

ST APPLICATIONS

Price: £1.95

The Magazine for Users of Atari ST, STE, Falcon and TT Computers

Issue No. 33, September 1993

THIS MONTH

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- * Imagecopy 2
- * TKR Fax-Modem
- * OS9 68000
- * VGA Monitors

Articles

- * DTP on the Atari ST
- * Beginners' Forum
- * PostScript from Publisher 2
- * Drawing Outline Fonts

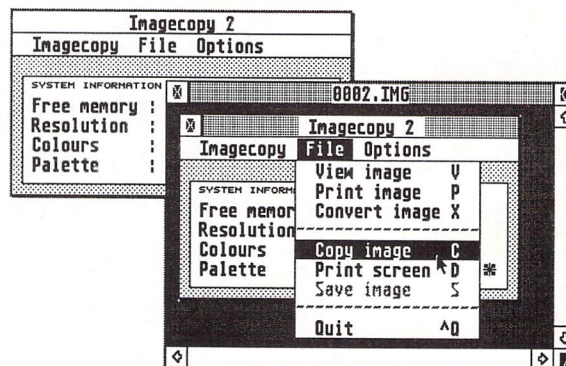
Regulars

- * News
- * CAD Column
- * Desktop Discussions
- * Programmers' Forum
- * Going On-Line
- * Forum
- * Graftix Arts
- * PD Update v13.6

OS9 68000

The Falcon has MultiTOS, which originated as the PD MinT and which mimics Unix, itself rooted in the public domain. But the more humble ST has had a Unix-like commercial multi-User, multi-Tasking operating system in the form of OS9 for some years now. Graham Curtis has the details.

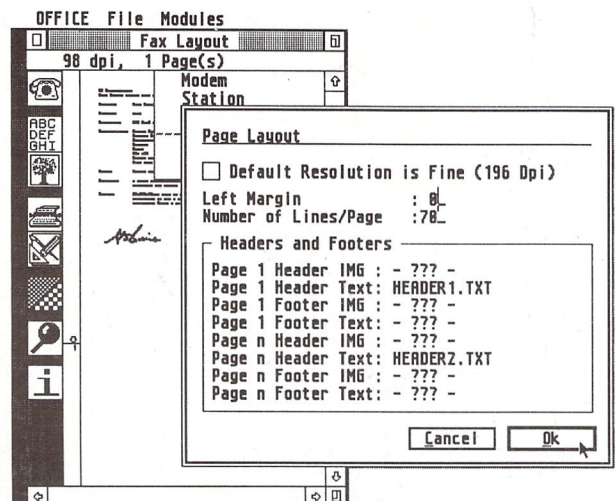
IMAGECOPY 2



The latest version of Jeremy Hughes's graphics utility, Imagecopy 2, now runs on the Falcon as well as the ST and handles a greater variety of file formats. It receives an in-depth review from Peter Crush in this issue.

TKR Fax Modem

The TKR Fax-Modem hardware and its accompanying Tele Office Fax software are put to the test by our regular Comms contributor Mark Baines.



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FALCON

This issue sees the start of a new regular section dedicated to Falcon software and hardware. Regular items will include:

- Falcon News
- Falcon Forum
- Falcon PD and Shareware

and this issue also has a review of VGA monitors by Piper.

PROGRAMMING GIVEAWAYS!

FREE WITH *ST USER* AND
ST REVIEW - TWO GREAT LANGUAGES!

ST USER PRESENTS... STOS/COMPILER

STOS has earned a reputation for being the ideal starting point for those new to programming – its commands are easy to get to grips with and results are be outstanding.

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And once you've designed your own program, use our second CoverDisk giveaway, STOS Compiler, to turn it into machine code for blindingly fast use.

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If you've been thinking of moving up to C, now is the time.

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AUG 19TH**

PLUS ALL THE LATEST NEWS, REVIEWS, FEATURES AND TUTORIALS TO HELP YOU GET THE BEST FROM YOUR ST

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CREDITS

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Contributions

The articles in *ST Applications* are written by users for users. Everyone reading this magazine will have something to contribute; even if you do not feel able to do a full-length review or article there is the Forum section for short hints, tips and questions. If you are interested in writing for *ST Applications* - regularly or irregularly - please write for a copy of our terms and conditions. We always do our best to reward quality work with appropriate remuneration.

