lot, a portable ST would be useful. Check to see which flavour STACY it is – the first generation had a short battery life.

Alternatively, pick up the DOS-based Atari Portfolio, a small handheld unit that’s a better Psion organiser than well, the Psion organiser. The Portfolio comes with DOS-based apps – you can import and export to your ST with the relevant cables and software.
SOFTWARE BARGAINS

Occasionally you'll find indispensable items for your ST in the most obvious example being a complete backlist of ST FORMAT along with original disks, of course.

So far, we've concentrated firmly on the hardware side of things, but there are some bargains to be had on the software front too. In terms of keeping their value, games and applications are no-hopers. Games quickly become last month's news and applications are regularly updated as well as subject to drastic price reductions once a particular version has become established. However, when the main unit has been disabled, owners are often left with

less than £200, and when bought from places such as Silica Systems (081 309 1111) you get all kinds of free games and applications, so buying a second-hand ST with few accessories for £150 seems a little unnecessary. Likewise, if you have an STFM - especially if you only have 1MB of or less of memory in your system - now's the time to buy up to the STE. Any extras you purchase (monitor, mouse, disk drive) can be used as spare parts for your existing equipment, which means that in the long run you still save yourself money. Remember, now that the ST/STE is effectively discontinued, spare parts will become increasingly rare and hence much more pricey.

PART TWO: UPGRADING YOUR ST FOR PEANUTS

It's all very well making sure the ST you buy is as complete as possible, but you shouldn't discount older or single systems entirely especially if you already own an ST. Spare parts for your ST are going to become increasingly scarce on the ground over the next couple of years, so a seller with a damaged or obsolete system is likely to leap at the chance to at least get some money back on the system.

For example, he may have an ST with damaged monitor ports, mouse and joystick ports, or perhaps a cracked casing or faulty motherboard. By offering to take the damaged unit off his hands for a token price you have purchased a host of spare parts, ranging from

other copies of v1.09e from his system before passing the licence on to you, otherwise you are guilty of taking a pirated copy from him.

You should also make sure you have a recent virus checker, such as UVK, and sweep all second-hand software before you use it. Land yourself with a virus like Ghost from a second-hand utility and you could easily infect all your other utility disks, so watch out.

Before you pay for a second-hand game or app, check the most recent price (just look at the adverts in STF). The game may now be on a budget label, or the application may have come down in price. Also, make sure that the application isn't too far removed from the current version. Happy shopping...

Spare parts for your ST are going to become increasingly scarce on the ground over the next couple of years

you can estimate around £30-40 pounds for a high-resolution monitor, around £125 for a 40MB hard drive, and around £25 for a floppy drive.

What are you waiting for? You have your check-lists, your cheque book and your enthusiasm to make the most of your ST. Do it - you won't be disappointed. ST.

THE FINAL CHECK-LIST

You've found a product that you want, you like the price and the seller has answered all of your questions to your satisfaction. All you need do now is hand over the cash and take your gear... except for a couple of last points that you should check first:

1. Remember, goods are as seen. If you don't spot the fault before you take it away, then you can't legally ask for your money back.

2. If you're unable to test it on site (you live in Brighton and the ST kit is in Inverness) agree in writing that if you do find an undocumented fault you can return it. Make sure the seller's address is real.

3. Ask to see if the owner has the correct manuals, warranty and registration documents. It's a sad fact that hardware can be stolen, and software is often pirated, so make sure you are buying kosher gear.

4. As the purchaser, you have the power. Take your time, don't appear too eager and take a couple of minutes after seeing the item before saying yes. You never know, you may be offered further enticement.

5. Above all, if you have the slightest doubt, follow your instincts and don't buy it.
You want to know all our reviewers’ most intimate secrets?

**Trenton Webb**
In his spare time, he’d enjoy biking, reading and doing anything considered dangerous, but he doesn’t have much free time any more. Notes of sympathy to the usual address. Favourite film: Flash! (ah aaaaah)

**Clive Parker**
Though working out every day to keep his body the temple it is, Clive has certain vices: “Real men only use high radiation monitors.” When he’s not busy catching scary radioactive nuclear diseases from the three monitors on his desk, Clive’s hobbies include ferret knotting. Favourite film: The Fly

**Simon Forrester**
Having just arrived on the magazine, Simon’s interests have been forced into the set pattern of making tea and polishing shoes in the hope someone might let him near a word processor at some point. He hopes. Favourite film: Oliver!

**Peter Crush**
An Essex boy, Peter’s hobbies include photography, sport, music and crying “watch out for that field mouse” on alternate Wednesdays. Favourite film: The Battle Of Britain

**Andy Curtis**
Andy’s latest CD, The Dark Side of the Sausage, sold over four copies and has achieved almost cult status within his family – although his Mum doesn’t like it much. The police have already been informed. Favourite film: M*A*S*H

**Frank Charlton**
Frank’s interests include programming in STOS and CFA Basic, erasing hard drives, anything to do with Star Trek and being a cousin of Jack Charlton. “Swimming is too much like... bathing.” Quite. Favourite film: Get Carter

**Mac Maradan**
“Plastic” lurks around a college in Durham working as an assistant in the computer department where he’s not bashing out his CFA column. Egotistical and arrogant, Mac recently bought a PC so he can work at home and is now seeking psychiatric help. Favourite film: The Couch Trip

**Dug Armstrong**
Led by an addiction to graphics into buying a Falcon and reviewing for STF. When interrogated Dug said, “I like cats. At the moment I have 81 moggies running around the place and I am expecting six more by mail order this week.” Favourite film: Goldfinger

**Tony Wagstaff**
A man of culture, Tony splits his time between playing in a string quartet and hammering out 68000 assembler code for ST Answers. When we last phoned him he said “There’s no one in at the moment, if you want to book the string quartet call 0555 753412,” in a strange tone of voice. Favourite film: Young Einstein
Addiction Software have released a new true colour paint program for the Falcon. *ST FORMAT* follows the *Rainbow* and discovers a crock of gold

Falcon owners take heed! *Rainbow* is a brand new paint package specifically written for your machine. This low-cost software is a powerful tool for creating, editing and processing true colour images and breaks new ground in its use of the Falcon's hardware.

**In the beginning**
The *Rainbow* disk contains a single executable file and a single DSP LIB module together with two tiny configuration files and some example pictures. The program files may be copied to a hard disk directory, or run directly from floppy. But don’t be fooled! The incredibly small size of the software does not reflect its contents. *Rainbow* has many features not available in larger and more expensive applications.

### It sets a new standard in low-cost graphic software, and begins to prove what the Falcon is capable of

Let there be light
When *Rainbow* starts up, the first thing you notice is the blazingly colourful menus of the Picture Studio. *Rainbow* doesn’t use GEM, instead it controls the Falcon’s hardware directly to produce its own video modes (see Loads of modes box). The screen is smaller than with most GEM programs, but hardware scrolling is used to enable you to pan round large images with lightning speed.

Although the design of the main screen is unusual – the menus scroll round if they can’t all fit into the current resolution – this is not a problem. Not only can scrolling be locked from the keyboard, you can also rearrange the position of each menu box and save your settings. Incidentally, you can switch between any of the available modes without having to reload your image each time.

All images in the *Rainbow* Picture Studio are edited via a fixed size (200x200) window which can be moved around the work area. The dimensions of the full screen are limited only by your Falcon’s memory, and can be changed using the Define Another option or simply by loading in an external picture. *Rainbow* loads and saves in 16- and 24-bit Targa and TIFF formats.

Once you have created an image, the fun really begins. Although *Rainbow* has only a small set of editing tools, some are very flexible. Simple line and pixel painting is achieved via the Pen, Line and Shape tools, while more esoteric effects include a Spray tool with variable spray speed, a Sponge which acts as a large rectangular brush, and a simple one-colour Fill. Some of these work well but others are strangely limited. The Shape tool, for example, can draw outlined and filled shapes in a variety of styles, but only offers a box or triangle as the basic shape, making the drawing of curved objects difficult.

### Powerful tools
Most tools have several settings which affect the way they work. Normal simple paints with the chosen colour, whereas Blend overlays one colour with another transparently, and Smooth alters pixel boundaries to blur contrasting borders. The Shape tool offers a “fade-filled” mode, in which a smooth colour range is used to create a graduated effect. These extra settings can produce some star-

**Loads of modes**

*Here are the maximum resolutions for each mode, assuming your monitor can handle the settings.*

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<td></td>
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Most of the drawing tools have a range of adjustable settings.
It's the shape that matters

An often ignored but vital attribute in Falcon graphics software is the aspect ratio (AR), which defines the shape of the display screen. There are various ways of expressing the measurement, one of the simplest being x/y, the horizontal resolution divided by the vertical. Thus, for a screen 640x480 pixels, the AR is 1.33 (roughly). This particular value represents the standard landscape format used by most display hardware, including television.

So, in order to move your images easily between different software and computers, a screen mode with an AR of 1.33 should be used (see Loads of modes box). If you deviate from this, the pictures created may look distorted when displayed.

Of course, you can use modes with non-standard ARs to produce your pictures, and then resize them to restore the proper shape. However, you must then rely on your software to provide a non-proportional rescale. Rainbow does provide handy Half X and Half Y functions which can be used independently to correct AR on a picture created with one of the Falcon's strangely shaped display modes.

Evolutionary stages

Rainbow's scrolling screen feels strange at first, but this doesn't get in the way and you soon get used to the menu system. Picture Studio is ideal for touching up scanned or ray-traced images and for producing straightforward drawings. However, if you want to process entire images, another feature comes into play.

The program has been written in a modular style, enabling other Studios to be added. Rainbow also comes with a Photo Studio, which supports full-image processing.

Movement between studios is very fast and does not require re-loading.

The Photo Studio has a larger viewing window, but scales down a picture which is too big to fit. From here, global effects can be applied, including a Negative function, which creates an inverse colour map and can be selectively applied to red, green and blue planes in any combination. There is also a control to adjust brightness, contrast and colour intensity, and a Noise option which adds a coarse-grained effect.

Destiny

Rainbow is destined to be to the Falcon what Neochrome and Degas Elite were to the ST. It sets a new standard in low-cost graphic software, and begins to prove what the Falcon is capable of. At the moment, the package is slightly unbalanced, offering some ridiculously powerful features and some downright strange omissions. But technically, Rainbow is a minor miracle and version 2.0 could be one of the killer applications the Falcon has been waiting for.

DUG ARMSTRONG

Rainbow

£29.95 JCA Europe Ltd
= 0734 452416
Any Falcon 330

Highs

- Uses Falcon hardware including DSP.
- Supplied Tabby Graphics Tablet.
- Modular design bodes well for future versions.

Lows

- Missing some basic features.
- Only uses small screen sizes.
- What else?
- TruePaint. £39.95 from HiSoft = 0525 718181
- Uses GEM, works in a higher res but is slower.

31%
Want to handle a huge variety of picture formats on your ST?
Peter Crush checks out the very latest image utility that does it all

It used to be so simple - just a handful of picture formats for the ST which most art and drawing software could import, display and print. But now there's a bewildering range of image formats, older ST art programs can't cope with the more modern formats and not even the latest programs can use all of them. Luckily there is an answer in the guise of Imagecopy 3, the latest version of Imagecopy from FaST Club.

Even better
Following the earlier incarnations of Imagecopy is version three, which really is the all singing, all dancing image utility program for your ST or Falcon. It improves on all the features found in previous versions and adds loads of brand new capabilities too. Imagecopy could always "grab" images from screen and save them to disk, load and display pictures, print out images and convert between different image file formats.

The new version does all of these things even better than before, and has many new capabilities too. It can batch process a list of files, perform a slideshow of pictures, and even catalogue your images and print them out complete with filenames as thumbnail pics.

Imagecopy 3 is provided on a double-sided disk, and comes with a 90 page A5 size manual, plus an extra disk of rather good pictures to play with. You can run Imagecopy 3 as a Desk Accessory from within your existing GEM programs or simply run it as a stand-alone program. Both versions can be installed on your usual or alternative Desktop.

Look at all these new features!

Batch processing: Imagecopy 3 can view, print, or convert batches of images. A log-file option enables you to leave it running unattended.

Falcon overcan: Imagecopy 3 automatically uses the Falcon's overscan mode for full screen viewing on standard non-VGA monitors.

Improved colour reduction: Including adaptive palette matching for high quality reproduction of 256 colour or true colour images on 16 colour or 256 colour systems.

Improved dithering: A choice of five random dithering options. Ordered colour dithering enables 256 colour and true colour images to be displayed quickly on 16 colour and 256 colour systems.

Improved user interface: With hierarchical menus and extensive menu/dialog short cuts. Configurable single key menu short cuts.

New read formats: Calamus Raster Graphic (CRG), Deluxe Paint ST, Doodle/PICT, JFIF (JPEG), Portable Bitmap, Pictor (PC Paint), Pixart, Prism Paint, RSC Image, True Paint, compressed Windows Bitmap.


Print catalogue option: Catalogue your image collection in mono or colour with up to 40 or more tiny images on a single A4 page.

Print-quality option: draft/normal or draft/normal/best on all printers. Best-quality print improves the print quality from dot-matrix printers with worn ribbons.

PLUS: Create slide shows in any video mode, colour options for viewing and converting images. Multiple file-loading with the Selectric file selector, options to print descriptive text and file names with images.
COLOUR 3

Just to demonstrate that Imagecopy 3 works in all resolutions, this is part of the Falcon screenshot as seen on a 16 colour low res screen.

so when you double-click on image files they activate Imagecopy and are loaded and displayed.

Imagecopy 3's main menu appears in a little GEM box at the top-left of the screen, from which you can select three pull-down menus.

The first is Information which tells you the version number. The second sub-menu is File which enables you to load, save, convert and print images, either by clicking on the appropriate menu entry or via a simple keyboard short cut. This brings up the file selector, pick the image you want to see, and it's displayed in a GEM window.

The third sub-menu contains the many options Imagecopy 3 features, and you can reconfigure and save them to suit via a system of cascading and pop-up menus. For instance, one of the sub-menus under Printer options is Printer Type - here you can select from a wide range of printer drivers to match your own.

Superb output
Imagecopy 3 is a brilliant piece of software. It's a clever, powerful program and it's easy and intuitive to use. The new improvements make it the most useful single utility for dealing with images, and it's well worth upgrading to. When it comes to screen grabbing, viewing, cataloguing or converting between formats it's unsurpassed.

If you have a colour printer, Imagecopy 3 enables you to produce superb output, and finely adjust the colour balance and brightness for the best outcome. About the only thing it doesn't do is to draw the pictures for you, but then it's not supposed to be an art program!

PETER CRUSH

What does Imagecopy 3 do, then?

It does a helluva lot, here are Imagecopy Colour 3's ten top features at a glance!

1. Powerful batch processing facility; converts or prints multiple batches of images.
2. Can be used as a Desk Accessory or executable program.
3. Catalogues images with up to 40 or more images displayed on a single page.
4. Converts images between different formats or to different colour types (such as true colour to 256 colour).
5. Copies (grabs) images from screen in any ST/TT/Falcon video mode.
6. Creates halftone images to use in other programs (WPs, DTPs and so on).
7. Displays images and runs slide shows in any ST, TT or Falcon video mode.
8. Uses the standard ST and Falcon GEM interface.
9. Imagecopy Colour 3 can read and write: DEGAS, GIF, TIF, IMG, JIF (JPEG), PC Paintbrush, Prism Paint, RSC free image, TrueVision Targa, TIF, and Windows Bitmap. Other read-only formats include: Art Director, Calamus Raster Graphic, DIT Doodle, MacPaint, Neochrome, OS/2 Bitmap, Pictor, Pixart, Portable Bitmap, Spectrum 512, Tiny, and True Paint. Prowl!
10. Prints images and screen dumps in black and white or colour on a wide range of printer types including 9-pin, 24-pin, Bubblejet, Deskjet and Laserjet.

Upgrading to version 3

If you own an earlier version of Imagecopy you can upgrade to version 3 by returning your master disk and the appropriate fee; upgrade from Imagecopy Colour 2 £72.95, and from Imagecopy 2 £32.95.

Imagecopy Colour 3
£29.95. FaST Club
0 602 455 250

Highs
- Good results on any system.
- Works with nearly all image formats.

Lows
- There aren't really any!

What else?
- GEM VIEW 3 comes pretty close but it's not as easy to use, it can't grab screens and doesn't have such good all-round facilities. Being Shareware there's no printed manual nor the level of support that the FaST Club provide.

92%
Many people, at many times, in many places have raised the question, "But is it art?" Yet, curiously no one has ever been heard to ask, "But is it Trenton Webb?" It is and he's not.

Most of us can spot gaps in markets but few of us ever actually take the opportunity to exploit them. EZ-Art Professional, the commercial sequel to the excellent PD paint pack EZ-Art, does just this, and it's a fact that the authors are rightfully proud of. "The intention is to give the creative person in you a chance to produce something that looks good, but without the hassle" boasts the manual and to a great extent it's right. As a result EZ-Art Professional storms straight to the head of the low-end painting queue.

EZ-Art Pro is a no-frills, in-yr-face, 16-colour paint package that's been designed to be so usable that the metaphorical infinite monkeys (the ones who are always churning out the complete works of Shakespeare) could replicate the works of Michelangelo or Mondrian with it in minutes. As monkeys tend to buy PCs, ST painters are off to a flying start. EZ-Art Pro works through icon controls and an extensive range of keyboard shortcuts. After only a few minutes it's possible to leap around the program at speed, calling up the functions you want, fast. And speed is important simply because when you're working on a picture you really don't want to have to hunt through three nested menus to get an effect. You want it now, instantly, while the idea's fresh in your mind.

There are loads of colour options available including the ability to alter the R, G, B and hue of each colour or swap palettes completely. You can even convert pictures to greyscale or sepia tints.

TOOL-BOX

An art package is only as good as its drawing tools. If it doesn't enable you to do what you want on screen, then you aren't going to create that pixelised Guernica now are you? Luckily EZ-Art Pro offers all the tools you need and a few more besides. Tools like:

1. Point – place colour one pixel at a time, useful for retouching once you've finished the main part of your picture.
2. Freehand – the normal drawing mode for EZ-Art Professional.
3. Continuous straight line – first fix two points and then a line is drawn. Useful for sketching outlines.
4. Connected lines – similar to line, only it enables you to change direction.
5. Ray – draws any number of lines from a single central point. Odd, but useful. Probably.
6. Curve – draws a straight line which can then be 'bent' by dragging after the points are fixed.
7. Mirror – produces an instant duplicate without the need to go through the cut/paste procedure.
8. Airbrush – spray can mode; size and speed are adjustable. The brush then scatters pixels according to the 'nozzle' chosen.
9. Eraser – rubs out pixels from your picture. Erm, that's it!
10. Flood fill – fills area with solid colour or pattern defined in the Design Fill option.
11. Typography – places text from a range of fonts on the picture.
12. Zoom – look at the picture in x2, x4 or x8 magnification so you can work up close (at pixel level) on your masterpiece.
13. Cut Block – picks up and duplicates the defined area of a picture. Note: Cut picks up an entire rectangle – unless in X-Ray mode.
14. Carve Block – as Cut, but with an irregular shape instead of a rectangle. Using Carve you get complete control of the shape to be selected.
15. Block – lets you know when you are carrying a block in memory.
17. Brush – As Pencil, but with a wider range of sizes. Paints 'rounded' pixels. You can determine the brush size/shape via a sub-menu.
18. Roller – Similar to brush but with a 'square' rather than rounded paint effect.
The quick-start concept doesn’t necessarily limit the range of options. EZ-Art Pro boasts some impressive tricks, which help to create good on-screen effects – particularly in the area of block manipulation. It’s rugged in terms of importing images too, offering not only flexibility but some quality. Palette Modifications tools (the highly pleasant Quantise and Remap) which help make the most of the 16 available colours.

The hard-core paint package features (from straight line tools through to irregularly shaded blocks) are present and work well, which makes it possible to sit down with the manual and within a hour not only be familiar with the program but have produced a passable picture to boot.

The advantages of EZ-Art Pro for wanna-be pixel painters are speed and friendliness rather than power. EZ-Art Pro, especially at such a bargain price, offers almost everything the ‘enthusiastic amateur’ could wish for. And the authors’ decision to go for the complete low-level package can’t be criticised; there was previously nothing that fell in the cheap and competent category. It’s just a little galling, because the 16 colour stuff is so elegantly crafted that you can’t help wondering what the programmers could have done with the real fancy stuff.

EZ-Art Pro is almost a victim of its own success. It fulfils the ‘fun, friendly and fast’ brief to the letter, and if that’s the kind of paint package you’re looking for then go out buy it without hesitation – it’s well programmed, well documented and well thought out. If you’re an accomplished dabbler with the likes of Deluxe Paint, though, there are a few extras here that could be considered £30-worth of temptation.

TRENTON WEBB

CHIPPING OFF THE OLD BLOCK

As well as the ‘regular’ tools EZ-Art Pro also boasts a highly useful set of block manipulation tools. Ideal for the cut and paste painter, you can work on different buffer screens and then stick your picture together one piece at a time:

1. Realize – enables you to zoom in on a block.
2. Rescale – the same as Realize, but will keep block in proportion to itself.
3. Refine – enables re-ordering/re-colouring of cut/carved blocks for maximum use of colour.
4. Quantise – same as Remap but will keep block in proportion to itself.
5. Vertical flip – turns block completely upside down.
6. Horizontal flip – flips block horizontally to ‘reverse’ the current block.
7. Recut – enables you to redefine the shape of a block once it has been cut. Handy if the block is too big.
11. Skew Y – tilts the block on the Y axis, creating odd, if not always expected results.
13. Full skew – tilts the block both on the X and Y axes – you decide how much the block gets ‘skewed’ in each direction.
14. Recurve – enables you to redefine the shape of a block once it has been carved. Again this is limited to cut’s rectangle.
15. Horizontal shatter – pixels are displaced along the X axis. Useful for creating random patterns.
16. Vertical shatter – pixels are displaced along the block’s Y axis. Once again, this is limited to cut’s rectangle.
17. Pixelate #1 – makes pixels in the block bigger and blurrier. If that’s what you want.
18. Pixelate #2 – makes pixels in the block bigger and blurrier.
19. Soften – groups pixels into fine lines making the block look smoothed.
20. Dither – acts like Shatter, but in a more random manner.
21. Outline – draws an outline around detail within the image. Uses selected colour from the base palette as its guide.

EZ-Art Pro
£29.95 Floppishop
0224 566208

Highs
- Easy to use yet still boasting some elegant features
- Range of block operations is impressive
- Splendidly low price

Lows
- Missing a few high-end functions

What else?
- Deluxe Paint £59.99
  Electronic Arts
  0753 549942
One of the graphical giants is back, and it's meaner than ever. This is an image renderer with balls.

Xenomorf is one of the sexiest programs available for your ST, and it just got sexier. Not content with producing a blisteringly good rendering package (Xenomorf - reviewed in issue 47 and scoring 93%), Lexicor have now enhanced it. Xenomorf 2 is a package that gives your ST a massive amount of graphical power, turning humble wire-frame 3D objects into multicoloured Phong-shaded works of art. Like the original program, Xenomorf 2 uses 3D objects created in Cyber Sculpt and renders them with enormous power and control over the results.

Scenes are built from your 3D objects, positioned, lit and given surface properties, all using a relatively simple GEM program. Final images can then be rendered with simple flat polygon shading, smarter Gouraud or full-blown Phong with shadows. Finished pictures can then be saved in a number of different formats including GIF and TGA.

Step by step
The first step is to create your 3D objects using Cyber Sculpt or a similar program that can create 3D objects. These are imported into Xenomorf and positioned; you can build up more complex pictures by importing several 3D files (giving you more flexibility than Cyber Sculpt itself offers). Positioning objects exactly where you want them is fairly painless. Once you've positioned your 3D actors, you light the scene by positioning any number of variable strength lights, including spot, point source, solar and ambient lighting. Once this is done, you position your camera, which can be anywhere and pointing at anything. Then you can give your wire-frame objects an example of the power and flexibility of colour splines is this flame, which has been mapped on to a plain square, most of which is transparent. With practice you have an extraordinary amount of control over the look of any surface.

WIND OF CHANGE
There is a healthy number of new features in Xenomorf 2. It is now fully MultitOS compatible, which means that you can render in the background if you wish. You can also interrupt rendering at any point and continue later, as well as view the results as they chug along. Lights can be coloured and the number of light sources is unlimited.

Animation has been improved. Tweening is still a feature you define a start and end position of your lights, objects or camera, and Xenomorf works out a series of pictures for you over a defined number of frames. You can now use an animation within an animation too - an FLI, FLB or FLX animation can be texture-mapped onto an object.

For much greater control you can now render Chronos 3D sequences using an optional program called ANM Link, which enables you to combine the clever animation tricks of Chronos with the rendering power of Xenomorf. A special bundle of all three programs is available for £250. It's expensive, and the process is devilish, but the results are worth it. You can create some absolutely gob-smacking animations.

One of the criticisms of the original was the limited number of surface textures. The latest version addresses that by adding a whole new range, including colour splines. These ingenious textures are built from coloured layers with variable turbulence and transparency. Start overlaying them and some powerful effects are possible, although it is a touch complex. You can load and save your colour splines, and a range of examples are included. Also new on the texture front are bozo, gradient, agate, granite, ripple, bumps, waves and eroded textures.

Xenomorf 2 also has more realistic shadows which can now be turned off for individual objects. Fog also makes an appearance - you can cloud your scene with a realistic misty effect. All the new features add up to more flexibility and power, especially the new textures.
body by assigning colours and surface textures. One very hunky feature is texture mapping, which takes a picture and wraps it around your 3D object. For example, you could make a sphere and wrap a map around it to create a planet or a globe. You can also assign surface textures such as wood grain and marble, as well as bump-mapping. This gives flat surfaces the illusion of real texture such as ripples or dents.

When everything is in place, just select the format of the final image (several different formats are available, including GIF and TGA), then hit the rendering button and await the glorious results (or not, as the case may be).

Good pictures take patience — if you’re prepared to put the work in then you’re in for a treat. They need decent 3D objects to work from and realistic lighting. The biggest mistake most people make is to set the level of ambient lighting too high — although this enables you to see every detail of the scene, it gives the image an unreal glow and makes everything look plastic. Keep to point and spot lights, bringing a few shadows and dark corners into your scene, and it will look much more life-like.

**Important Details**

Xenomorf 2 runs on all STs with over 1MB of memory, and the more colours you can display the better. On a standard ST you can render in Spectrum 512 format, including an ST version, while on TTs and Falcons you can go for anything from 256 colours right up to the lofty heights of 24-bit colour in any sized image you want.

**Flummoxed?**

Getting into rendered graphics is a fascinating and hypnotic field, and the final images can be superb. If you were disappointed with GFA Raytrace, flummoxed by POVRay and restricted by Raystart, this is the one for you. Although Xenomorf looks like a raytracing program, in fact it uses a different mathematical model to recreate a scene, with the advantage of extra speed. It’s easy to use and flexible (pictures of any resolution and colour depth can be rendered on any ST), and if you upgrade your system at any point Xenomorf will be there to take advantage.

Graphic packages don’t come much better than this. Xenomorf produces brilliant output with minimal fuss. You don’t need a degree in maths, and there’s no complex set of commands to struggle with. If you want a way into the world of seriously good images, look no further.

**CHRIS LLOYD**

**Xenomorf 2**

£129 (upgrade from original £80) from 16/32
Systems = 0634 710788

**Highs**

- Easy to use
- Results can be amazing
- Works on all systems
- Renders in up to 16 million colours

**Lows**

- Your wallet won’t like you
- Rendering full Phong with shadows can be slow
- Colour splines can be difficult to master

**94%**

**ISSUE 62 ST FORMAT**
MASTERING
ATARI

Ever fancied a personal tutor to help you get to grips with the complexity of AtariWorks? We investigate what could well be the answer to your prayers...

So you bought the integrated AtariWorks package but you're sick of flicking through the manual every time you want to look up a feature? Don't you wish Works had some online help built in, especially where you could find the entry you're after without hassle? So did Spar Systems in the USA, so they released this help system for AtariWorks through FaST Club in the UK.

Mastering AtariWorks is described as a Hypertrack help system for Works - it runs alongside Works itself as a Desk Accessory, so you always have access to it as you work. Hypertrack is another buzzword knocking around the computer scene at the moment - basically it means that you can skip from one topic to another by clicking on relevant words. A page of text explaining graphics might have the words “bitmap” and “vector” highlighted, and clicking on them would move you to the entries attached to them. It sounds a little odd, but a properly set up Hypertrack system can make the job of finding the info you need ludicrously easy.

Massive selection

The program comes as two Desk Accessories - one for the Works Word Processor module and one for the Database - a massive selection of tutorial and example files in AtariWorks format, and a manual. The manual is more of a tutorial for Works itself, as the instructions for installing and using the accessories only take up a few pages, with the rest devoted to some excellent hints and tips to help you get the most from Works. The only support for the Spreadsheet is in the manual, but future versions promise true online help.

Using the help is dead easy. The Accessory has a clone of the AtariWorks menu, so clicking on an option gives the help you’re after straight away. Moving through pages is achieved with the icons, and the current topic can be printed or saved to disk via the Clipboard. A full index is also available to look up particular entries.

Potential

Mastering AtariWorks is a doddl to use and we found that during a lengthy Works session it provided the help we needed faster than the actual manual. If you’ve only just started with Works, you’ll be able to realise its potential in much less time using Mastering AtariWorks, and if you’re considering buying AtariWorks this is well worth adding to your shopping list. AtariWorks is a powerful program and Mastering helps unlock its true power.

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MIDIGRID

Out of the blue appears a first-rate performance-based MIDI package - and it's being produced in the UK

What's so special about a performance-based MIDI program? What it means is that all the preparation can be done at home, with the MIDI program then being used as an instrument to be played at a concert in the recording studio or just for pleasure. It's when you've set up all the sounds, sequences and effects that the fun really starts.

The concept
The main performance screen is made up of a simple grid. You define the number of boxes in the grid and what each box does. Each box can contain a note, a chord, a controller change, a MIDI sequence or any combination of all these things, plus others. Groups of boxes can be assigned to a range of chords on a specific instrument. Another group on the same screen could be assigned to any other instrument.

The program makes it possible for you to play things "live" that would be impossible with just a keyboard. Your chords, for example, may contain a greater range of notes than your hands could ever cope with - the possibilities are endless. You can record your performances as sequences within Midgrid, then assign these sequences to individual boxes, and once you've built up a finished grid for a piece of music it's up to you to perform with it.

Varied uses
Setting up a grid is a complex and involved operation, which requires extensive knowledge of the program and its logic. However, if a grid has been set up beforehand it is transparently easy and great fun to play. This brings Midgrid firmly into the educational arena for almost any group, from those with learning difficulties to gifted musicians. Midgrid has a capacity to delight anyone and everyone capable of pointing and clicking with a mouse.

Unlike anything else
Midgrid is an inventive and intriguing package - breaking new ground and offering great potential for expansion and development. The manual is clear and precise, if rather hard going at times. The controls for setting up grids are sometimes quite involved, even fiddly in places, and it takes a few days of working with the program before you start to feel really comfortable with it, simply because the interface is so completely different to everything else.

The program is dongle protected with no through port, so switching is necessary with your sequencer dongle if you have one. Apart from that, it's refreshing to see an innovative MIDI program like Midgrid being created and supported in the UK.

ANDY CURTIS

MIDIGRID

£135 Dawson's Music
0925 632591
All STs, high res only.
Highs:
- Flexible and versatile.
- Instant appeal.
- Very powerful.
Lows:
- Steep learning curve.
- Complex in parts.
- Dongle is annoying.
What else?
- On its own at the moment.

79%
FASTCOPY PRO V1.2

Banish all your floppy problems with FastCopy PRO. It's so fast it even has go-faster stripes

There you are in the middle of some important work on your ST and you suddenly realise you need a fresh floppy. Reaching for your box of spare disks you grab a new one, but flippin' heck, it's not formatted! So you quit the program, possibly losing data, and sit there like a lemon while your ST chugs its way through formatting the new disk. It's just not good enough.

Before you can use any floppy disk you have to format it, and the obvious way is via your ST's Desktop. You might also regularly find yourself copying floppies, when you want to make backups of data or working copies of your serious software (not games, of course). Disk copying can also be done from the ST Desktop but, although this fulfils its function, there are quicker and better ways of formatting and copying. Loads of Public Domain utilities exist to provide faster, fancier formats and copying, but one program stands head and shoulders above the rest – FastCopy. This started life in the Public Domain (Copy 3 is included on this month's ST FORMAT Cover Disk), but its German author has now progressed to FastCopy PRO, a commercial version of it, and the latest version – v1.2 – is now available from FaST Club.

FastCopy PRO is supplied on a double-sided disk, together with an AS printed manual. The program isn't greatly different from v1, but has been upgraded to be fully TT and Falcon friendly, so now it's completely usable on all Atari computers. On the ST it runs in high and medium resolution, and two versions are provided on disk: the stand-alone variant and a Desk Accessory. Copy the DA version to your floppy boot disk or hard drive partition C, and when you next switch on your ST, FastCopy PRO will be available from the Desk drop-down menu. It's useful to be able to access all the application's features from within any Gem program, and great if you want to format or copy a floppy without leaving the software you're running.

When selected, FastCopy PRO has a big, good-looking main menu which fills the screen, and further options are available for adjustment in sub-menus which pop up when necessary. What you notice straight away is a numbered track display representing the individual tracks on a floppy disk – as each formatting or copying operation is carried out the optimum. The most reliable format is 80 tracks and nine sectors, because anybody's system can correctly read disks formatted this way.

Verdict

FastCopy PRO is a most useful utility, and will successfully copy most floppy disks except those that use special tricks to prevent unauthorised copying – for example, games. It also takes less than half the time to copy a disk than the ST's Desktop, and it's one of the fastest and best featured formaters around.

Many PD libraries use it for all their disk duplication work, and with its built-in virus protection and ability to do multiple copies this isn't surprising. Its availability as a Desk Accessory and low price make FastCopy PRO an almost essential buy for the serious minded ST buff, so snap it up quickly at the special price.

Peter Crush

WHAT FASTCOPY PRO CAN DO

Your ST's resident formatting and copying facilities just can't compete with FastCopy PRO. Just look at all the amazing things it can do...

1. Formats disks to MS-DOS compatible, so you can read and write data on them using an IBM PC computer as well as your ST.

2. Formats disks reliably to extended capacities. You can choose how many sectors and tracks you want to optimise your disk's data storage capacity.

3. Copies disks intelligently with great ease and speed. Even on a humble single-drive 520ST system it's a smooth operator.

4. Checks for viruses. FastCopy can examine and display disk sectors by sector, and you can create special anti-virus boot sectors when you are formatting disks.

5. Streamer feature enables a straightforward backup of hard drive files on to another partition or a set of floppy disks.

6. Scans your floppy disks, reporting and marking bad sectors to prevent them being used, thus increasing data reliability.

FastCopy PRO does all kinds of other useful tricks too, like helping you to recover data you may have deleted from a disk in error.

FastCopy PRO v1.2

£14.95 (special launch price) FaST Club
Tel 0602 455250

Highlights

- Modest asking price
- Fast, reliable operation
- Many extra built-in features

Lows

None we could find

What else?

- Icopy 3, from any good PD library
- Robold, faster at copying but much dearer – £59.95

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90%
NOVA GRAPHICS CARD

Millions of colours on your ST? You too can have a top-notch VGA graphics workstation sitting on your desk.

Your ST's colour capabilities are slightly limited by current standards, but now you can add 16.7 million colours to your original 16 using the new Nova graphics card. Using this card you can really use your ST for graphics and DTP the way you were always meant to: in glorious colour. The Nova hardware and software enables you to set up your ST system to run from a single VGA/SVGA monitor, or with a two monitor setup in which you can use your Atari high-resolution monitor alongside the VGA.

Simple to use...
After installing the hardware and software, re-boot your ST and wait for the Nova menu screen to appear. Select your preferred screen size and palette, ensuring that your monitor can cope with the frequency you've chosen – picking a frame rate that your monitor can't cope with can severely damage it.

After saving the settings your ST automatically boots the VGA monitor to the correct resolution the next time you boot up, and you can use all your GEM software in the usual way. The reason that the Nova card is so compatible with ST software is because it uses a machine code version of your ST's VDI, so it uses exactly the same code for displaying windows as your ST normally does – just a hell of a lot faster.