Ocean's Big Mistake?

Jurassic Park, Ocean's computer game based on the recently released Steven Spielberg blockbuster, will not be available on the ST. Their latest advertisements for what they hope will be the Christmas chart topper quote the game as being available for the Super Nintendo, NES, Gameboy, PC, Amiga and CD formats. Surely proof enough that Ocean have given up on the ST?

In stark contrast to the growing scepticism within the games industry surrounding

the release of future ST products, Microprose and US Gold recently reported sales in excess of 20,000 units for *Civilisation* and *Street Fighter 2* recently. Several others report similar sales figures. It's obvious that the ST is not dead yet, either as a games machine or a serious application tool. The only thing which can kill off the ST prematurely is if software houses abandon what currently remains a lucrative market.

ATARI NEWS

Atari's latest promotion for their hand-held Lynx games console involves a tie-in with milk deliveries nationwide. Around two million leaflets (with two simple questions and a tie breaker) are to be delivered over the next few weeks, offering the chance to win one of 100 Batman Returns Lynx packs, subject to the purchase of a box of 80 Big T Premium Blend tea bags. The promotion runs until 30th September and will also appear on the tea bags packs.

Jaguar News

Time Warner, the world's largest media and entertainment corporation are to make their entire library of video clips available to both Atari and third party developers for the forthcoming Atari Jaguar. Since the Jaguar employs the use of 64-bit technology and is capable of 24-bit true colour graphics and CD quality stereo sound, the incorporation of these film clips into software titles will add an element of reality never before seen in video games.

The results will of course be most striking in CD ROM based titles where long footage of video and audio can easily be incorporated without compromising the gameplay (a CD ROM can store over 600 Megabytes of information). The possibilities for CD ROM software as a result of this deal needn't stop at games: the educational market is now

opened up to software which utilises video clips for historical, geographical, training or other purposes.

Sam Tramiel, President of Atari Corporation, said "Having access to this Time Warner library will be truly beneficial. With 64 bit technology, the Jaguar will allow for new heights in software experiences, and in association with Time Warner will add to the reality of the software."

If this all seems a little one-sided in Atari's favour, those of you with long memories will remember that Atari was once owned by Warner Brothers, a division of Time Warner Incorporated, who continue to have a minority shareholding in the company! With Time Warner firmly backing Atari's efforts, the Jaguar sounds like being a powerful beast.

Falcon News

The lack of Falcon news here is not due to the momentum slowing down, quite the opposite in fact! All Falcon news has been moved to a new section of the magazine entitled '*Falcon Applications*' (page 27). This month's top stories include a £1.2 million advertising campaign across Europe, a larger hard drive for the same price, and a solution for those of you who are losing data from your Falcon hard drive. In addition, there's a couple of new products out too.

Read Me 1st

Subscription Expired? If you received this copy of *ST Applications* through the post, check the first line of your address label carefully: if it reads **STA32**, then your subscription has expired with this issue; if the information line reads "Complimentary Copy" you have been sent a free evaluation copy of *ST Applications*. Either way you must take out a new subscription in order to receive further issues.

Information

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Advertising

There is a limited amount of space for commercial advertising in each issue of *ST Applications*. Contact Nicky Wilson on 0602-410241 for further details and to request a media-pack. Subscribers can place free classified advertisements - see page 57 for details.

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United Kingdom:

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Air Mail to	Europe	World
12 issues :	£21.00	£31.00
12 issues + 6 D/Mags :	£30.50	£38.50

Subscription and Order form will be found on page 57.

Overseas Distribution

Distribution overseas is dealt with via our agents:

Worldwide Magazines, Unit 19, Chelmsley Wood Ind. Est., Waterloo Avenue, Chelmsley Wood, Birmingham B37 8QD. Tel: 021 788 3112; Fax: 021 788 1272.

Canadian office: Tel: 519 539 0200; Fax: 519 539 9725.

Contact us for details of your nearest *ST Applications* stockist.

Disk Mags

These are bi-monthly compilations of the best PD software to come to our attention in the preceding couple of months - not magazines on disk. The next Disk Mag, DMG.37, will be dispatched a few days after issue 34 is sent out.