...and highly compatible
We tested absolutely loads of software on our MegaSTE and most ran without any problems. The only problems we did come across were with memory resident Desk Accessories and Auto folder programs, which tended to crash the ST. Programs we tried and tested include 1st Word Plus, Calamus SL, DA's Picture, DA's Vector Pro, Truelmage and Studio Photo. Of course, all the Lexicon graphics software worked without problems.

The Nova card is unusually easy to use – all you do is install it, then just sit back and use it. No extra hassles. In fact, all software and hardware should be this easy to set up and use. If you want to add great graphics capabilities to your ST then you know who to call.

CLIVE PARKER

EASY ON MEGAS
You can get plug-in-and-go versions of the Nova card for the MegaST, MegaSTE and TT. If you want a Nova for your STFM or STE, however, you have to use a special Megabus adaptor card. In this case you'll probably have to use a new case like the Desk Topper to house it, because the Nova graphics card itself is too big to fit inside a standard ST style case.

Still, if you're going to be adding the extra graphics power of Nova to your ST then the chances are that you've already got, or are about to get, a chunky business style housing for your ST. Turn to our Custom Computing feature on page 26 for a few suggested alternative cases. The Nova card is a great reason for you to finally splash out and revamp your ST system.

Nova graphics card
£419 for MegaSTE and MegaST, call for STE/STFM prices
16/32 Systems 0634 710788

Highs
■ Loads of colours
■ Easy to install in MegaST and MegaSTE
■ Compatible with almost all software

Lows
■ Difficult to install on STEs and STFM
■ What else?
■ There are no other colour graphics cards currently available
Laser printing has always been quick, but we discovered the fastest operator around when we tested Hewlett Packard's new machine

They're at it again, those HP backroom boys must be hyperactive! It doesn't seem long ago that Hewlett Packard launched the Laserjet 4 laser printer, and we looked at it in STF 43 where it was awarded a FORMAT Gold score of 90%. There have been a couple of cut-down versions since – the Laserjet 4P and the Laserjet 4L.

But not content with that, two brand new versions of the top-of-the-range model have just been released, and HP claim these have better features and improved printing speed. So are the new machines really any better or speedier? We got hold of one of the first available for testing – read on for our results.

And there's more

The HP Laserjet 4M Plus doesn't look much different from its forerunner, but hiding inside is an Intel 860 chip. This works at 25MHz and has its own memory cache, resulting in an impressive turn of speed, and increasing the number of pages you can print from eight pages per minute to 12 per minute. The printer comes with 6MBytes of RAM on board as standard, which is plenty for most uses but can be increased with slot-in SIMM cards if you want more. The "M" in the printer's name stands for Macintosh, and it works with Apple's Mac computers as well as STs. It also has a built-in capability to print PostScript, the page description language widely used in professional publishing circles. If you think all this makes HP's new printer sound rather up-market you'd be right, it really is a very capable and businesslike device indeed. To cater for those folk who don't need PostScript and want something more affordable there's the slightly cheaper Laserjet 4 Plus. This second new printer has no PostScript and only 2MBByte of RAM, but can be upgraded to "M" standard with optional cards.

Both versions of the new printer come with loads of built-in scalable fonts – there are 35 Intellifonts and ten TrueType fonts on board. If you have software that supports these fonts (like Compix's That's Write 2, or Arora's Protext 6) you can very quickly produce impressive word processed documents with wording in a wide range of typefaces and styles, and in virtually any size you want. Because the font information is held in an outline "vector" format inside the printer itself, output is brisk. If, however, you are using desktop publishing software like Timeworks Publisher or Colomus your pages are output as bitmaped images.

Even so, the text still looks good, owing to the printer's 600 dots per inch resolution. However, the whole affair takes much longer because of the amount of data that has to be sent down the printer lead.

Fastest time ever

To try the printer with word processed textfiles we used both Protext 6 and That's Write 2. The results were excellent – you won't get better looking printing unless you use type-setting apparatus. To test DTP output we used PageStream, which can output conventional bitmapped files and PostScript, and again results were first class. The 12 page per minute printing enables you to turn out lots of copies quickly but the time taken to create and send the page to the printer is still limited by your ST's own processing speed, so don't expect miracles in this department.

Verdict

Even so, the ST FORMAT test page took just under 27 seconds to print out from Protext, the fastest time ever clocked. From PageStream 2, a DTP page of text and graphics took less than two and a quarter minutes to produce. And subsequent copies roll out every five seconds if required. The Laserjet 4M Plus is not a cheap printer, but it's probably about the best specified one you can buy.

PETER CRUSH

<table>
<thead>
<tr>
<th>HP LaserJet 4M Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>£1,750, Hewlett Packard</td>
</tr>
<tr>
<td>0344 369222</td>
</tr>
<tr>
<td><strong>Highs</strong></td>
</tr>
<tr>
<td>Superb print quality.</td>
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<tr>
<td>Fastest speed available.</td>
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<tr>
<td><strong>Lows</strong></td>
</tr>
<tr>
<td>Expensive.</td>
</tr>
<tr>
<td><strong>What else?</strong></td>
</tr>
<tr>
<td>Brother HL 120 Laserprinter, £1,500, 061 330 6531</td>
</tr>
</tbody>
</table>

85%
There's good PD. There's bad PD. And there's PD so bad it makes your ST's ears bleed (yes, of course they have ears). Here's some of the good stuff.

**MUSIC**

**BACKGROUND MUSIC UTILITY**

**FLOPPYSHOP MUS4382**

Waay back in the mists of time, on an utterly different machine to the one we're on now, there was a simple way to rip the Blue Danube out of Elite, and leave it running in the background while you got on with programming, word processing, or whatever. This had to be one of the silliest uses of that particular machine given the utterly naif sound chip, but everybody tried it at least once.

And then there was the ST, and games that were a little more difficult to hack into and mess about with. Think about it - you've got the ultimate machine for creating music, and you can't word process and live at the same time.

BMU is a simple but brilliant Desk Accessory that sits there and happily plays up to 58 tunes, regardless of what your machine is doing. Oh joy - it's pointless, it's mindless, and I've got a copy. Life is good, if almost fatally close to jazz.

The music isn't exactly wonderful either - it ranges from national anthems through the Camptown Races to the Blue Danube, all in a lovely plinky style and played on what ever instrument they thought they were simulating when they wrote the tune to Pole Position.

That's the point of having a machine with an Accessory facility - you can modify it to do whatever you want. If anyone else has got any his type of thing, send it our way. We flippin' love 'em.

**STF RATING 70%**

---

**GUITAR CHORD UTILITY**

**FLOPPYSHOP MUS4382**

Now here's one you don't see too often. GCU is a utility that displays all of the major chord structures you're ever likely to need while learning to play the guitar. On loading the package, you're presented with a set of buttons, giving the various base chords and the variations on them (diminished, minor, rooted and so on), each in four different inversions, giving you a hell of a lot of scope to work around those chords.

The important element here is that your ST isn't just helping you create wonderful sounds on an electronic instrument. The way the chords are presented not only makes them easy to understand and hit, but also incredibly easy to work around - the inversions mean you can fit almost any riff around any chord with no hassle at all.

At the end of the day, these functions could be fulfilled with a chord book such as the Guitarist's Grimoire, but if you don't own such a wonderful item, you can now get a computer program to work just as well.

Tacked on to the side (almost as an afterthought) is a guitar tuner, though this works by simply playing the correct pitch on demand in a computer-ish beep style, which turns out to be almost impossible to tune a guitar to - the two sounds are entirely different. Apart from the fact that it's nearly useless, the guitar tuner is cursed with another problem - it won't leave you alone. You'll be happily chording away, and all of a sudden, for no easily understandable reason, everything stops and you get the chance to tune up again. Why? How close do I want my sound to be?

Don't let an obtrusive tuner put you off a potentially wonderful Shareware package, though - it'll be invaluable to anyone learning guitar and makes the change for the ST by actually helping you create well-written music on something other than an electronic instrument.

**STF RATING 75%**

---

*The welcome sight of a dialog box after the sudden shock of terror as you realise you're not altogether sure how to turn the Camptown Races off.*

*It's the tuner. It came back. I selected Quit, and it gave me the tuner instead. Aaaargh.*
STORMTRACKER
ASGARD PD

It's been a seriously musical PD section so far, hasn't it? It's not surprising that the PD market would pick up on the commercial bend toward notes, but it's quite surprising just how well they've done it. Gone are the days of shelling out huge amounts of cash for a soundtracker program just to find that you have no musical talent whatsoever. Now you've got a completely free trial arrangement thing. That's right, it's Shareware, which means you get to sample the whole thing before you shell out any cash for a full working version.

If you've never seen a soundtracker program before you're not going to be all that surprised, as they're exactly as you'd expect them to be - long lists of notes that you define and the program plays. Things do start to get a little more complicated when you enter your tune, though, as some packages work on musical staves rather than simple lists. Stormtracker works with both, so you won't need to suffer musical boffins preaching the benefits of arcane symbols - just go to Preferences.

The curious thing about Stormtracker is that you don't use instruments created from sound waves. The package has built-in sampling facilities which are combined with a rather clever system for bending the pitch of samples to hit the desired note - meaning that you can sample a guitar and move it around the musical scale to create a tune, then overlay some drum samples and a bass.

As a package, Stormtracker is wonderfully comprehensive. You'll constantly be aware that you're not using a commercial piece, but most of what you're likely to want to do is catered for.

GB ROUTEFINDER
ASGARD PD

Ever met a PC owner? They're all nice people and all that, but five years ago the experience would have been horribly marred by the fact that just about every one of them was either saving up for or had already bought a copy of AutoRoute.

It was the PC craze - if you could write a program that worked out the best way to get from A to B in a car in Britain, you could sell it on a PC for huge amounts of money, because a route finder is one of the cleverest utilities known to man.

GB Routefinder is no exception, although this time it's PD, and it's on your ST. For example, suppose you live in an attractive, thriving city like, oooh, Leicester. You, not surprisingly, want to go somewhere else, and you'd like to get there fairly fast, and not spend hours staring at a road atlas. Load up GB Routefinder, tell it where you are and where you want to go, and wait for a minute or so while it works out the best route.

Of course, you wouldn't trust a computer to give you a route you could handle, would you? There are certain places you'd really want to avoid travelling through, like London and Newcastle, and certain roads you'd never want to get trapped on (the M25). GB Routefinder can handle the lot, carefully getting you to Cardiff while ensuring you spend as little time as possible in the rest of Wales.

On top of the excellent avoidance feature, you can select routes on the grounds of distance or time. On entering your details, you're asked whether you need the shortest route or the quickest one, which changes the details you're presented with. This is an incredibly useful package, and it's rather surprising that it's free. There are options to add extra roads, places, and so on as well as to create entirely new maps (anyone feel like knocking up USA Routefinder?).

All we can say is, if you don't send off for GB Routefinder, you obviously don't own a car.

STF RATING 80%
First comes arithmetic, and five separate tests of addition, subtraction, division, multiplication and counting. Things are very straightforward in this section - the child is simply asked to add up numbers or whatever, or count the total number of objects on the screen. The problem comes when the child's attention wanders - there is no reward for a correct answer, and nothing to say, "OK, well done, here's the next one." Instead of encouraging the child further, the program just asks the next question with all the charm of a Nazi interrogator playing poker. This is not what children need.

The next section deals with spelling, asking questions like "What animal goes meow" (notice the lack of a question mark), and answering with the constructive "Wrong the answer I wanted was..." (all one sentence, mind). The program doesn't work with anything other than pidgin English - what if your kiddly makes a huge leap and types in "a cat"? He or she gets "Wrong the answer I wanted was cat, straight in the face. That's nice. They'll really be encouraged with that one.

Telling the time is all much of a muchness. Despite the fact that this is an important part of a child's learning, they don't get even the slightest bit of encouragement. Mind you, this section just falls into line with the rest of the package.

And then there's playtime. Oh, good. There are a few reasonable kiddly games here, you see, such as skeet shooting with a mouse (and an AK47 by the sound and speed of it), a sort of real-time Dalek thing, pairs, and finally Hangman which is where we take time out. Hangman. A game involving spelling. After picking the films category (ignoring books and TV programmes) you roll on to the main game screen, seeing a nose and a set of blanks. They can't get this one wrong, surely? Surely? Hangman's a great game - everyone loves it. On a train, in a plane, wherever, it's Hangman and it's good. Before you play, however, it's always a good idea to make sure the person you're playing against can actually spell. Sorry, but if you were trying to teach a child to spell (hidden curriculum, perhaps?) you wouldn't try and tell them that trains is actually spelt "trains".

And exactly are they going to learn from a sentence like: "You have already tried that letter try another?"

What more can you say? This is the kind of educational package that could do real damage to a five year old. This whole thing has obviously been written by someone utterly out of touch with education and children alike. How many PE teachers do you think own STs?

ST APPLICATIONS
DISK MAG 40
FAST CLUB DISK DM.40
Another packed disk from the FaST Club to complement the latest issue of ST Applications. As always, the files on this disk are all archived so more can be crammed on the disk. The best programs from a good bunch include a route finder program, Ulano-Shel, a shell for running multiple archive programs called 2in1 and an excellent document displayer attractively named AV380.

For such a compact program, AV380 has an impressive range of functions and features including a powerful search utility, full document statistics, program statistics, access to Desk Accessories all supported by a full on-line help system. It's worth getting the disk magazine just for this program alone.

STF RATING: 83%

PSYCHO SCRIPT
FLOPPYSHOP DISK ART.4543
Welcome to weird city folks (as they say in The Sun) and take a look at the strangest little program it's been our pleasure to view - it even carries a stern warning to sufferers from epilepsy to avert their gaze. Psycho enables you to create stunning visual displays from standard Degas or Neochrome image, which it does by colour modulating the pictures and sequencing the effects into a dynamic psychedelic slide show. Fnerk! Understand all that? We didn't. The upshot of all this technical wibble is that you can create a sequence of stunning visual imagery on a standard ST using the Psycho Script program and controlled - if you want - by MIDI messages and signals alongside your script file. Detailed instructions ensure that you'll soon be freakng out to the greatest ST lightshow since Jeff Minter's legendary Colourspace.

STF RATING: 78%
Cover Disk 47 is ideal for this purpose. If you haven't got Cover Disk 47 then there is an excellent resource file editor included on the icons disk called Orcs, it's a bit harder to use than the Juggler/Makeikon combination but you can certainly come up with some wild designs.

**STF RATING: 72%**
- You can use icons Juggler to cut and paste icons between all the different icon files on the disk and create your own customised DESKICON.RSC files.

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**TINY PILOT**

**FAST CLUB DISK PR.205**

Not a disk concerning very small aeroplane drives, Tiny Pilot is in fact a small interpreter dealing with Programmed Inquiry Learning Or Teaching and is a kind of programming language. Using this interpreter you can create customised programs designed to teach the user about any subject you wish,

- A fully featured on-line help facility enables you to cope with all of these strange PILOT commands such as “flaps at 30 degrees” and “raise undercarriage”.

**STF RATING: 63%**

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**PPS PART 1**

**GOODMAN INTERNATIONAL DISK GD.2252**

Ah, yes. There isn't actually a program at all on this disk; the whole disk consists of a document for Atari-Works showing off the capabilities of Atari's flagship word processor-cum-integrated 'works productivity program.

In fact, the entire disk is an Atari-Works tutorial complete with loads of grabs in various high-resolution formats, explaining how to get the most out of the program using various design layouts. Unfortunately, you can only use this disk if you already have AtariWorks as part of your system so the disk is of limited interest. That said, there are some helpful and informative hints and tips contained in the text that should certainly help you improve your layout and design skills. Planned as the first of a series of tutorials, this isn't a bad little disk.

**STF RATING: 56%**
- Yyyeeecssss. An interesting and informative disk that's the first in a series on using AtariWorks. We can't wait for the second part.
Simon Forrester sifts through hundreds of Falcon-specific PD software titles. Yes all of them!

The easy way to tell a new machine’s popularity is by the selection of commercial titles available for it. When the Falcon came along, a sudden burst of feverish writing came from other sides as well, creating a huge amount of PD software in a very short amount of time.

So here at ST FORMAT, we have decided to give you a run down of pretty much every piece of PD software that’s ever been released on the Atari’s top-of-the-range machine. Every piece of software featured on these pages comes courtesy of 16/32 Systems, who provide probably the biggest PD service in Europe as far as the Falcon’s concerned.

Although each piece of software has been reviewed individually, each title has been followed by the disc number in brackets. As for ratings, each package has been marked out of five, as percentage scores become meaningless on this kind of scale.

Anyway, without further ado, let’s decrunch some TOS files and see what we can find.

**FRACO30 (1)**
A fairly fractal drawing package, although a little inflexible at times.

---

**BRAINSTORM JPEG VIEWER (2)**
Hellishly impressive, mainly due to the abilities of the Falcon anyway. Ultimately pointless, though. It comes with several discs of slide-show JPEG files, getting boring after the 20th and deadly by number 97.

**VIEW 24B (2)**
A tiny little application enabling you to just double click on any Targa or Raw 24-bit image and view it. Filling the gaps Atari left behind.

**WATCH-IT (2)**
Watch-it is a picture viewer enabling you to... look why are there so damned many picture viewers? How can one be any better than (or even different to) another? You click on a picture, and you can view it. Some work as accessories, some as applications, but they all do exactly the same thing. What’s the point?

---

**24 VIEW 2 (2)**
A picture file viewer, yes.

**GEOTECH (2)**
A storming little demo of fractal landscapes generated incredibly quickly and displayed from a number of angles.

**PIXTWINS (2)**
Here we go again - more of the same. A picture viewer. You can view pictures. Click. Look at a picture. Ooh.

**FM (4)**
There comes a time when everyone needs to write a demo. This one falls into the rave variety, with two amazing visual effects.

---

**TUBULAR BELLS (5)**
An excellent demo of the Falcon’s capabilities, though it’s appallingly mixed.

**HANDS (6)**
James Brown fans can jive to the looped 30-second sample accompanied by some very funky animations.

**SPERM (6)**
Though cursed with a slightly off-putting title, this is a rather impressive little spermfield demo.

**RDE (7)**
You can now have RAMdisks of any size on your Falcon, speeding up disky operations no end.

**ATOMIK CRUNCHER 3 (7)**
A file crunching program with reasonable compression rates.

**16/32 DISC 7 TEXT FILES (7)**
A range of text files covering everything from your Falcon’s casing onwards.

**EDISON (7)**
A screen-saver that saves you from certain phosphor-burn death. Everyone should have one.

**FCONTROL (7)**
A control panel to do all those things GEM should do but doesn’t.

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*Hang on a minute. No, slow down. Do stop buckling. Stop a second will you? Let me get a closer look. Thought so. I know him.*

*The circus is coming! Lots of scary people painting their faces in evil patterns and being waaay too cheerful are coming to your neighbourhood.*

---

*Rave the Christmas with DBA*
SNAPSHOT (7)
Take a wild guess. ★★★

JML SNAPSHOT (7)
There's nothing like new, innovative programming, is there? ★★★

BULLDOZER (7)
A copier – an essential item for any computer user. ★★★

DFT (7)
Yet another copier, only this time it's complete crap.

DISK COPY (7)
A copier – an essential item for any computer user. ★★★

FROGGER (9)
Froger. glad to see we're using the Falcon to its best abilities. ★★★

KABOOM (9)
Dull bomb catching game. Reminiscent of stubbing your toe. ★

BIG KART (9)
Mario Kart without the pressure. ★★★★★

OXYD (9)
A wonderful pairs puzzle game. ★★★★★

SPACOLA (9)
An Asteroid-cum-Defender clone, from the Oxyd author. ★★★★★

DES LASERS ET DES HOMMES (12)
The demo version of a forthcoming Wolfenstein type game. Truly excellent, and stupidly violent. ★★★★★

MADTRISS (12)

BOBS (19)
A slick little demo, with a highly enjoyable soundtrack. ★★★★★

BOUND (19)
Bouncing balls of flesh from a highly concealed coder who gives his address for anyone wanting to send congratulations. Pah. ★★★

MASTERS OF CHAOS (12)
A novel but dated Dungeon Master style two-player duel. ★★★

680XX (20)
Another demo, this time as a still frame with yet another excellent soundtrack. ★★★

DREAMS (20)
One of the best examples of the Falcon's graphical capabilities to date. ★★★★★

3D ANIMATOR (20)
It's official – this is the best bit of Falcon PD ever seen. The smoothest animation of 3D light-sourced objects ever. ★★★★★

CHLOE (20)
A rendering package, cursed with a language barrier. Damned shame, as it's quite good. Has anyone thought of offering translations? ★★★

D2M (20)
Probably the most comprehensive image conversion package. I could be more certain, but it's dull. ★★★

GEMTARGA (20)
Kiss the midget. Kiss the midget. I can't see – get a haircut. ★★★

IFFHAM 8 (20)
Get him. Get him. ★★★

ECOPY (7)
A copier – an essential item for any computer user. ★★★

LITTLE COPIER (7)
A shameless attempt to dress up a file copier with personality. It worked. ★★★★★

VIEWXXGA (7)
Now this just isn't... No... Kiss the midget. ★★★★★

WINREC (8)
An audio-to-hard-drive recording system, put to best use by anyone with a good knowledge of German. ★★★

AUDIO 12 (8)
An utterly unfathomable little German dialogue box. It could be the best program in the world, but, then again, it might be complete shambles. Who knows? We're certainly not about to find out.

F030 PLAY (8)
Sound module player – sounds good, despite the lack of features. ★★★

PERSISTENCE OF VISION DEMO (10)
It's Persistence Of Vision, isn't it? ★★★★★

PROGRAMMING UTILITIES (11)
Loads and loads of text files and assembly listings to keep you coding through the night, and suffering eye strain through the day. ★★★★★

FRAC PLAY (20)
Playing about with fractals is probably the most fun you could have with a keyboard. ★★★★★

INCONVEX (21)
Further shaded 3D objects, though something doesn't seem quite right with this one, perspective-wise. ★

MAGNET (21)
Another demo, this time drawing and animating magnetic patterns. ★★★

PENICHE (21)
Dancing oil-tanker antics. ★★★

PLAY FLI (22)
A simple French FLI player on a disk with several good animations, the best being 3Wheel, 6C0VL, Alarm Clock, Apple, Art, and BBall. ★★★★★
BIRD (23)
Another excellent FLI animation.

THE COLA WAR (24)
A fun little animation about the cola war, scoring 4 for making me laugh.

GIANT (25)
On a disk with still more FLI files you'll find Giant, an ad for Cyclops BBS.

It's at this point that we step back from the pile of PD, pausing only to consider another three disks of FLI files. The thing about FLI files, you see, is that there's only ever so be FLI files. Each one has reasonable animation, and each one is ultimately repetitive and therefore dull. In fact, we're going to skip straight past the lot of them in search of something more comment-worthy.

DELUXE MJUZAKK ZERBASTEL KIT (31)
A fairly decent soundsketcher with good sampling facilities.

PROTRACKER (31)
Another soundtracker, once again based on sampled instruments, though more versatile than others we've seen.

TCB TRACKER (31)
A frankly unloathsome little package, with a colour scheme that could kill a man at 40 paces.

TRON (32)
Probably the most impressive version of the old two-player classic yet.

WINGLORD (32)
A very crap 'just clone.'

PASSION (33)
Quite a tacky and totally unimpressive little demo. Lie down and avoid.

PENTAGONIA (33)
A demo that seems to be based entirely on messing about with the names of its authors (and getting the proportions of a thighdgit utterly wrong).

BUGABOO (34)
It's a complete 68000 assembler, though a bit of an unfriendly one at that.

CURTAINS (34)
An anti-intruder alarm system to keep your screen from prying eyes. Utterly without use.

FHTERMINAL (34)
A great comms package, with enough extra features to stand alone with a modem.

FALCONSX (34)
A handy utility for setting up Falcon hardware automatically.

GRABBER (34)
A program to grab certain amounts of memory and make it later, handy for running several programs and managing your own memory space.

WINTOTOP (34)
A MultitOS window manager utility.

DCLOCK
A clock.

XTASK (34)
A graphical front end for controlling running processes.

VOXMESSAGE (34)
A wonderful little answeringphone program, recording messages straight to hard disk and playing them back on request.

ZOOM (34)
A reasonable icon editor.

DIGITAL TRACKER DEMO (35)
A digital soundtracker that must be seen to be believed.

SOUND EXCHANGE (35)
A sound sample format converter, of which there are few.

PLAYMAN (35)
A player accessory for all these sound formats we keep finding.

HSN-KONVERT (36)
A sound format converter with a K instead of a C because it sounds more interesting, of course.

MUSIC COMPILATION (37)
Sorry? Did someone say music? I can't quite hear due to this monotonous whining.

RAVE THE CHRISTMAS (38)
A slightly trippy version of Rudolph The Red-Nosed Reindeer. Not to be missed, in a pathetic sort of way.

CONFLICT (39)
A strong graphical effect demo with a few frills.

TEKNO (40)
A hyperactive demo that didn't slow down once. Be prepared to collapse after 30 seconds.

COOL (41)
A fairly dull demo with an outstanding soundtrack.

EXTRAO (41)
A one week, one coder demo. It shows.

XMAS 94 (41)
A dull, samey demo with the worst soundtrack ever. Really.

Reviewer sighs and leans back, flily refusing to sit and review several more disk's worth of JPEG viewers and JPEG files. If you want to see them all, 16/32 would be quite happy to furnish you with them, but I'll be dammed if I'm going through each one. So there.

CHRONOS
A 3D key frame animator, marred slightly by the fact it's dammed difficult to use.

And there we have it - all the PD you could possibly want for your machine, and some you wouldn't wish on your worst enemy. Any libraries boasting titles not featured here should send software marked "All Falcon PD" to the usual address and be fully prepared to be blown out of the water by a PD-weary writer. Anyone offering more picture file viewers will be shot, however.

Failing that, why not write some of your own? We've given you plenty of ideas to rip off, after all.

WHERE TO GO
If you want to get any of these titles for yourself, you can obtain them all by contacting 16/32 Systems at 175 High Street, Stroud, Kent, ME2 4TW or from any other good PD library (see our directory on page 57 for a full list).

Please bear in mind that while PD software can be freely distributed, it cannot be altered - you cannot change the package, nor can you use sections of it in your own work. Also try to remember that libraries are supposed to be non-profit making organisations - treat them with the respect you owe someone doing you a favour.
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CORNER
From the ashes, a new army of programmers emerges, offering forth a new breed of software for the ST. The dark lord Forrester grinned evilly, and sat down to write the reviews...

MASTER ART
You may remember that last month we looked at a graphic adventure called Sword of Kings. As well as being a reasonably good game it was also a demonstration of just what you can learn from Master Art, a drawing tutorial from the same author. The tutorial uses exactly the same system as the original game, running as a set of screens with text windows hidden under click buttons.

One of the main problems with art tutorials is that there's only a certain amount you can teach someone - if you're terminally bad at art then you just have to give up from the start. Which is why everybody hated art lessons at school - art teachers could never really grasp the concept that not everybody was as artistically brilliant as they were.

So those of you who don't know one end of a pencil from the other should give up right now. If you possess any creative skills, you'll be pleased to hear that this is a tutorial concentrating not only on the basics of drawing, but ideas and techniques that'll help you tidy up the pictures you're already drawing and keep everything in proportion.

If you're a fledgling artist in need of guidance your ST can come to the rescue yet again, but beware - this is not for beginners, and definitely not for the faint-hearted.

SOLAR WAR
If you've already read the 3D feature starting on page 28, you'll know all about the advanced techniques employed to draw and manipulate 3D images in a free environment. As a challenge to everything said in those pages, Solar War I arrives, achieving a third dimension of sorts in a totally different way.

Your reasons for floating around in space, aimlessly killing, are twofold: it's damned good fun and there's a war on. In classic Star Wars style, an evil empire has sent fleets of fighters out to terrorize your solar system, and you're the only person who can stop them. The first leg of the laser-fest is based around Pluto, a blue planet spinning lazily as you float out of your space station (looking like a big purple Star Destroyer) and into a huge cloud of fighters.

The ship you're in is equipped with lasers and torpedoes, both of which destroy anything. Torpedoes seem to do more damage than lasers, but travel much slower toward their target.

Looking at the screenshots on this page, you'd probably think that this was a truly classy little game, featuring bitmapped and rotating objects in 3D space, but what you see is what you get - the ships are all 2D sprites floating a constant distance away from you. This is a slight problem, as it means the speed controls you're given don't deal only with moving towards or away from the ship, instead of letting you plough head first into a pack of alien scum with laser cannons blasting.

After mashing fighters for a while, a Deathstar-type-thing rolls on and starts hammering your space station, asking to be destroyed. A few hits with anything you can throw later, and you're ready to travel to your next planet. Hmmm, deep.

That's it - shoot things around a planet and run like hell. Occasionally a different type of ship appears, but they all go down after a bit of laser, so nothing really poses a problem - the graphics just change.

For a game with virtually no depth whatsoever, Solar War I is moderately good fun, but if you play for anything over ten minutes, there's something horribly wrong with you - this is just a shoot-'em-up pretending to be a space adventure but failing miserably. Docking with your space station simply refuels your ship, passing up a great opportunity for depth, a theme that's continued throughout the rest of the game, making Solar War I fun for five minutes and repetitious from then on. The excellent soundtrack and sampled voices (bad spot effects, though) match the style of the game perfectly, totally upstaging the main event - there's nothing to Solar War 1.

Solar War 1
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Highs
- Well it starts off okay.
- But things head downhill from there on.
- And they don't change direction.

Lows
- Poorly designed.
Grab your rags, pack Fleschripper (your sword), open your A-Z, and look up ‘Black Dragon about to be possessed by evil Wizard’. Ishar’s back

Imarils have had nothing but success with the Ishar series. RPGs aren’t everybody’s bag by a long way, but Ishar stormed the 5th world leaving behind an instant wake of devotees. The company has a long(ish) history of games in the same vein, with exciting names like Tarqhon and The Crystals of Arboro, not to mention Bunny Bricks and Mad Surfer Willy.

Ishar 3 is 1994’s contribution to the saga, subtitled The Seven Gates Of Infinity. Shandar, the evil wizard who got his head kicked in during Ishar 2, has returned, saved from his mystical knobbling by a protective amulet. Therefore Ishar 3 chronicles the Good Bloks’ efforts to stop Shandar returning in the form of Wohratax, the last survivor of the Black Dragon species, who were wiped out by the white knights. Chaos, the force that caused the bloodshed, gave the one remaining dragon immortality, and it’s thus important that Shandar fails in his attempts to take on dragon form. Failing that, it would probably be a good idea to be a long way away when he succeeds.

Being the brave and righteous one, you’ve set out to form a band of merry warriors and kill Wohratax before the momentous planetary conjunction comes – everybody knows you can only inhabit other mystical forms when your planet and its moons are in line with the sun, you know. And… no, let’s get it over with. Let’s ruin the plot right here. To kill the dragon, you’ll have to travel back in time. Which means we’d better forget the intricacies of the plot from here on – time travel can always be nit-picked.

That old line
Fans of the genre will… (That was the old line! – Ed). Yup – it’s a graphic adventure game. Having said that, Ishar 3 looks nothing like any graphic adventure you’ve ever seen before (except possibly Ishar 2). The game starts with your party (or, failing that, just you), standing on the outskirts of a huge medieval town, a city divided between the rich and the poor with an inner keep, guarded by fierce nutters. This sets the tone for the level (and the city is only one level), as you learn to judge everything by where in the city you’re located.

Your party’s movements are controlled by a set of directional icons to the right of the main image, each individual character’s actions and stats being hidden under icons at the bottom of the screen. Movement is a matter of clicking the Forward, Backward, Sidestep and Rotate icons, while fighting is merely a matter of clicking on each character’s weapon icon to make him attack.

And that’s it. There are quite a few more stats screens you could wade through if you really wanted to take the classic RPG element further, but it isn’t essential. Pages of figures and ability ratings may bore some (most?) people, but they’re there if you want them. The rest of us can just take the psyche and physique ratings as gospel and wander around quite happily.

The way to survive in Ishar 3 is to get a team together, the maximum number of people wandering around in a suspicious group being five. The benefit of a team is that you’ve got five people who can effectively move around as one, making good use of a wider range of skills. A wizard’s always a good idea, because they have a whole wedge of handy spells for healing your own team and hurting others.
Other important team management abilities that really make the game are the options to have one team member assassinate another, others to kill the assassin through loyalty, and to have the entire band of merry warriors wipe itself out (or alternatively, you could play the game).

**Back to town**

As we've already learnt, the Ishar 3 story begins with our characters standing in a town built entirely on the poverty gap. After wandering up to a few people and either being hit on, insulted or ignored, the aim of the first level remains totally unclear. A few people give you clues, one in particular starting with the words "I haven't got long" and finishing by vanishing in a cloud of glitter, which grabs your attention somewhat.

The rest of the first level is fairly straightforward, involving heavy drinking in taverns, listening in on conversations, and generally making a nuisance of yourself until the opportunity comes up to make money or explore somewhere new. Run-ins with the city guards or bandits (much the same thing, like in real life) are regular enough to get you used to fighting with the system, the entire first level working as a good introduction for both plot and game engine.

From this point onwards, things get more complex. And then some. Starting off in a city, you get used to different buildings, long walls, open courtyards and all manner of mappable objects. The auto-mapping helps by plotting the location of every pub you pass. When you hit the forests, jungles, caverns and mountains, things get a little difficult. This is where the graphics become really important for working out where the hell you are - every location looks slightly different, not only because objects in the distance are still visible to a degree.

Ishar's beautifully presented, but then so were its two predecessors. A walk in the woods means not only trees, fallen logs, clearings, swamps and hills, but cucukos going off every few seconds. The jungles come complete with insects, the mountains with ice - in fact no corner's been cut to make you feel not at home. You won't come across many other games that use most of their sound effects purely to create atmosphere.

This attention to detail can be found on all levels - with a game like Ishar, you really do worry about treading off the beaten path. Other adventure games will keep you travelling in the right direction with a design point equivalent to the programmer's face popping up in a window and telling you to turn back. This time, the maps, plots and tasks are all fairly simple in that you never really have to work out what you're supposed to be doing: delivering a package involves following directions while simply jumping through a weird portal thing involves, um, finding a weird portal thing. Ishar 3 doesn't rely on getting you lost, killed, robbed, bored or just plain angry to provide a challenge. Instead, the challenge comes from the exploration, courage, cunning and skill required to progress through the game, at no point telling you which way to go or stopping you wasting time.

That's Ishar all over - if you eavesdrop on a conversation in a pub, you'll not only hear about events relevant to your quest but about thieves in the north of the city, someone wanting to go to the theatre, and the fuss they made about the ferret. Whether it's important or not, Ishar's designers realise that these touches make Ishar what it is.

This detail is also betrayed by the game's size. Coming on five disks, Ishar 3 will definitely keep you occupied - if you get as far as disk D you know you're getting in quite deep, because A, B and C are taken up purely with the opening sequence and the first few levels. Initially, the gameplay may seem repetitive, but the huge variety of people, places, tasks and twists turns what could have been a repetitive game style into a comfortable interface with which you explore the world of Ishar 3. The point is that although the game may go from tropical jungles to quantum time threads, you never have to face any new playing styles.

Sounds good, doesn't it? Every game has a flaw though, and Ishar 3 can't escape the fundamental rules of life. Not everyone you meet will be talkative, and there's no provision for starting conversations in the street. But these people have laid down their tongues for the sake of others who get huge animated conversation sequences all to themselves. In fact, Ishar 3 seems to suffer a lack of space all the way through - the only time you're disappointed with the game is when the huge amounts of detail and data suddenly stop. This is necessary, but comes as rather a shock when it happens.

Ishar 3 is a game that many of you will love. It's deep (without being confusing or too difficult), full of character (without being overpowering), relaxed (but not boring), and beautiful (remember kids - sentence structure can kill). This is not a game for the light-hearted though, being based largely on exploration and discovery, and you don't have a gun (only the occasional spell and a bloody great axe). Sword and sorcery fans should rush out and buy Ishar 3 immediately, purely for its atmosphere, but the rest of us should give it a little more consideration before parting with our wads.

**SIMON FORRESTER**

---

**LIFE'S CRUEL**

The first problem you face when playing Ishar 3 is poverty. You can make a bit of meolab from the fast profit system of recycling people, 'redistributing' their wealth to one man (who stands, at the back with armour), then getting another team member to assassinate the now-poor stranger, leaving space for another new guy with a fat wallet.