Renegade Link Up With Latest Technology

Renegade Software have teamed up with Triton Interactive Television for a novel new experiment. Triton have developed an interface which allows users to play computer games 'live' on TV using Touchtone telephone keypads as games controllers. It is unclear as yet how the games will be 'broadcast', if they will be called up using a teletext menuing system

or if the user simply dials a specific number for a specific game. Will your TV simply need to be tuned to the appropriate channel or will you need to be connected to a special decoder? To be honest, nothing is clear at the moment other than the fact that the technology exists and is about to be put into use.

Halco Loses Calamus!

In an unexpected turn of events, Halco have lost the UK distribution rights to DMC's highly successful *Calamus* range of Desktop Publishing software. The new distributors are JCA Europe Limited of Reading. This is a new company brought about by the merger of Riverdene PDL (and their retail outlet Computer Visions) with the JCA Group. In addition to running Riverdene/Computer Visions, Alastair Craig was also employed for a period by Halco to handle product support for the *Calamus* range. The JCA Group have been in the field of electronic colour pre-press graphics for several years.

The current pricing structure is as follows, *Calamus* 1.09N £99, *Calamus* S

£335, *Calamus* SL £575. The release of *Calamus* S v2 is imminent as we go to press. Existing users of *Calamus* who have purchased the authorised UK versions up to 1st July 1993 will continue to be supported by JCA Europe. They are asked to contact them so that they can be included on the customer database. Any DMC product purchased in the UK after 1st July 1993 from any company other than JCA Europe or one of its authorised distributor, will not be supported by either JCA Europe or DMC. Contact *JCA Europe Ltd*, 30a School Road, Tilehurst, Reading, RG3 5AN; Tel: (0734) 452416; Fax: (0734) 451239.

Serious Shows for Atari Users

The first of two computer shows dedicated to serious Atari users is to be held at the *Novotel*, Hammersmith, London. Titled the "*Le'ST Get Serious Show*", it takes place on 14th August, with the follow-up scheduled for late September.

It is being organised by Ray Cross of CGS Computerbild, David Encill of Titan Designs and Neil O'Nions of Compo Software. *ST Review* and *ST User* are co-sponsors of the event. Exhibitors will include Compo Software, CGS Computerbild, Titan Designs, Atari Workshop, 16/32 PDL, Warpzone PDL and others. The organisers are confident of having the largest ever selection of Atari non-games

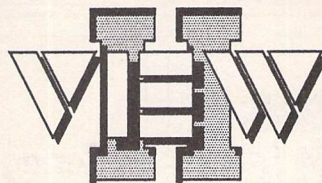
products under one roof.

In addition to the main show there will be four feature areas. The first two will be dedicated to Notator and Cubase, where Notator Logic and Cubase Audio (if it's ready in time), will be the main attractions. The other two areas will consist of *ST User* and *ST Review* advice clinics.

The second *Le'ST Get Serious Show* takes place at the *Novotel* on Sunday 26th September from 10am to 6pm with admission costing £3.00, or £1.50 after 2 pm. Manchester and Birmingham are under consideration as venues for similar events later this year.

Top 40 PD and Shareware Disks July 1993

- 1 DMG.36 *ST Club Disk Mag 7-93*
- 2 DMG.35 *ST Club Disk Mag 5-93*
- 3 UTI.209 *Idealist v3.3*
- 4 ATZ.02 *ST Club 'A to Z' Catalogue*
- 5 DRG.50 *Crack Art*
- 6 DRG.43 *PAD v2.0*
- 7 GRA.173 *AIM 12*
- 8 GRA.174 *AIM 22*
- 9 DMG.34 *ST Club Disk Mag 3-93*
- 10 FON.104 *Calamus Fonts*
- 11 WPR.101 *GhostScript*
- 12 FON.103 *Calamus Fonts*
- 13 UTI.275 *Ram Disks*
- 14 FON.105 *Calamus Fonts*
- 15 FON.106 *Calamus Fonts*
- 16 FON.37 *Calamus Fonts*
- 17 FON.38 *Calamus Fonts*
- 18 FON.108 *Calamus Fonts*
- 19 FON.107 *Calamus Fonts*
- 20 FON.102 *Calamus Fonts*
- 21 FON.66 *Calamus Fonts*
- 22 GRA.152 *GEM View*
- 23 WPR.93 *Timeworks DTP Support*
- 24 MID.77 *Midi Files*
- 25 FON.133 *Calamus Fonts*
- 26 FON.115 *Adobe Type 1 Fonts*
- 27 FON.116 *Adobe Type 1 Fonts*
- 28 GRA.175 *PAD v2.4*
- 29 DMG.32 *ST Club Disk Mag 11-92*
- 30 UTI.281 *Screen Utilities*
- 31 WPR.115 *Calamus Support*
- 32 UTI.211 *Family Tree*
- 33 PTR.16 *HP Printer Utilities*
- 34 GRA.168 *Invision Elite Demo*
- 35 SSM.100 *Grin Clip Art 1*
- 36 FON.114 *Adobe Type 1 Fonts*
- 37 UTI.289 *Gardener*
- 38 FON.117 *Adobe Type 1 Fonts*
- 39 SSM.101 *Grin Clip Art 2*
- 40 CMP.17 *ST Informer March 93*