The only major problem with this technique is that, though you can be the richest person in the city, this is usually due to the fact that everyone else is dead. At least they died poor, eh?
RORKE'S DRIFT

Blood, guts and violence, that's what we all like in a game. So Rorke's Drift has all makings of a classic, right? Wrong

Set way back in the 1880s, Rorke's Drift recreates the British army's Oscar-nominated rush with the Zulu empire. The location: a small farmstead called Rorke's Drift. Your character: a British officer faced with the arduous task of marshalling 137 redcoats (36 of whom are badly injured) to face 4,000 Zulu warriors. Your objective: to survive and, of course, to supply enough heroic ammunition to justify a Hollywood epic some 100 years later.

Now the astute among you may already have sussed that this is drums, the Zulu chants, the electric guitars? Then there's the battle mode (as opposed to the strategy mode), which is so ineffectively programmed that even when you have your weapon pixel pointed directly at the centre of your enemy's forehead there's still a good chance of you missing.

Sluggish
But Rorke's Drift's biggest sin, for a map-based war game, is that its controls are so sluggish. In a game that involves dealing with huge logistical challenges, and making decisions upon which lives depend, you need to be able to hop around the map quickly, giving and checking orders. Yet in the battle mode – in which both teams battle away – the mouse cursor actually slows down whenever you try to scroll to another section. This makes it impossible for you to work out what's going on, so you tend to end up choosing to stay exactly where you are, and stuff the consequences (and the rest of your troops, in fact). This never happened to Bonaparte, surely?

But this control quibble only goes to emphasise Rorke's Drift's main failing: it's prolonged to incredibly tedious lengths. The "quick" version probably breaches a number of trading standards conventions. On my first attempt to reach strategic excellence, playing on the "quick" setting, I blasted away for three hours until apathy set in and, with a point and a click, I condemned my men to an agonising death under a raging African sun (or something like that), and went to the pub to slaughter a few pints instead.

Rorke's Drift is a game of sheer frustration. There are some good elements within the game, some elegant tactical devices that hypothetical generals could enjoy playing with, some historical theories that it would be nice to be test, but the game interface seems loathe to let you at them. To be successful a war game should enable you to delve as deep as you want into the event. Beginners should be able to scratch the surface, while experienced warheads can get right down among the muck and bullets. Rorke's Drift just doesn't appear to have a superficial level. It offers the necessary depth, but the mechanically repetitive nature of its gameplay soon proves an almost insurmountable barrier to actually playing the game. Which is shame, because the scenario is intriguing and the graphics go a fair way towards dispelling the traditional curse of war gaming, which is that they tend to resemble spreadsheets.

If you're a student of imperial history or an absolutely avid war games fan then Rorke's Drift is worth the effort. For the casual campaigner or wanna-be warrior however it's too tedious to try.

ANDREW LUCAS

Art imitates life part 1

While Rorke's Drift tells the tale of the Zulu wars without the aid of a Hollywood film script, it's hard to play the game without comparing it to that Boxing Day classic, Zulu. This film, apart from being silly and more than a little politically dodgy, does exhibit some odd claims to fame - it's famous for one line, where Michael Caine says, "Stop chucking those bloody spears at me." At least that's what he should have said. Shame.

Art imitates life part 2

Another little known fact is that, like respected politicians Ed Koch, Trotsky and Tip O'Neill, one of South Africa's leaders appeared in Zulu. Playing the Zulu King Cetewayo was none other than the Chief Buthelezi, head of the Inkatha Freedom Party and real life Zulu King. His performance failed to win him either an Oscar or an election - more a case of "Stop chucking those bloody votes at me" per chance?

Rorke's Drift

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ANSWERS

There comes a time in a man’s life when he has to look the potato of injustice squarely in the eye. Now is that time, Clive Parker is that man.

Getting upgraded

I’ve been trying to get my TOS 4.01 ROM in my Falcon upgraded for several months, Atari don’t seem able to help me. Do you have any idea where I can get TOS 4.04 from?

Edgar Wallace, London

There are a couple of options open to you, depending on the type of TOS ROM in your Falcon. If your ROM is an EPROM (Erasable Programmable Read Only Memory) then you can get the latest version of TOS 4.04 by sending the chip to Compo Software (tel 0487 33528) – they can copy the new TOS on to your old EPROM. You can tell if you have an EPROM by peeling back the label on the chip, if there is a small window in the chip it is an EPROM. If there isn’t a window then it’s an ordinary ROM chip and can’t be erased. Call Compo for their current upgrade prices.

If you have a ROM version of TOS 4 then you’re going to need a replacement chip. Contact A F Weaver Engineering (tel 071 267 3300), who can get supplies of TOS 4.04 chips – although you may have to wait a few weeks for them to come into stock. Give them a call and ask them nicely for prices and details.

Going to 4MBytes

I have been told by an Atari dealer in Rome that it’s not convenient to fit my old STF with a 4MByte upgrade because it causes problems. He has informed me that STFs don’t work very well after being upgraded in this way. Is the upgrade possible and what kit should I use?

Angelo Gravela, Italy

We contacted Marpet Developments to check if your STF is upgradeable and they informed us that it’s no more difficult to perform than the STFM upgrade – in fact it’s exactly the same. You can use the Marpet XtraRAM Deluxe kit to upgrade your STF using standard 30-pin SIMMs. Give Marpet a call on (+44) 423 712600 and they’ll tell you how much the board will cost you, including shipping to Italy.

Lost books

Has the Abacus range of Atari ST books gone out of print? I want to improve my knowledge of ST machine code and I desperately want to get hold of Abacus ST Internals, Machine Language, the GEM Programmers Reference and 3D Graphics – all by Abacus. Can I still get hold of them?

Paul Verity, Essex

The Abacus range of ST books has – as you guessed – gone out of print. You may be able to get hold of second-hand copies by placing a free classified advert in Micromart – a weekly magazine. Or if any ST FORMAT readers have copies of the books that they no longer want then let us know, we’ll pass on the info to Paul.

Railroad Tycoon

I am having a problem with Railroad Tycoon on my STFM, which is upgraded to 4MBytes using the XtraRAM Deluxe board. The problem is that the game crashes every time I run it, yet everything else works okay and a memory checking program reports that I have 4MBytes. What’s going on here?

John Dixon, Herts

Railroad Tycoon has trouble running on any ST with more than 1MByte of memory – but don’t worry. We have included a small program on this month’s Cover Disk called MAKE.1MB.TOS, so all you need to do is run this program and reset your ST. When your ST boots up it thinks that there’s only 1MByte of RAM installed and the game now runs okay.

More drives required

I have a 1040STE with a second floppy drive. Is there any way I can add any more floppy drives to my setup?

R Layfield, Northallerton

No, you can’t add any more floppy drives to your system because of the hardware limitations.

Zip-ah-de-do-dah

I’d just like to add a little to your feature on extracting ZIP files on single floppy drive systems in ST FORMAT 60 (turn to page 90 to order a copy if you missed it). If you have 1MByte of RAM in your system there is a much faster way of extracting ZIP files. You need a RAMdisk program like M-Disk from ST FORMAT Cover Disk 44. Boot up with M-Disk and set the RAMdisk program to 500K in size, which should be big enough to cope with most compressed files.

Run STZIP from floppy disk, and select drive A as the source disk, drive B as the target disk, and your RAMdisk as the destination, then unzip the file in the usual way using STZIP. When you have finished, exit STZIP and copy the extracted files to a blank disk. If there is enough room you can copy the ZIP file to the RAMdisk and extract it on to the RAMdisk – this operation is lightning fast compared to working from floppies.

Using a RAMdisk is also a quick, easy way to unpack the self-extracting files found on the ST FORMAT Cover Disks. You can set your RAMdisk to around 700K, which gives you enough room to unpack almost any file, but it’s a good idea to check the uncompressed size of the archive in the Cover disk pages:

Ben Stevenson, Nottingham

стал: Thanks for those tips Ben. We didn’t mention RAMdisks in the original ZIP feature because of limited space. We were going to talk about it in this issue but you’ve beaten us to it – so we’ll have to think of something else to talk about now.

STZIP 2.6, top archiver, excellent program and all-round good guy. If you’re an ST FORMAT subscriber you can find STZIP 2.6 - the latest version of course - on this month’s free Wonderdisk.
GFA WORKSHOP

Mac Marsden comes out of his shell to give you the low-down on using GEM in your GFA programs

Shell conversion

I have just acquired GShell to complement GFA Basic. The question is: once I have finished my program how do I use GShell to transform my GFA so that I can run it on the GEM Desktop?

Dahle Shields, Tyne and Wear

**Stff:** Once your program is finished and error free you need to compile and link it to enable GShell to convert it to an executable PRG, ACC, TIP or TOS program. You can do this by going to the GShell main menu screen (see Main GShell Menu) and clicking on None next to the Source file – None option. This gives you access to a file selector from which you can select your file with the GFA extension you wish to convert.

You must make sure that GShell knows where the compiler and linker are situated. You can do this by selecting the Settings option at the bottom-left which places you in the Settings menu. Now select Edit GShell Settings and select GFA, BCOM.PRG, and a file selector box appears enabling you to find and select GFA, BCOM.PRG. Next select the OK button and repeat the process for the linker (GL.PRG).

Now you need to tell GShell the path/ways to your source code, object code, library and where you want your finished program to be placed. And to do this just use the same method as you used to set GFA, BCOM.PRG and GL.PRG.

### Using the GShell Settings menu you’ll soon have GShell set up to suit your style of programming.

- **Source:** Where your source GFA may be found.
- **Object:** Disk space required by the compiler/linker.
- **Library:** File to be used by the linker.
- **Program:** Where to write your finished program.

Now when you set the above, select the OK button. Now save these settings so that you don’t have to enter this data every time you use GFA Basic. Now click on the Save option, select DEFAULT.GSH and then select OK. You now return to GShel Menu.

Now you can get GShell to do the compiling and linking. There’s no need to do this separately (by selecting Compile then Link). All you have to do instead is select the Make option, and when you have all of the settings correct it should give you a finished program that can be run from the GEM Desktop. Don’t worry if your Main Menu doesn’t look exactly the same as ours – with a bit more experience you’ll configure it to suit your own style of programming.

### Five top tips for using GShell

1. **Tell GShell exactly where all of your required programs can be located.**
2. **Set Delete object to Yes, to save wasting disk space on old O files.**
3. **Remember to set Result to the extension you require before you compile and link your code.**
4. **If you are not using full 32-bit mathematics in your program then set the following to 16-bit operation (this gives you a smaller, faster final program): SELECT, parameters, integer multiply and RC, INTERSECT, or parm.**
5. **And don’t forget that you can access help on syntax by using the INFO option from the GShell main menu.**

### Round up

Is there any way I can do either of the following things using GFA Basic? Can I convert a decimal number into a whole number and perform a mathematical function on a decimal number? Then can I have the result rounded up to a specified number of decimal places?

**Barry Barnes, West Lothian**

**Stff:** You can do both using a variation of the same command: (int(PT*100),2). To convert a decimal number to an integer you use:

\[ y = \text{ROUND}(x, 0) \]

where \( y \) holds the nearest whole number, which is 0 in our example.

If you were to perform \( PT*100 \), and you wished to have it to five decimal places you use:

\[ y = \text{ROUND}(x, 5) \]

where \( \% \) has a negative value, say -2, the rounding would be done to the left of the decimal place and the result would then be 300, rounding up the two numbers left of the decimal place to the nearest whole number.

### Protected programs

Am I able to save a GFA program on disk which cannot be listed when reloaded and run?

**James Spalding, Halifax**

**Stff:** The command you are looking for is \( \text{PRAVE} \) (protected save) using the command:

\[ \text{PRAVE} "A"/\text{TEST.GFA} \]

where TEST.GFA would be saved to your disk drive A.

When reloaded into the GFA interpreter it would be run automatically with no listing available even if the program operation is halted.

**STF WARNING:** Once you have protected a program in this way there is NO way in which you can change it back to normal GFA Basic listable code, so make sure you keep a backup of every program you protect.

### Oh, ho ho it’s Maglix

I have a STE with TOS 1.62 and 4MB of RAM. Is the Maglix system an alternative to TOS 2.06? I understand that the original TOS is overwritten by Maglix. Would I be wise to upgrade to this instead of TOS 2.06?

They are both about the same price and Maglix seems to be easier to install than a TOS Switcher board.

**Jamie Simmons, Kent**

**A** Maglix (now renamed MagiC) and TOS 2.06 perform two completely different functions. TOS 2.06 gives you an enhanced version of the standard ST operating system, while MagiC gives you a completely new, multitasking operating system that replaces the built-in operating system. It doesn’t overwrite the TOS operating system, it runs instead of it. So the choice is up to you: if you want to multitask on your system then go for MagiC if you want all the advantages of TOS 2.06’s enhanced OS then get a TOS Switcher.

To find out more about TOS 2 take a look at the TOS 2.06 feature on page 80 and in last month’s ST FORMAT (turn to page 90 for back issues).

### Very basic indeed

How can I make a 1st Basic program runnable from the Desktop? I have tried using PRG and TOS extensions but I just get a TO5 error whenever I try to run them.

**Martin Lovick, Bishops Stortford**

**A** You can’t run any 1st Basic program listing from the Desktop just by renaming it with a program file extender. Instead you have to convert it to a machine code program using a compiler. Your best bet is to get a more up to date version of BASIC. Try HiSoft Basic 2.10 from HiSoft AVR – it’s similar to 1st Basic and has everything you need to create stand-alone programs. HiSoft Basic 2.10 costs £99.95 and is the best version you can get. Give HiSoft a call on 01223 718181 for more info.
Is it DOS?

Is TOS an operating system like DOS or is it built into GEM?

Simon Phoenix, Los Angeles

A

Er, TOS is an operating system but it's nothing like DOS at all. DOS is an old disk based command line operating system based on computing principles developed in the 60s for CP/M. TOS is stored in hardware rather than software and has GEM built into it rather than the other way around. TOS uses GEM as a tool to communicate with the outside world, using windows, icons, menus and the mouse pointer to initiate actions on screen.

STOS CORNER

Frank Charlton continues to STOS about in the pages of ST Answers

Fish'n'chipmusic

I am a STOS owner and I've registered the Shareware Missing Link Extension which was given away on ST FORMAT Cover Disk S1. My query is about the MUSAUTO command which accepts chipmusic from Mudd Music and converts it to STOS. How do I create music in these formats to play with MUSAUTO in my own STOS programs?

Andrew Helms, Matlock

A: Bad news, Andrew - you can't. The chipmusic formats you mention are commonly used in demos, and the programmers and musicians who created these music formats have never released editing software to create your own tunes. Some demo writers recycle the same music from one demo to the next, and you'll often hear the same tunes used repeatedly. Disk full of Mad Max and other music types are available from most PD libraries, so check with your PD source (there's a list of libraries on page 27). Alternatively, you could use a tracker program to reconstruct the music from a demo so you can use it. There are lots of these programs in the PD, and they all handle Mad Max format and often quite a few others, too.

Palette problems

I am busy writing a game in STOS, but whenever I place a sprite on the background screen it changes colour, because my background screen and sprite banks were created with two different colour palettes. Can I set up two separate palettes for sprites and screen, or do I have to go back and re-do some of them?

Jack Shepherd, Bootle

A: Unfortunately, you'll have to redo some of your hard work. The basic 16-colour limitation of the ST means you're restricted to one colour palette per screen without using special palette switching techniques. The Missing Link extension from ST FORMAT Cover Disk S1 (turn to page 90 if you missed it) provides commands for changing palettes in mid-screen, giving the illusion of more than 16 colours, but this technique is usually used to provide a separate set of colours for a score panel at the bottom of the screen. You can't actually use sprites designed with their own unique 16 colour palette on top of a background screen using a different palette.

Rave on!

I'm getting fed up with the limitations of STOS. I'd really like to see STOS allow you to create music in STOS.

Dave Leisen, Northwich

A: Rave on! I'm getting fed up too. But I can't take the gritty little chip effects any longer. The sample playback routine I have from StereoMaster only enables me to use small samples, and the playback quality is pathetic as well. How can I use a huge stereo STOS samples, so I could shake the walls with a few booming rave soundtracks?

Phil Palmer, Peterhead

A: Check out the special ST Extension we gave you way back on Cover Disk S2 - it enables you to play samples back using the STE's enhanced DMA output at 6, 12, 12 and 25 kHz in mono or glorious stereo, and you can adjust the bass and treble too. If you want your games to be compatible with the older STFM machines you won't be able to use DMA sound, so check out the Missing Link extension if you want more sample playback on standard STs. Remember both extensions are Shareware, so you'll need to register them if you continue to use them. Have fun shaking your walls!

Sequence dancing

Is there a STOS Extension that enables me to use or view the SEQ animation format used by CyberPoint?

Michelle Hubback, Chester

A: Nope, sorry. We've been asked this question a lot over the years, and the answer is still a negative one. There's not much info on the SEQ file format so no-one has bothered to write a STOS extension or routine to display CyberPoint animations. If you've written a routine to use SEQ animations within STOS, write to us and let us know!

Simply the best

Inspired by your DTP feature in ST FORMAT S9, I've decided to buy a colour inkjet printer and upgrade to 4MB of memory. I'm also getting some peripherals such as an external floppy drive. I'm thinking of getting the HP DeskJet 310 - is it the best colour printer in this price range? And which are the best picture converters and programs for colour output?

James Cribb, London

A: We're glad you liked the DTP feature enough for it to inspire you. However, we should point out that DTP programs and colour picture files take up lots of disk space, and you'll be hard pressed to get much serious work done just

Quartet at last?

I know you've been asked before, but surely someone must have done it by now - can I use Quartet music from within STOS?

John Upson, Keighley

A: Yes! The program you want is called STSPLAY, and Floppyshop PD (£22.44) can supply it. Give them a ring for ordering details - the disk you want is catalogued as MUS 3987. It's not perfect, because you can't access the disk while music is playing, but it works well and plays in stereo on an STE.

Back up your disks!

Finally this month, a word to those of you who have included disks with your letters requesting copies of everything from PD Extensions to replacement copies of your corrupted STOS disks - we can't do it! We spend so much time producing the magazine that we don't have time to copy disks, and we certainly can't provide new copies of STOS if you've managed to delete your originals. Never work with an original STOS disk; always use a backup copy to avoid unpleasant accidents. There's a wealth of extensions and bits of STOS code, all available from almost any PD library.
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Marpet upgrades for the ST are 'plug in' and require no soldering. They are compatible with most motherboard layouts and come with full fitting instructions. These boards accept SIMM boards and are upgradeable at a later date. Please check that MMU and Shifter are 'socketed' before ordering.
Unpopulated Marpet board £24.00
See SIMM prices below.

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Ricoh LP1200
£599.00
- 2Mb RAM
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- 12 months on site warranty

Add £3 for Centronics cable and £7 for next working day courier delivery.
using floppy drives. You need a hard drive as part of your setup. The basic setup described is just that - basic.

The HP Deskjet 310 is certainly an excellent buy – you can pick it up from We Serve (01705 647000) for under £250 including a three year guarantee. There are two programs we can recommend for picture conversion: GEM-View 3 from Floppityshop is Shareware and is great for converting pictures from other computer platforms, while Imagecopy Colour 3 (reviewed on page 40) from the FaST Club is the best at outputting colour images to printers. Another point worth mentioning: when you choose your DTP program, ensure that it has printer drivers to support the printer you buy.

Oh yes. Imagecopy Colour 3 rises once more in a new and improved form. It now carries out even more conversions and prints to leads of different printers. Turn to page 40 for our scintillating yet down-to-earth review.

MUSIC AND MIDI

Andy Curtis tackles the good, the bad and the ridiculous in this month’s thrilling MIDI based music column.

Score printout
I use a 2MByte STE and Steinberg Pro 24 version 3 for MIDI sequencing. I also use a Citizen 9-pin printer which I was informed worked well with the Atari and I have had no problems with printing from word processing packages. However, when I come to print out from Pro 24 bits of the score are missed out and the whole page looks a complete mess. The printout is of virtually no use as a musical score. Please help!

G Henwood, Hants

stf: It seems like the problem here is with the actual printer driver you are using. Make sure that your printer is set up to obey Epson FX commands and use the supplied Epson 9X printer driver from Pro 24. If you are still experiencing problems it is worthwhile to check the setup of the printer again. Word processing programmes sometimes access the built-in fonts of the printer and you will require it to use graphics mode printing. If you have difficulty printing pictures then this could be the problem. It is important that graphics printing is enabled on your printer.

Sequencing and samples
I currently run a Roland R8 drum machine using Pro 24 version 3 and a 1040STE. However, I am interested in playing samples at the same time. Is there a different program that will enable me to play samples at the same time as being a sequencer for my drum machine?

Sandy Smith, Wellingborough

stf: If you need 16-bit sample quality then there is only one choice at the moment. Breakthru 2 and Replay 16. Breakthru 2 is a well specified package which also replays 16-bit samples through the Replay 16 hardware, which plugs into the cartridge port on your ST. The samples can be sequenced along with your drum patterns and any other MIDI gear you may wish to address.

Sampling through Replay 16 is extremely easy using the supplied software. Breakthru 2 and Replay 16 can be bought as a package from Software Technology. Call 061 2352515 for more details.

MIDI is MIDI!
Can I connect two 5-pin DIN plugs to the MIDI ports on the left-hand side of my STE? Each 5-pin DIN plug has two other leads coming from the other end which are marked "Audio In" and "Audio Out". Bear in mind that I would have to plug one of the 5-pin DIN plugs in the MIDI "In" port, with the Audio "In" connected to a hi-fi system, and with the information that’s going out of the computer connected in the same way. Could you also tell me what software to use, preferably costing no more than £70?

Chris Barton, Sevenoaks

stf: We included your letter, Steven, to highlight how seriously it is possible to misunderstand what MIDI is. The core of your problem is that you haven’t grasped that MIDI is MIDI (Musical Instrument Digital Interface) and not audio. MIDI is a stream of serial data which can be used to control synthesizers that support the MIDI standard. If you connect a MIDI output to an amplifier you will hear little or nothing, we really don’t advise it. Use the left and right phone outputs instead to feed sound from your STE into your hi-fi setup.

Mini-Disc mayhem
I have an Atari STF 1040 and a Sony Mini-Disc recorder. Is there any way in which I can merge my Mini-Disc recordings into the ST as samples?

Mike Berry, Plymouth

stf: There is no way to directly patch Mini-Disc data onto your ST at the moment. The best way to transfer data is by using Replay 16 hardware and software to sample from the Mini-Disc and then replay the sounds using your computer.

Replay 16 is available from Hi Soft/AVL, give them a call on 0525 718181.

Memory expansion
I need more memory to run Cubase V3 satisfactorily on my STE. I am considering buying myself a hard drive – is this the most cost effective way of increasing the RAM in my ST?

Derek Gordon, London

stf: There seems to be a major misunderstanding here. It is important not to confuse hard drive storage space with RAM (Random Access Memory). Hard drive storage space is the amount of Megabytes you have available for data storage – think of a hard drive as a very large floppy disk drive with masses of space. RAM is the memory in your ST into which programs can be loaded. The maximum amount of RAM on an ST is generally 4 Megabytes, but the amount of hard drive storage is only limited by the size of the hard drive you purchase. From this you can see that there is no alternative to upgrading the RAM on your ST to 2MBytes or 4MBytes.

A hard drive is a wonderful luxury but it doesn’t expand your RAM, make nice hot cups of tea or do the washing up. Shame.
ASSEMBLY POINTERS

Explore the esoteric mysteries of finding fascinating file information in assembly language with Tony Wagstaff.

File Info
Could you explain how to find information on a file, such as its date and time, whether it's read only, and whether or not it exists.

Martin Bowen, Devon

**sst:** Discovering whether a file exists is simply a question of opening it, using fopen, and checking the return value contained in *fd*.

```plaintext
move.w #0, -(sp)
pea myfile
move.w #252d, -(sp)
trap #1
addl.1 #0, sp

myfile dwb '@TEST.S', 0
```

If *fd* contains a negative number, then an error occurs. If the error number is -133, this indicates the GEMDOS error "File not found", and you can assume your file does not exist. A positive number in *fd* indicates a successful opening, and the number can be used as the handle of the file. Don't forget to close your file using fclose once you've finished with it.

```plaintext
move.w handle, -(sp)
move.w #26e, -(sp)
trap #1
addl.1 #4, sp
```

The date and time can be found using another GEMDOS call, PutTime.

```plaintext
move.w flag, -(sp)
move.w handle, -(sp)
pea timptr
move.w #057, -(sp)
trap #1
lea 10(sp), sp
bss timptr
dw 2
```

After calling PutTime, with flag set to 0, timptr contains the time stamp of the file. This is stored in the following format:

- The first word, bits 0-4 contain the day, 5-8 the month, 9-15 the year minus 1980. In the second word, bits 0-4 contain the seconds divided by two, 5-10 the minutes, 11-15 the hour. In fact, if we swap the two words of timptr we get the same value as that returned by the Xnows GetTime call. So, once we have swapped the two words around:

```plaintext
move.1 timptr, d0
swap d
```

we can use the routine given in ST FORMAT issue 55 to turn to page 90 if you missed it.

Finally the various file attributes can be obtained using Fattrib:

```plaintext
move.w #0, -(sp)
pea myfile
move.w #043, -(sp)
trap #1
lea 10(sp), sp
```

```plaintext
myfile dwb '@TEST.S', 0
```

Flag should be set to 0 if reading the attributes, 1 if setting them. Fattrib contains the file's new attributes if setting them. After the call, check the following bits of *fd* for the attributes:

- 0 = Read only
- 1 = Hidden
- 2 = System file
- 3 = Volume label
- 4 = Subdirectory
- 5 = Archive

Note that the archive bit is not set correctly with GEMDOS versions below 0.15.

Should you require all this information in one go, then you can call Fattrib. First find the value of the current DTA, or Disk Transfer Address, where a file's information will be stored, using Fgetdta:

```plaintext
move.w #02f, -(sp)
trap #1
addl.1 #2, sp
```

Save the value in *d0* and call Fgetdta to install your own DTA:

```plaintext
pea my dta
move.w #21a, -(sp)
trap #1
addl.1 #6, sp
```

**XAcc-ting Standards**

Could you explain how Write On "talks" to Desk Accessories like the Wollis Key Show.

**C Prentice, Camberley**

**sst:** This is achieved using what is known as the XAcc protocol, a standard used to send information between Accessories and executable programs. Messages are sent using the AES appl.write call, and picked up at the other end with event_msg or event_mult. A program or accessory may support various types, or levels, of messages. Level 0 programs can't exchange data but do get to find out what programs and accessories are running. Level 1 programs can exchange ASCII data, and level 2 enables transmission of pictures in GEM Metafile or bit image IMG format.

Before any messages can be sent, a series of handshake must take place so that all the programs get to meet each other, learn what level messages they understand, in addition to each other's application id. Necessary for appl.write to know where to send messages.

The manner in which the handshake takes place and in which messages are relayed is a little too detailed to print here. However, Compa, who brought you the Write On and That's Write packages, have published details, and can be contacted on #0487 3582 during office hours.

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**Multi-line BBS**

**C Lyon, Hawaii**

**A** We contacted Bath BBS who use multiple lines with Mitchtron BBS to find out where they got their adaptor.

The adaptor is called the DC Port and was produced by Double-Click Software in the USA. Unfortunately Double-Click are no longer trading so the DC Port is not available unless anyone has a second-hand one for sale, so it looks as though you'll have to stick to a single line BBS for now.

---

![GOT A PROBLEM?](image)
Spreadsheets can be difficult to understand. **ST FORMAT** offers some helpful hints for using **K-Spread 2**

Way back in the mists of time when **ST FORMAT** was still relatively innocent in the ways of the world and Paula Richards was just a lowly production assistant, we cleverly sedated **K-Spread 2** to the front cover of **STF** 36. **K-Spread 2** is a spreadsheet—a specialised program enabling you to perform complex mathematical calculations on a large grid. Spreadsheets are the main software used by the business world to calculate projected sales and profit and loss, and for collating statistics.

But what use is **K-Spread 2** to you? Even if you don’t run a small business you can find uses for this type of software—for example, it can be invaluable if you run a club or a sports team. As treasurer of your local skittle team—the Railway Inn—Clive Parker uses **K-Spread 2** to calculate the average scores of the members of the team over a season, and also uses it to work out the value of the skittle funds collected on a weekly basis. He even uses it to keep track of his team’s points in the Dream Cricket league in the Daily Mail, and you wouldn’t believe how badly they’re doing.

**Getting a good view**

One of the problems with any spreadsheet is the limited amount of information that can be displayed on screen. One way of showing more info is to make the spreadsheet window as large as the screen by clicking on the Full Window button in the top-right corner of the window. This makes the window wider but doesn’t enable you to see any extra rows. Go
Copying columns and updating formulae

1. If you're creating almost identical columns don't go entering the formulae by hand into every column. All you have to do is copy columns by dragging and dropping. First, click on the bar at the top of a column so it becomes highlighted.

2. Drag the column over to the next column so that it too is highlighted, then release the mouse button. In the Row Range bar the second number is the highest row number visible on screen. Change to the highest row number in your sheet.

3. Click on OK and a dialog box appears asking if you would like formula amendment. Click on Yes and the original column is copied with all the formulae modified to match the new column letter. You can now edit individual cells with new info.

4. Remember, K-Spread is supposed to be a mathematical tool. It's there to help you, not to frighten you off with its complexity. Spreadsheets can be useful. No, really. stf

Okay, we're just about to lock column A into position for reference purposes. Stand back, you don't want this to go off on your face!

to the Global menu and select the View command. This reduces the size of the character set so that you can see twice as many rows on screen, and works best if you have a high resolution monitor.

Problems sometimes occur when you are entering data related to specific rows, but you are not sure what each row should contain, because the first column has scrolled off the left of the screen. This is where the Column Lock command comes in. Select the column where your data is identified - we've used column A - and click the letter at the top so that the column becomes highlighted. Now select the Column Lock command from the status menu. When you return to the main screen and scroll the sheet to the left, column A remains on screen, and can be used as a reference point. You can lock any column or row in this way to ease data entry.

Formula for success
One of the most difficult aspects of using a spreadsheet is getting to grips with formula (scream) entry and updating. Relax. Using formulae isn't that difficult; it's just a matter of basic maths.

All you have to do is remember a few simple rules. When entering numerical data into a cell it should be just that - numbers. To enter numbers, select the V (for Value) option, which is next to the Edit box, and is the default data setting for K-Spread. You only need to select Formula Entry (F) when you actually want K-Spread 2 to perform a calculation and generate a result.

Say you wanted to work out the value of a column of figures, including VAT, in cell A10. There are two ways you can go about this. You can enter the formula A1-A2+A3-A4+5A in A8 to give the total excluding VAT. In A9 you enter the formula A8*A1.175 to give you the VAT, then in A10 you enter the formula A8+A9 to give you the total including VAT.

Making a column wider
You can search through the menus all you like, you won't find a command that enables you to increase the width of a column. That's because there isn't one. But don't worry, all you have to do is use the mouse pointer to stretch the width of a column, by clicking on the dotted line on the right of the column letter then dragging it to the right until the column is wide enough. Now release the mouse button and select This button in the dialog box to confirm the change.
DIY VIDEO PORT

Your ST has a perfectly good set of output sockets - as far as it goes. Clive Parker shows you how to add an extra composite video socket to your ST

Your ST is a lot more versatile than you realise. It can be used for music, DTP, business, graphics, entertainment, video titling and animation. However, if you want to use it for video and animation you’re going to have problems getting your images on to tape without using an expensive hardware solution such as a genlock. This is because there’s only one way to get a decent video image out of your ST - through the monitor port.

For this reason, if you have a monitor plugged into your ST you can’t get a direct composite video link to a VCR. You can use the output from the TV RF socket but the quality of the image is poor. The advantage of having a separate composite video output is that you can record the output from your new socket, while still using your monitor. We’re going to show you how to add an independent composite video port to your ST for less than £3.

But how?
So how is this possible? You’ll need some hardware to do the job: a standard panel mounting phono socket and a couple of 30cm lengths of small gauge wire - both available from any electronics hobby store. And the only tools you’ll need are a pair of pliers, some sidecutters, a hand drill with suitable sized bit (about 6mm for our socket), a soldering iron and a small bench vice.

The video signal can be taken directly from the rear of the monitor port - when you look at the socket from inside your ST the composite video connection is the second from left. All you have to do is carefully solder a wire to the internal connection and another to a ground signal and then link them both to the phono socket. It’s so simple that even a relative novice should be able to perform this modification.

AND THE WINNER IS...
David Sinnock of Downham came up with this excellent idea for an extra video port because he needed it for a project, and for sending us his idea he wins himself a crisp cheque for £100.

Well done David. If you have made a simple, easy-to-perform and, above all, useful DIY modification to your STFM or STE, then send full instructions with photographs to “I Did It Myself” ST FORMAT, 30 Monmouth Street, Bath BA1 2BW. You could win yourself a hundred of your Earth pounds.

HOW TO TAKE YOUR STE OR STFM APART

1. Unplug all the leads from your ST. Now, turn it over and remove all the screws from the underside. Now carefully turn it the right way up. Remove the top half of the case by lifting it and easing to the right to disengage it from the floppy drive.

2. Unplug and remove the keyboard, then remove the PSU (power supply unit), shielding both it and the disk drive connections. Unplug the cables from the drive and remove it. Now remove the fixing screws from the PSU and gently lift it out.

3. Remove the screws holding the shield and untwist all of the retaining tabs with a pair of long-nosed pliers. Now carefully disengage the shielding from the base of the ST and locate the monitor port near the centre of the back panel.
new socket - where you site it is entirely up to you. Just make sure that you don’t complete all the soldering only to find you can’t get the shielding back into place. It pays to think ahead. Take a look at the walkthrough to the right.

**Er, not absolutely every ST**
You can upgrade any ST that has a TV aerial socket in this way. However, if you have an older 520STF or 1040STF or MegaST without a TV port then you cannot add the video port, because the composite video signal is generated by the same device that creates standard RF (radio frequency) signals for TV sets - the modulator. For this reason it’s probably a good idea to check whether you have a modulator installed before you attempt this project.

"Even a relative novice with the soldering iron should be able to perform this modification"

**STFM Audio Out port**
If your STFM could really do with built-in Audio Out ports, why not install them yourself using the instructions shown here? Then you can connect your STFM to a hi-fi and really make some noise!

To do this, just follow the walkthrough shown to the right, but with one minor difference: instead of soldering the wire to the second monitor port leg — Composite Video Out — solder it to the first leg — the Audio Out pin. Hey, it may only give you mono audio output but it certainly sounds great though our sound system.

**HOW TO PUT YOUR STE OR STFM TOGETHER**

1. **Remove the new socket and thread it through the disk drive hole in the shield, and re-fix. Replace the main shield on the motherboard, ensuring that you don’t snag the wires. Now replace the disk drive and fix it in place.**

2. **Connect the power and data cables to the disk drive - they only fit one way up so you shouldn’t have any problems. Replace the PSU, fix it down and reconnect it to the motherboard. Again, the connection only fits one way around.**

3. **Replace the PSU shielding and fix it in place, again avoiding snagging your new wires. Replace the top half of your ST’s case and carefully turn it over and replace all the fixing screws. Your modification is now complete. Make yourself a nice cup of tea.**
TOS 2: THE

Explore the subtle mysteries of TOS 2.06 with part two of Clive Parker's handy pocket guide to the Desktop

You can't get a better version of TOS for your ST. No, really, TOS 2.06 is the ultimate hardware upgrade for any STFM or STE, and makes your ST much easier to use.

This is because many of the routines used in older version of TOS have been completely rewritten to make them faster, and many new routines and functions have been added to further enhance the 'usability' of your ST. The designers of the new TOS have taken a long, hard look at some of the features found in alternative Desktop programs like NeoDesk 3 and included similar features in TOS 2.06.

Silicon implants
Once you've got your shiny new TOS silicon chips installed in your ST, you suddenly find that you have loads of new menu commands available that you've never seen before. Most of them are straightforward enhancements of your old TOS menus, but some are completely new.

New menu functions include a search function, delete option, the ability to select all files in a window, a file display mask, icon installation functions, automatic installation of hard drives, the ability to load in alternative NEWDESK.INF files and assign up to 20 programs to the function keys. All good stuff.