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Soft Logik Latest

Soft Logik Publishing have recently set up a UK office. It handles sales of all Soft Logik products in the UK but the staff are unable to give technical support. This continues to be handled from The States. The opening of the UK office does, however, mean that products can be purchased in this country without the trouble of having to send off to The States and make payment in dollars.

The latest news from Soft Logik in The States is that they have just released a CD ROM with 1000 *Postscript Type 1* fonts for \$499. The same CD ROM can be used on an Atari, Amiga, PC or Mac and the fonts are supplied in the relevant configurations (PFB, AFM, PFM etc) so that they can be used with any application accepting Postscript fonts on any of these machines (PageStream and Didot on the ST). The fonts are by B&P Graphics of Dublin (ISO 9660) and come in a minimum of four weights per family, with most families supplied in all seven weights. All fonts are complete 255-character implementations.

If you haven't got a CD ROM drive, they can be supplied on a single 88Mb Syquest cartridge for \$624 or two 44Mb Syquest cartridges for \$674. For obvious reasons, the fonts cannot be supplied on floppies, nor can

you purchase them individually. A 170-page ring binder showing printouts of all the fonts is available for \$45 and a sample disk with twelve Olympia fonts costs \$10 (refundable if you purchase the full package). All of the above prices are plus 15% shipping if you order direct from The States. Alternatively you can order through the UK office who will be able to quote you the sterling prices on these.

PageStream has been upgraded to v2.2b. The upgrade costs \$10 to registered users but is free if ordering other goods at the same time. Calamus users can 'trade in' their copy of Calamus for \$175. The latest version of *PageStream* displays EPS graphics in 256 colours on a Falcon, although bitmaps are still restricted to mono. The latest news on *PageStream 3* is that no decision will be taken on an ST version before the release of the Amiga version.

For details of the above contact *Soft Logik Publishing Corp*, PO Box 510589, St Louis, MO 63151-0589, USA; Tel: 314 894 8608. Direct sales available from Soft Logik Publishing Ltd, Broadway House, 21 Broadway, Maidenhead, Berkshire, SL6 1JK; Tel: (0628) 784006.

Swallowed Up By Holobyte And Sued By Virgin!

MicroProse have recently 'merged' with US simulation specialists *Spectrum Holobyte*. Primarily known for their flight simulation software, *MicroProse* were known to be in financial difficulties after posting losses of over \$5 million for year ended 31st March 1993. The deal involves *Spectrum Holobyte* injecting some \$10 million into the troubled firm in return for a 60% shareholding. The intention is that both firms will continue to operate independently.

In a twist to the tale, *Virgin Games* have instigated legal proceedings against *MicroProse* UK for breach of copyright amongst other things. The whole thing was sparked off when *MicroProse* bought a development company called *Vektor Grafix* last year. *Vektor* had previously been working on two products for *Virgin* back in 1989. These were *Shuttle* and *XF50 Damocles*. *Virgin* allege that *Vektor Grafix* asked for more

funds to complete the projects and that they doubled the original budget in return for a half share of the rights to a 3D graphics programming engine being used for the development of both games.