Searching for meaning
If you use a hard drive then the Search command is something that you'll soon come to rely on to find files and folders lost in the depths of your partitions. Remember that you can nest folders up to eight deep, which makes it dead easy to forget where you've stored a particular file. The Search command is useful because you may have hundreds or even thousands of files and folders on a single hard drive partition. You can also use the Search command with floppy disks if you wish, but it's not quite so useful.

To use the Search command just highlight a drive icon, or selection of drive icons, and go to the Search command in the menu. Type the search string in the alert box, press <Return>, and your ST searches for all matching files and folders.

You can use wildcards in your search. A wildcard can be either a * which you use to replace complete file names or file extenders or you can use a ? to replace the individual letters. For example, if you enter S*.PRG as your search string your ST looks for every file with a PRG file extender and a file name that begins with the letter S. If you enter ????.PRG as your search string then every program file name five letters in length beginning with S is searched for.

How do you set up a customised icon?

1. Go to the Options menu and select the Install Icon command. As soon as you select the command an alert box appears asking whether you want to install a Desktop icon (for disk drives, printers or trashcans) or a Windows icon for software.

2. Select the Window option. A dialog box appears with a text field at the top, where you input the name of the file or files to which you want to assign an icon. You can enter a complete file name or use wildcards to assign an icon to a range of files.

3. Use the two arrow buttons to choose an icon stored in memory. They load from the ICON.INF file when you boot up. Once you have decided on an appropriate icon, click on the Install button. The file now appears with the new icon.
TOS 2: THE RETURN FEATURE

RETURN

Taking control

Probably the best idea Atari have come up with is the XControl Panel (eXtendable Control Panel). When TOS was first designed, a rather silly limit of six Desk Accessories was imposed on the system. This meant that if you had a large selection of Desk Accessories you had to re-boot your ST to change the Desk Accessories in memory. A solution such as MultiDesk Deluxe enabled you to load and unload Desk Accessories as will, but it was an expensive and inelegant way around the problem.

So instead of increasing the number of Desk Accessory slots in TOS 2.06, some bright spark at Atari came up with the XControl Panel. The XControl Panel takes up a single Desk Accessory slot – enabling normal Desk Accessories to be loaded alongside it – but enables a new kind of Desk Accessory called a CPX (Control Panel xTension) to be loaded or unloaded at any time.

There are numerous CPXs available both from PD libraries and BBSs, and most commercial programs now come with a small CPX enabling some aspect of the program to be controlled from the Control Panel – UVK now has a small CPX and programs like the ICD Professional Hard Drive Utilities also use a CPX to toggle system functions.

The XControl Panel works in exactly the same way as any other Desk Accessory – it must be in the root directory of your boot disk. However, you can store CPXs in a folder and tell XControl where to find them, which prevents your root directory from getting clogged with loads of CPX modules.

Individual information

When you boot up your ST a file called DESKTOP.INF loads into memory automatically. This contains all your customised information such as your Desktop layout and details of installed applications. On STMs and STEs you can only load a DESKTOP.INF file by booting your ST, which can be a problem if you use different Desktop setups for different tasks.

If you use TOS 2.06 the file is called NEWDESK.INF and contains additional information such as icon assignments, function key details and auto-booting GEM programs. Thankfully, the option to load different sets of NEWDESK.INF files has been included in TOS 2.06 – another idea "borrowed" from NeoDesk.

If you are using your ST for low resolution graphics then set up your Desktop and select the Save Desktop command. After saving edit the NEWDESK.INF file name to GRAPHICS.INF using the Show Info command from the File menu. Now switch to medium resolution, set up your Desktop and use Save Desktop command again, then edit the NEWDESK.INF file to MEDIUM.INF. You can set up as many INF files as you like and load them at any time using the Load INF File command.

This can be a boon when switching between different resolutions. The low-res Desktop can only display four icons across the screen, while the medium-res Desktop can display eight icons across the screen, so if you were to switch to low resolution with a medium-res NEWDESK.INF file installed, many of the icons would lie on top of each other on screen.

INSTALLING DRIVE ICONS

If you have TOS 2.06 you don’t have to install each drive icon individually like you do in the older versions of the operating system. Select the Install Devices command from the Options menu, then your ST searches for all connected drives, creates an icon on the Desktop for each drive detected and assigns a drive letter. This saves the bother of using the old Install Drive command to laboriously create a drive icon.

Not quite as much room on the medium-resolution Desktop. You can only get 32 icons on screen, but it’s still a highly accessible setup.
Get started with the best music tracker for your ST. Andy Curtis shows you how

Okay, you've loaded the Digit demo song, seen how good it is and now you're keen to get going with your own first smash hit. Don't be put off by the dazzling array of switches, boxes and read-outs in front of you. We're going to cover the basic things you need to know in this easy tutorial. To try out the features as you read, we suggest you load the demo on this month's Cover Disk, called E24U2SAY.SNG.

**Pattern Display**
This is where the actual notes you enter are displayed in their four columns, one for each available channel. Notes can be entered in a variety of ways using your ST's keyboard or a MIDI keyboard - we recommend using the computer's own keyboard. To get a feel for where the notes are, select a sample from the sample list and click on TEST on the right of the screen.

Now press some of the letters on your keyboard, and you'll hear pitched sounds as if you were playing a piano keyboard.

Practice for a while till you get the hang of where the notes are. Pressing the <Spacebar> cancels the test feature and the next letter key you press is entered in step time on the Pattern Display. This is the most common way of entering notes in a pattern.

Any changes you make using other sections of the program are reflected graphically here. Remember to click at the top left of the Pattern Display where it says "Note name" and enter a name for the pattern you're working on.

**Pattern Editor**
First, select the channel you wish to work on by clicking in one of the boxes labelled one to four. You can enter notes in step time or in real time if you wish. Click on REC to enable real-time recording. The next note you play activates the pattern, and as it plays you'll record on the selected track with the current sample.

If you wish to add a staccato effect, as we have on the demo, select the channel to work on and the position to start from using the up and down cursor keys. Now simply click on the STAC button to change the desired notes to staccato notes.

The controls on the right-hand side are used to select whole sections of music for copying, deleting or processing in logical edit. Logical edit enables you to work on whole tracks or even the whole pattern. You can use it to reduce or increase the volume of a selection of notes or to transpose whole patterns. There are many possibilities to explore.

**The Sample Manager**
All Digit songs are made up of sampled voices. The sample manager enables you to import almost any sample, in SAM format, and make it work in Digit.
The LOAD SAM button will only load true SAM format samples. You'll soon build up quite a collection of them. To start yourself off, you can save the samples from any Digit songs you have. Simply load the SNG in and select the desired sample. Saving is done from the File drop-down menu. This is the only Save function enabled in the demo version.

The Arrange page
As you create patterns that you'll then build together to form a full piece you will need to enter them in the correct order in the Arrange page. Select the pattern to insert, then click on INSERT. The first pattern you enter is the loop point by default, but you can change that later when a few patterns are loaded, by moving the scroll bar down to the desired loop point and clicking on LOOP.

Now you are ready to hit PLAY and listen to your music. The <Spacebar> ceases playback. You can still go back in at any time and edit any or all of the patterns until you get the effect you want.

This is the sample management section of the screen. Digit uses SAM format samples, which can be easily created from AVI samples, using the supplied sample editor. Nothing if not versatile.

The tone controls are accessible from the Parameters drop-down menu. They're supplied set quite high, and on most systems we tried this was too much, with distortion starting to creep in. Try settling your bass very low and the treble at around 12 o'clock. Through the STB's DMA playback this sounds impressive.

Have a good listen to EZ4U2SAY.SNG and note how a lot of the patterns are actually copied and altered slightly to make the music more varied. It's easy to mix samples and get a full drum kit on one channel, leaving the rest of the channels free for other instru-

Select sample to get,

- BDRUM 1
- HIHAT
- SMARE 1
- HIHAT OPEN
- BASS
- CHORD 2
- CHORD 1
- E-GUITAR 3

- BDRUM 1
- HIHAT
- SMARE 1
- HIHAT OPEN
- BASS
- CHORD 2
- CHORD 1
- E-GUITAR 3

The Why not import samples directly from the main screen into the sample editor and mix them about madly until they sound completely ridiculous? Because it's very silly. That's why. We do it all the time.

When you've assembled a few patterns you can play with the Arrange page. Patterns can be placed in any order and the loop point set. Until you've entered some patterns in the Arrange page the PLAY button won't work.

RIDI - setup page

Feast free to assign MIDI program change numbers to each voice. It's completely pointless and sad, but feel free to do it anyway. We plugged away for hours and came up with the EZ4U2SAY song.

If you're impressed with the demo version of Digit, you can get held of the full version of the program from CBS ComputerBild (+ 081 679 7507) for £39 (saving £20). The price includes a 100-page manual.
Buy the game. Get stuck on the first level. Give in and write to us. You know you want to

CASH PRIZE WINNER!

Abominall
Issue 47's Cover Disk was, like all the others, excellent. Among the utilities and demos was a game that Nigel Sarsfield of Nottingham seems to have mastered in his cheating, dastardly way. First off, the complete set of level codes:

1 START
5 OOOER
10 FILMS
15 ATARI
20 QUEEN
25 GUMBY
30 FRIED
35 DWART
40 MURAL
45 NIGHT
50 FINISH

It's easy to see how clever old Nigel got all these codes, though. He discovered that if you type CHEON at the title screen, certain keys become activated throughout the game itself:

Q Skips one level forwards
W Skips ten levels forwards
A Skips one level backwards
S Skips ten levels backwards

The numerical keys alter your number of jumps (hitting 9 will give you nine jumps), and hitting the <Return> key lets you replay a level.

Defender 2
I'm beginning to get the feeling that Nigel Sarsfield isn't so much an ST owner as an ST club. He and his army of friends have discovered a few more cheats you might find useful. Like for Defender 2, where if you type GOATY you become completely invincible. A few level codes to try would be handy too, like:

LEMAC, MAMOG, ZIPPO, FUNKY, LAGER, DONKY, and DAFAO.

Strider 2
Excellent though it is, a lot of people have trouble guiding our striding friend through the hazardous world of, erm, Stride (writer casts aside reference in favour of creativity). Handily, typing SWIFT at any point will freeze your timer, giving you that extra little infinity in which to complete a level.

Lotus Esprit
For in-game help, the players' names should be

E-Motion
For extra help with this little ballbreaker, type MOONUNIT on the title screen and enter the game as usual. These keys should help you:

F1 Advance a level
F2 Advance ten levels
F3 Go back one level
F4 Go back ten levels

Eliminator
Anybody want infinite lives? If you've got about half an hour to spare, we could have just what you're looking for. We'll break this into steps for the faint-hearted:

* On the title screen press the HELP button then type in HANDEL.
* On starting the game, you'll appear on level 9. With your first life, move left into the water.
* With your second life, crash into the oncoming green alien.
* Your third life must be spent shooting the alien and crashing into the water on the right. The level restarts.
* Shoot the alien and move to the right of the track. As the ramp approaches move right towards the water and just before you sink you'll hit the ramp and go flying.
* You'll also suddenly discover you've got infinite lives.
* Look surprised.

Vaxine
Everybody loves US Gold's molecular action game, don't they? What most people don't know is that there are 100 levels to conquer. In
fact, most people hide behind the sofa when they find that out. If you'd like to see the game through to the end, start the thing up and type WILDBEEESTE. From now on, throughout the game, the following keys will do interesting things:

- **F1** Skips a level
- **F2** Repeats a level
- **F3** Skips ten levels
- **F10** Skips a level and picks up a bonus

**Carrier Command**

Being crap at naval and air battles is no disadvantage if you've got the right cheats. Nigel Sarsfield and his friends have discovered that if you pause the game during play and type GROW OLD ALONG WITH ME, the numerical keypad does things:

- 6 Shows the colour palette used (why?)
- 7 Advances the carrier when held down
- 8 Prints lots of strange numbers at the top of the screen
- + Protects the Manta and Walrus from missiles and collisions
- - Deactivates Manta and Walrus protection

**Arkanoid 2**

That Nigel Sarsfield bloke and his mates really have been busy. This time, it's Arkanoid 2. While the game's loading, hold <Caps Lock> down and type IMAGINE. On the game's intro, type PETEJOHNSON-WANTSCEAT as one long word. When playing now, pressing S skips a level.

**Dizzy Games**

Love 'em or hate 'em, we've reduced some of them to a stroll in the park with a few keypress cheats. Here we go:

- **Treasure Island** - After the game's started, type EGGSONLEGS to become totally invincible. If you type I CAN FLY, you'll gain an extra ability, but we'll leave you to work out what it could be.

**Magic Land**

- To gain infinite lives, type DIAMONDS AND PEARLS at any point during the game. When the game freezes, don't worry - it's just paused.

**Fantasy World**

- Type IMMORTAL on the high-score chart for infinite lives. You cheat, you.

**Onslaught**

The words 'never', 'heard', 'of' and 'it' spring to mind, don't they? Still, if you'd like to edit the map, call up the map screen and hold down F9 and F10 simultaneously.

**Final Fight**

Press F10 and type SHERIFF FAT-MAN, then press HELP to go straight to the end of the game.

---

**Hard Drivin'**

For the kind of car control only previously achieved by the computer-controlled vehicles in the game, accelerate to maximum speed and press N to slide into neutral. Your car won't slow down, and it won't skid either.

**Jimmy White's Whirlwind Snooker**

To get a 147 break, go to the main title screen and select the Trick Shot option. Next, press F7, F4, and F1, then go back to the Option menu. Select the 147 break option.

**Prince of Persia**

Press <Shift> and L to skip levels.

**Xenon**

On level 2, simply die just after killing the bad guy in the middle of the level. There aren't any more aliens until the end of the level.

**Golden Axe**

Press L when told to press a key for infinite lives.

---

**Rick Dangerous 2**

Type POOKY into the high-score table and then use the joystick to move from screen to screen.

**Outrun**

Type the word STARION during play to activate the following keys:

- S Skip levels
- B Extended play
- Q Program information
- T Extra time

---

**A positive powerhouse of tips**

It's not often we do this here at STF (in fact, it's probably a first), but every tip on these two pages has been donated by Nigel Sarsfield of Nottingham and his army of tip-finders. Nigel, The Gamebusters Big Cash Prize is on its way.
Just when Gamebusters couldn't get any better, we come up with a solution to the excellent (though old) War in Middle Earth. This solution comes to you courtesy of John Critchley of Cugribia, who would have won our Gamebusters Big Cash Prize had he not been beaten (thrashed) to the post by Nigel Sarfield elsewhere in this section. Anyway:

**Part 1 - To Rivendell**
- As soon as the game starts, go to the strategy screen and set the game speed to very fast.
- Send Frodo to Woodhall, and then on to Buckland (using double time).
- Recruit Merry and head east to Tom Bombadil’s house. Speak with him, then set the game speed to normal when you return to the campaign screen.
- Scroll the map towards the south-east until you locate Eomer and send him towards Rivendell. Scroll the map further east until you find Faramir, and send him to Rivendell as well.
- Return to Frodo and wait patiently until the Nazgûl Lord leaves the last bridge towards the Ford of Bruinen. At this point head for Bree to join Aragorn (to avoid Wights in the Barrow Downs head directly northwards from Tom’s house at Sam)!
- Now head for the last bridge, letting everyone but Frodo fight if you are attacked. Then head for the Ford of Bruinen. Join Eomer on the way. When you reach the ford you’ll be attacked by the Nazgûl — withdraw everyone but Eomer, as he’ll be able to nobble the lot of them for you.
- Now travel to Rivendell, where you will be told of the quest.

**Part 2 - Activate The Allies**
- Despite what you may think, you don’t have to waste time in search of the lost artifacts to unite the allied forces, as Gandalf can activate the Knights of Gondor. The elves and dwarves are not needed until later on anyway.
- Two months passed while you were at Rivendell, during which time Faramir and Eomer have arrived. Join up with the two and head south-west from Rivendell to the thinnest part of the mountain range. On arrival, tell Gandalf to travel to the point where the rivers cross, on the other side of the mountain. Within a few hours Gandalf should have found a way across the mountain range.
- Head for Lorien now, where you’ll need Galadriel. Head south-east for Derningale from here. The Ents and Hourns will now be activated, and will head for Isengard and Hornburg, meaning that no extra protection is necessary (the Ents and Hourns are fairly hard).

**Part 3 - The War In Middle Earth**
- Once you have united the lords and the cavalry send them under Faramir to Minas Tirith. Eomer and Théoden should remain with the Ring Bearer as protection. Send Gandalf, the Bearer and the small troop to Derningale and wait for the war to die down.
- Now all you have to do is sit down and wait for 19 February. You should have around 9,000 cavalry and 1,500 infantry at Minas Tirith — if not you may have forgotten a few forces. When Saruman’s army marches you will have control of the remainder of your troops, in particular the Knights of Gondor.
- Hornburg should be protected by 1,000 Hourns so it’s a fairly safe bet, and you can concentrate all your forces on Minas Tirith and the great battle which will ensue.
- Now you should scroll up the map towards the elves and dwarves around Thranduil’s palace. Send all the elves on the map towards Lorien and protect it from attacks from the east and south. Protect Thranduil’s palace with Brand, Dain and the Dwarves from the Iron Hills. All attacks will now come from the south.
- Now all you have to do is sit back and control the battles. If all goes well you won’t need to retreat from any of the major towns, and eventually the warring will cease.

**Part 4 - The Ring Bearer’s Quest**
- The attacks on your major strongholds of Lorien and Minas Tirith should have subsided by March 20/30, though there may still be enemies moving in on Thranduil’s palace.
- It’s now safe to send the companions of the Ring off on their quest to Mordor. The next part may seem confusing, but it is an attempt to create a smaller army to send to Mordor.

This army must be able to pass by small forces, but must also defeat larger ones — going through a list of names during a battle would be time-consuming.
- Send Gandalf and Thranduil to Minas Tirith. While they’re traveling, send the entire army to Minas Tirith to Losanarch.
- When Gandalf reaches Minas Tirith, split the party into two groups: Frodo and Aragorn to the east at Osgiliath, the other group remaining at Minas Tirith.
- Now give Thranduil new orders to join Aragorn at Osgiliath.
- You now have two armies: Gandalf and the Knights of Gondor, and Aragorn and the elves.
- Send Aragorn north on the road to the thin point in the mountains next to Durthang. There may be some confused enemy troops patrolling the sea.
- If you send Aragorn to Durthang, he should eventually find his way through the mountains. If there are any enemy troops there they should be easily defeated leaving you a clear run to Mount Doom. Forget about Barad-Dur and Sauron, as there is no need to defeat them. Besides, Sauron is quite scarily hard.
- When Frodo reaches Mount Doom, you’ll have completed the War in Middle Earth.
FRONTIER GAMETEK

Last month, Gamebusters punched Frontier to the ground. This month, we’re going to stomp on its face. It’s a damned good game, and getting the basic tips and cheats out of the way is a Good Thing. Besides, you’d like to see more of it, wouldn’t you? This month’s tips come from Tony Sheridan and the Most Dangerous Baron Peter.