Since *Shuttle* was late in arriving and *XF50 Damocles* was never completed, *Virgin* are suing (jointly *Microprose*, *Vektor Grafix* and *Vektor's* previous owner) for late delivery of one product, non-appearance of another and breach of copyright on a third. The third product is *MicroProse's B-17 Flying Fortress*, which *Virgin* claims was developed using the proprietary programming engine. They are also claiming royalty payments on *B-17* owing to their alleged half share in the said 3D graphics programming engine. *Virgin* originally offered an out of court settlement but this was rejected by *MicroProse*. The whole saga looks set to drag on for many months.

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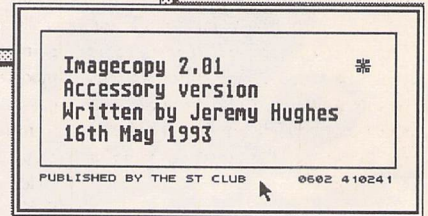
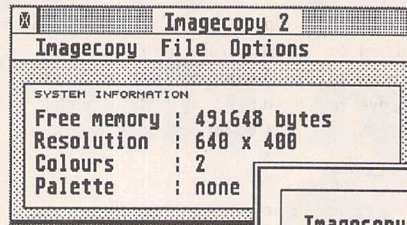
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If you want to take the snazziest of snapshots, forget Kodacolor. Now you can do it in true-colour with the latest Falcon-compatible version of Imagecopy, which runs on the ST too, as Peter Crush discovered.

IMAGECOPY 2



Most STA readers will be familiar with Imagecopy, one of The ST Club's most popular home-grown utility programs. It comes from font guru Jeremy Hughes, who has mastered the computerized representation of the written word is now moving into ST graphics with a vengeance. The original forerunner of this software was plain Imagecopy, reviewed in STA 24. It was soon followed by Imagecopy Colour, enhanced and improved, reviewed in STA 28 and a kind of half-way house to the latest all singing and dancing incarnation. For although Imagecopy started life as a humble but capable ST screen grabber, it has gradually metamorphosed into an all-round image utility which now runs on Atari's newer computers as well.

Its declared mission in life is to:

- 1) Grab images from screen in any video mode and save them to disk
- 2) Display most image formats on ST/TT/Falcon screens
- 3) Print images/screen dumps in mono or colour on most printers
- 4) Convert graphic images between many different file formats.

But as there are so many "free" Public Domain programs that take screen snapshots, why should anyone be interested in a commercial one? Imagecopy 2 is the reason because it not only grabs screens, but does much more too. Especially if you are interested in graphics and art, not to mention review writing, where being able to reliably "grab" the picture that's on screen and save it for re-use later is vital.

Imagecopy 2 is supplied as a desk accessory and also as a stand-alone program. You get two double-sided disks containing the programs and a good selection of images in various formats and some true-colour "photographs", actually scanned scenes in .TIF format. A well produced sixty-page A5 printed manual is also supplied with the package. To install the accessory version of Imagecopy 2, you simply copy it into the root directory of your boot disk or the boot partition of a hard drive. Both the accessory version and the stand-alone version of Imagecopy 2

can be installed to display image files which are double-clicked from the desktop, very handy to take a quick look at an image file without having to employ an Art program.

Imagecopy 2 can display many image formats, and because it works in all screen resolutions you can look at likenesses that your ST could not otherwise display, i.e. the new file formats as used on the Falcon. So in addition to all the old formats like Degas, .IMG, Tiny etc. that previous versions could handle, Imagecopy 2 has added the following new image formats to its armoury: Read/Write: TIFF (compressed or uncompressed), Targa (compressed or uncompressed), extended IMG (XIMG), and TT-resolution Degas (compressed or uncompressed); Read only: GIF, Spectrum (compressed or uncompressed), IFF/Deluxe Paint, Windows bitmap, OS/2 bitmap, PC Paintbrush (PCX), and MacPaint. You won't see 16 million colours though, as your

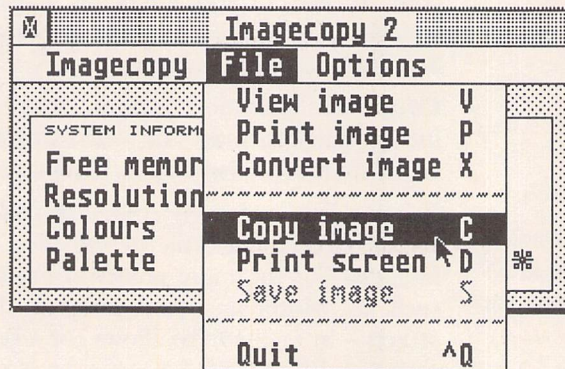
ST can only use 16, but it will give you a good approximation of the picture via Imagecopy 2's colour mapping and dithering routines.

New user interface

The new version of Imagecopy looks a bit different now cosmetically, with its menus laid out in a smart new style. It benefits from these changes, looking more modern and professional as a result. Imagecopy 2 uses a standard GEM interface, with the new enhancements such as pop-up dialog menus and a menu window in place of the more normal menu bar. The menu window works in a similar way to standard GEM menus, except that it can be moved around the screen, and remains visible until you remove it or cover it with a window. The menu can be removed from screen by clicking on its close button or by pressing Control-W (as also used to close windows in NeoDesk, and reportedly Atari's preferred short-cut

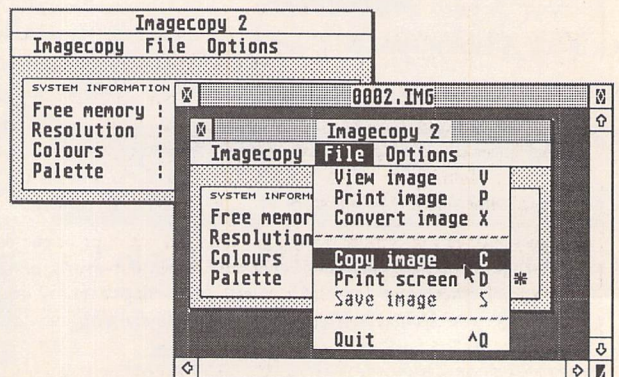
now) when it is the top window on screen. Menu options are inactive unless the menu window is the top window on screen. If Imagecopy 2's menu window is inactive, you can kick it into life by clicking on it, by pressing INSERT, or by selecting "Imagecopy" from the desk menu. If you are using the stand-alone version of Imagecopy, you can activate the menu window by selecting "menu" from the program's desk menu.

Imagecopy 2's Pop-up dialog menus are similar to those found in the Atari extensible control panel (xcontrol.lacc) and Fontkit Plus 4. They are activated by clicking on shadowed dialog buttons: either click and hold the left mouse button before releasing it over an item in the pop-up menu, or click and release the left mouse button and then click it a second time over a menu item. Imagecopy provides keyboard shortcuts for all its menu options, and for some other common operations. Menu shortcuts are listed in the menu, and differ from mouse-selected options in that they can be used when the screen menu is not the top window on



◁ The pull-down File menu in Imagecopy 2 lists all the utility's main functions. Clicking on the selected one or pressing the keyboard short-cut will instigate the process desired, like the grabbing or "copying" of this very image.

▷ Pressing C (or Alt-Help) enables you to draw a rubber-band style rectangular box around the part of the screen you want to grab, which can be moved and adjusted in size before being saved to disk. Here Imagecopy is "viewing" the previous grab in its standard GEM window.



screen, provided that the top window belongs to Imagecopy 2 and not to some other application. Examples of shortcuts you can use as alternatives to clicking on dialog buttons are: UNDO or Control-C for "Cancel", Control-O for "OK", Control-Y for "Yes", and Control-N for "No". These same shortcuts are also used in Fontkit Plus 4, where they can also be used as a short-cut for alert buttons, but this is not possible in the current version of Imagecopy.

Graphic details

Did you know that image formats designed to be portable across different computer systems sometimes use 24-bit palettes which can be reduced, or that GEM can use a palette of 1,000 shades for each primary colour? And how's your appreciation of CMY and CMYK colour, or your understanding of Colour correction? The more you look into image formats and printing techniques, especially colour and half-tones, the more complicated you realize it all is!

Luckily for simple-minded ST users such as me, Jeremy has made a study of all this technical stuff, incorporated it into the program and made it easy to utilize without too much expertise. But if you want to know more about the theory, a whole new section in the manual contains a general introduction to ST computer graphics as it relates to Imagecopy 2. It explains some basic terms and concepts, and although you can use Imagecopy without reading this chapter, if you don't fully understand terms such as "true-colour", "24-bit

colour" and "LZW compression", you will find it all most helpful.