- If you’re someone who goes in for combat or likes the odd dangerous assignment, don’t use a ship weighing over 480 tons. The larger ships have no acceleration, and can’t move fast enough to help the military.
- It’s better to have a ship with 12 shields than to use a few shields in combination with an autopilot system. The system weighs 40 tons, equivalent to ten shields.
- The passenger-cabin cheat is not possible on the ST version of the game, but there are some tricks with the time control icons. When you launch a missile at someone, the odds are they’ll turn and run for it. Normally, they’ll manage to avoid the missile until it runs out of fuel, so before this happens hit the third time-accelerator button. The missile will now hit the ship. If you’re close to a planet’s surface, the ship may hit the ground before the missile gets to it, in which case you’re not credited for the kill.
- If you see someone’s name on a bulletin board more than twice, you can trust them to buy your illegal cargo.
- If you’re tired of wrapping your ship around a space station door and you can see your autopilot taking you in at a bad angle, just hit the time-accelerator button and you’ll dock immediately.
- Dealing in robots and computers between Sol and Barnard’s Star is a Good Thing. If you want to increase your combat rating, try the same run between Sol and Lalande 21185 instead. Make sure you’re well armed, though.
- Always pay all your outstanding fines prior to docking, simply by broadcasting ahead. Otherwise you may be destroyed before you can hand over the cash personally.
- The best police bribe to go for is 250 credits. Any higher and you might well find that you’re wasting your cash.
- Don’t buy an escape capsule, just save your game more regularly. (Is this guy tight or what?)
- If you’re attempting an assassination, the location and time given to you is always precise. In a matter of seconds your target could be completely out of range, so set yourself up at the position beforehand, and save the game. When you do attack the ship, do so on autopilot, and the ship will defend itself rather than hyperspace out of range.
- If you dock and find that the bulletin board has little on it, increase your Stardreamer Time Control to maximum. At the beginning of the next 24-hour period the information may change.

CRASHING HORIZONTALLY

If you plough into the side of a planet, that’s your concern entirely. If the game crashes, however, that’s something else. The game will crash on two occasions:
1. You analysed your own arrival cloud with the hyperspace cloud analyser. Don’t do it again.
2. You tried to sell a mining unit that had been deployed but hadn’t taken any material in. Trying to sell a ship with such a mining unit will also result in a crash.

One final Frontier tip for goodies and big bucks is from Andy Cole. In fact, this has to be a world-beater for lots of goodies and big bucks. On finding yourself at Ross 154, you should look for Cemeiss, a planet to the bottom-left, and about two jumps away from your current position. This is a planet that will actually pay you to take away gemstones. You’ll earn around 3,000 credits per ton, and still have a ton of gemstones to do with what you will. Clever, huh?
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FEEDBACK YOUR LETTERS

Who's that ugly swine? Oh, him. That's Trenton Webb and he's here to answer your letters in Feedback. That'll learn 'im!

Cookie monster
Dear Feedback
While reading old copies of the FORMAT, I found references to DONGLES and COOKIE JARS, neither of which are mentioned in Glossary (STF 54), although SYS.INFO (STF 53) shows my upgraded STFM does not have a Cookie Jar. I would be grateful if you could explain the meaning of these things, and advise me as to exactly what they do.

Yours faithfully,
LD Salter, Bristol

stf: A dongle is simply a protection device. Generally, they plug into a port the program doesn't use. The program will then check the port to see if the correct hardware is there and will only execute properly if it is. It's a more common on expensive serious packages but has occasionally been used to protect games as well.

As for Cookie Jars, the Atari Compendium (ISBN 0-9636331-0-3, £39.95 available from HiSoft @ 025 718181) defines them as: "A structure in memory containing certain entries called 'cookies' which are placed in the 'jar' by the operating system or Terrain and Stay Resident (TSR) applications. Applications can test for the presence of a cookie to determine the presence of a hardware device or system feature." There is no permanent Cookie Jar, which is why SYS.INFO failed to find one.

Dino-city?
Dear STF
On the Jaguar Version of Dino Dudes, if you get to the witch doctor on level 26 (ish) he casts a spell and speaks gibberish. If you record the speech and play it backwards what he actually says is "buy another Jaguar cart" in a rather nice American drawl.

Mark Leejose, Newcastle

stf: As odd as this may sound it is in fact true. We tried when the sample was being bathed around the bulletin boards. Obviously the developers didn't watch that recent documentary on BBC2 about Judas Priest and their infamous 'backmasking' case in Nevada! They were innocent, the game isn't.

PD WRITERS STRIKE BACK

No fair!
Dear ST FORMAT
I am writing to complain about your PD reviewer. The ratings he gave some titles were disgusting. He not only gave them low scores but actually insulted them. One title produced by us (Silly Software) was given a ridiculously 3%. The game was Mobsters City and was reviewed in STF 89. The comments made by the reviewer were offensive. He stated that the graphics were stolen and that the game was terrible and stupidly nasty. He also made insulting comments about the game's humour - talking about jokes aimed at busty woman and gays.

First off I would like to point out that the graphics are all 100% original, drawn by Tonesoft and NOT stolen. We challenge you to produce the similar graphics the review mentioned. Secondly, if the game is so bad then why do PD libraries stock it as licenceware? And why has the game reviewed top marks from other magazines? Floppyshop stock it as a Floppy Gold title which means they think it's of semi-commercial quality. Thirdly, none of the jokes are intended to offend, it's just silly type humour. We're not insulting women and gays, only making light-hearted jokes about them.

Overall, 3% is for a game with bad gameplay and graphics, which keeps crashing, and not for a top quality game like Mobsters City. I'm sure the other people who got bad reviews are also disgusted at the reviewer and agree that action should be taken as we find this deeply offensive and insulting and I'm sure the other authors who got bad reviews feel the same.

Deano, Silly Software, Rochdale

...and this is a scene from the 1981 Book Club Edition 101 Dalmatians (ISBN 0-394-96555-8). Kind of similar huh?
STF: Firstly let me apologise for the use of the word 'stolen'. Its usage was ill-advised and inaccurate. The reviewer's intention was to highlight similarities between some classic cartoon characters (see the pictures on the left for an example) and those in the game. In this instant even 'copied' would have been a little strong, and 'inspired by' may have been a better phrase.

As for the objection to the humour, this is purely a matter of personal taste. The humour fell strongly into the Carry On camp - a form which people either adore or abhor.

Since taking the helm of STF, though, I do agree that our PD reviews have been too aggressive. A more philanthropic line - where effort, imagination and talent are remarked upon as well as the finished result - will be adhered to. The lower cost of PD means that it cannot be judged by the same standards as commercial software. The ST deserves a healthy PD sector and overly harsh reviewing will only discourage people from putting the necessary time and effort into creating programs for it.

Demo-lition men?

To The Editor
Firstly a point about demo reviews. You seem to hate demos and only give good reviews to the odd demo. Being a demo coder myself I know how difficult it is to write a mega demo. What you can't seem to appreciate is the fact that they take months, even years, to produce. So instead of saying how crap a demo is why not suggest some ideas to us, which would make a good demo?

Secondly the Mobsters City review. What the hell is that all about? I think it's brilliant. It's not puerile, it's just funny. The only reason you say it's puerile is because you are all boring sad people who have no life, so you spoil other people's by slagging off their games. You also said that the graphics were ripped off. The graphics are original and were drawn specially for the game. The artist has stopped reading your mag and I don't blame him.

NEV of OS

STF: For my apology over the use of the word 'stolen' and a general statement concerning our PD review policy please see the previous reply. I would like to take this chance to explain our reviews stance. Our reviews try to be as objective as possible, but will inevitably still be personal opinions. Reviewers should present the evidence and then distil this into a coherent, logically argued conclusion. This will still naturally be subjective, but the manner by which it is reached should be obvious. The result should be that even if you review a bad (namely low-scoring) review you should still know if you want to see the program in question, because its functions, attributes and problems will have been laid out in a coherent manner in the review.

As for your point about demos, I would like to take a stand and argue that we do not tolerate such reviews in this magazine. If you or any other demo writers wish to participate in this feature, please send me details of your team, the demos you've done and some examples of your work. I'll be your chance to put the record straight.
ANOTHER GAME

Dear Trenton
When I received my Cheaters Digest from PJH, I started scanning the extensive list of tips. I was taken aback when I saw the end-of-game code for Flashback. Out of curiosity, I phoned the man at PJH, where I was told that it had actually been written for the ST, but never released. I called US Gold (who released Another World) and the gentleman I spoke to was most helpful, but wasn't aware that an ST version had been written, so no, they weren't going to release it.

Would it be possible for STF to start a campaign to release Flashback on the ST? Even a limited edition would be a breakthrough. As long as I can get hold of a full copy, I'll be more than happy.

Douglas Sopp,
a proud STF owner

stf: I'm all for that – Flashback is a brilliant game. I saw it on the Super NES back when I ran Game Zone magazine and it was fabulous fun. It looked great, played well and I was hopeless at it. It's a long delay – the game was published ages ago on all the other formats – but it's worth a shot. If you want to see Flashback flash on to the ST (Oh dear – Jill, send a ranting letter, petition of names, or whatever to We Want Flashback, ST FORMAT, 30 Monmouth Street, Bath, Avon, BA1 2BW. We'll collate all the letters together and then hit both the publishers and programmers. It's a long shot, but it might just work. Power to the people!

Disk doubler

Dear ST FORMAT
I am writing to bounce an idea off you: why not put two disks regularly on the cover every month? One disk with your usual program and one with a classic game in full. Yours faithfully.

Gary Gowton, County Durham

stf: That's a great idea but unfortunately one that we currently couldn't employ. A couple of years ago the software trade body, ELSPA (European Leisure Software Publishers Association) banned magazines from putting full commercial games on cover disks. The worry was that if there were too many complete games on the mags then nobody would bother buying full price commercial releases. Sorry, but that's the rules. Apparently:

Sub-standard

Dear Sir
I feel that I must write about a very unfair situation you have created for loyal readers of your magazine. I don't subscribe to magazines because I got my fingers burned when one went broke and I lost out on 11 issues.

Now you are offering an extra disk of programs to subscribers. I have purchased your magazine since day one, and I have always got it from my local newsagent with no problems. So why should I lose out on this extra disk offer? I am retired and on a small pension, and as a result I just don't have the means to make a full year's subscription.

As a regular reader I feel that if you would put a coupon in the mag which could validate that I have purchased the mag, and you could include a position on it for the newsagent's name and address.

Subscribers also get other offers which I have missed out on – very unfair don't you think? I know you make better interest on having the money up front, but I don't think subscribers alone would keep you going for very long. I'm happy with the mag or I wouldn't have supported it from the start.

Yours sincerely,

L D Holland, Bedford

stf: I'm sorry that you have had an unfortunate experience with subscribing to another magazine. First, let me assure you that ST FORMAT is going to be around for many moons to come, and you can take out a subscription without fear. However, as regards the offer, I have to be a bit brutal here and say that the extra disk is part of the subs package and we are unable to supply it separately. The Wonderdisk (as it is called) was devised to encourage subscription and, as such, folk who subscribed on the strength of it would feel equally slighted if we were to start offering it as part of the regular STF bundle. As for your validation idea, though, it makes sense, and I'll look into it to see if a practical coupon solution can be worked out.

BBS bulletin

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All prices include UK VAT.
The complete list of bits to finish Clive’s DIY project with style are supplied just there. No there on the right - that’s it.

below are a few improvements that greatly improve the safety aspect.
The wires to the back of the key switch should be insulated with a rubber boot, preventing accidental contact. Twin-core double-insulated 3A mains cable should be used for the wiring.

The edge of the shielding, by which the cable passes, should be protected by a piece of PVC bead- ing (glue the beading in place), preventing the insulation cable from being damaged.

Maplin part numbers:
Rubber insulating boot
HLS5F 58p
Twin-core mains cable
XR47B 20p
PVC Beading
XR78K 28p

One other point - what has happened to the STF BBS? For the last two weeks there has been no answer from your BBS. Has this service been discontinued? Or is there some sinister reason? Looking forward to seeing a reply in the magazine.

Yours sincerely,
Mr A Hulse, Wigan

STF: You are quite right, the old ST FORMAT BBS no longer exists. We needed the Mega ST on which it ran for reviewing purposes. Our machines take a bit of a bashing and one died, meaning that we needed an ST fast. The BBS ST was the nearest to hand. You can still contact us via the AdLib BBS on 091 370 2659 (24 hour, 14,400 baud).

As for the safety aspect of the Get Switched On feature, cheers for the extra hints. These (or similar) features were included by Clive, but due to pressures of page space we had to pare the feature down to the bare minimum. The resulting feature was still safe but, as you point out, not as elegant as it could have been.

ST vs Jag

Dear ST FORMAT,

Having recently picked up your magazine I was astonished to see that the Jaguar section had been scrapped, and that it had been spread into the ST games section.

The Jaguar is a different class of computer and is vital to the life of STesh. I think that the Jaguar deserves a section to itself - giving something to flick to instead of having to find it every time I want to read it.

Yours sincerely,
Dr (and Mrs) L Jacobs, Peterborough

STF: ST FORMAT is by definition an ST magazine, which is why the Jaguar coverage has recently been restricted. We know (from your replies to the survey) that a large number of you are thinking of getting a Jag, but you all aim to keep your STs too. Obviously the Jag’s success or failure will determine the future of Atari and as such have a direct bearing on ST users. So when the Jaguar was unveiled we covered it in a big way - hence the special section. Now the machine’s on sale in the UK we’ll still review the pitch of the game, and keep you up to date with all the latest Jag gossip but not in any specific section. However when there’s a choice between ST and Jag coverage, the ST will win every time.

Elite Fodder

Dear ST FORMAT

I am starting up a Frontier User Group: The Panther Owners Group for general tips and saved game swapping between experienced users. The criteria for membership are simple: a Panther Mirage, Imperial Trader or Courier, Puma, Tiger or a Box. They must also have an Elite rating of Above Average. If any reader wishes to join they must send two or more tips, an SAE and a saved game. I should be able to send the disk back within the month, full of saved games and tips from other users. The address is Panther Owners Group, 56 Whitney Crescent, Wigan, Lancs, WN1 2PP.

M Gray, Wigan

STF: Outrageous! This proves just how popular Frontier is! Swapping saved game disks is a great idea - you get to enter someone else’s universe and be dead nosy about how well they’ve played.

A four page Feedback! Like wow, I need to go and lie down in a dark room with Clive’s Division Bell CD. So if you fancy making me suffer some more sad Sixties hang-on muzak, or perhaps have a point to make, or a question to ask, then send a letter to: Feedback, ST FORMAT, 30 Monmouth Street, Bath, Avon, BA1 2PW. As they say in the movies, “Let’s Go!”

ST FORMAT’S GUIDE TO BUYING BY MAIL ORDER

The need for buying by mail order increases as high street shops get scarcer. Heed our advice.

1. Before you send any money, ring the supplier to make sure the item you require is in stock. Ask questions about the company’s policy on delivery and returns of faulty equipment. Make sure there are no hidden costs such as postage and packaging. Find out when you can realistically expect to receive your goods.

2. Make sure you always, always, always read the small print on adverts.

3. Beware of companies that do not include their address on their adverts. Also, avoid any companies that do not answer or return your calls.

4. By far the best method of payment is by credit card. If you’re ordering goods which come to more than £100 in total value, remember that you are legally entitled to claim compensation from some credit companies if the retailer goes bust. Check your credit card company’s policy. You can also try to get extra insurance in advance.

5. If you’re not paying by credit card, pay by cheque. Never send cash, and avoid using postal orders.

6. Always keep a record, and keep it somewhere safe. If you are buying by credit card keep a note of the time of the order and ask for an order number. When ordering anything over the telephone, always double-check the price before you part with your money.

7. If you are sending a cheque keep a note of the cheque number, the date and the exact value. Make sure you know the name and some details of the mail order company.

8. When you receive your goods, check them carefully. If anything is missing or faulty, contact the supplier immediately.

9. Always order from the most recent issue of ST FORMAT.

10. If a problem does arise, contact the supplier in the first instance. Calmly and politely tell them your problem. Most problems turn out to be minor hitches or misunderstandings that can easily be resolved. If you think you have a genuine grievance, contact your local Trading Standards Officer. The number is in the phone book.
Last month’s winner
Something went wrong in the STF office. Whichever Celtic force caused the Wordquiz bug also caused half of our wordsearch to get brutally chopped off. We do however have a winner, in the form of Mystic Meg of Grimsby, who beat the rush by managing to send in a completed puzzle shortly before we went to press, and wrote in recently to thank us for her prize.

Wordquiz 4
Those of you who’re spending your free time sticking pins into effigies of the STF crew will be pleased to know that we’ve sorted out exactly what went wrong with Wordquiz 4, last month’s Cover Disk puzzle utility, which totally refused to work on some people’s machines. Unfortunately, we don’t have a solution to the problem yet. When you turn on your ST and land in standard Desktop mode, you’ll notice an Options menu. This menu, if your machine has the facility, has an option to turn on the Cover Disk chip. The status of the chip is signified by a tick appearing next to it.

ST FORMAT ISSUE 62

Cover Disk menu compo winner
There’s a subtle addition to your Cover Disk this month. We’ve finally got a menu program, after throwing the programming challenge out in issue 57. We got, ooh, several entries, and even a winner.

Congratulations, then, to People’s friend Tony Porritt of Hartlepool, who wrote the program we’ll be seeing an awful lot of from now on. Tony’s program should be a godsend to those of you who have problems decompacting your software, especially on a single-disk drive. For his efforts, Tony will be the owner of a crisp, well-penned cheque for £50 “real soon now”. And as far as we’re concerned, the main advantage is that if anything goes wrong we’ll print his address, so 4,000 of you can go round his house and duff him up.
**Software First**

**Established 1981**

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**Accessories**

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