Imagecopy 2 can be used as a fully featured print utility to print out your pics, be they ones you have grabbed or those from other sources. This can be really useful if you have an old Art program that lacks a print driver for a modern printer, and you will probably get faster and better quality results from Imagecopy 2 anyway. The accessory version of Imagecopy can be used inside paint programs (e.g. Hyperpaint) in place of their normal print routines if you have enough memory in your computer. It works very well with the colour DeskJet 550C, and using HP's special glossy paper produces superb prints of virtually photographic quality. All the "printer drivers" are built into Imagecopy 2, so you can switch between them very easily from the "Printer type" sub-menu in the "Options" pull-down menu. All common printers are supported, and you must have a very unusual one (such as an Atari laser!) if yours isn't listed. Improved features when printing include being able to scale the printed picture to whatever size you require in any resolution. The ability first added in Imagecopy Colour to produce multi-pass colour printing with inkjet machines is also included in the latest version, but with better control of the finished result via new dithering and halftone options among other improvements. All these enhancements add up to serious advancements in the results obtainable from your printer, and you will be pleased and impressed not only with the output, but also with the way the program operates.

Conclusion

When you get hold of a program like Imagecopy 2 you suddenly remember why you first got an ST. It's ever so useful, versatile and well-featured but, despite its power, fun to use. I have had the privilege of beta-testing Imagecopy in its various guises almost from its start in life, and have therefore seen it growing up. If all other programmers exhibited Jeremy's seemingly boundless enthusiasm, professionalism and dedication to make his software as good as it possibly can be, we would be graced with a much better standard of ST software than we are. Imagecopy 2 is a really great little program - you will use it for many purposes if you are at all serious about your ST or Falcon. The way it works on any ST/Falcon and with any monitor is brilliant, bringing the

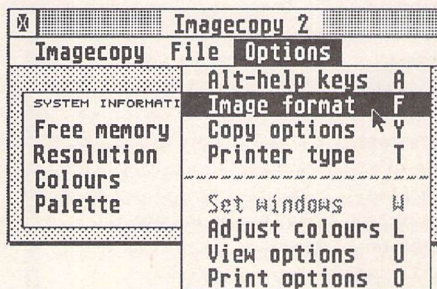
latest advances to all. Its printing abilities are first class, and it will also help you swap between image file formats with its conversion features. And given its author, this utility is destined to stay up-to-date with latest developments and go from strength to strength. If this publication gave them, Imagecopy 2 would certainly get one of those well-known golden brick-like objects awarded it!

Points For:

- ✓ Works on any Atari system
- ✓ Well behaved and very stable
- ✓ Compact and self contained DA

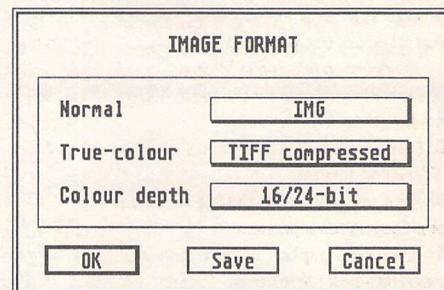
Points Against:

- ✗ Does not Write in all the formats it Reads in yet, but this is a minor moan, and I'm having to look hard for faults to put here!



◁ All the more complicated bits are to be found in the "Options" menu. Each of these main menu entries leads you into a series of sub-menus which allow you to set up the program to suit your needs. The Image format option being activated here leads onto the following...

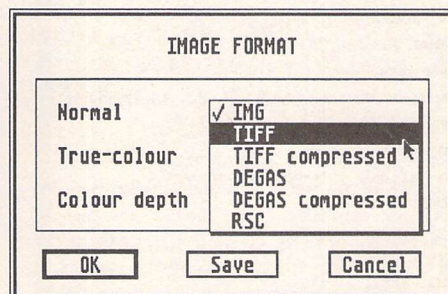
▷ This dialog shows the current settings: ordinary images to be saved as .IMG files, True-colour pics TIFF compressed and the colour depth is 16/24 bit. These concepts are explained in great depth in the manual, you can Save your favoured options, but change them instantly too.



What it Does in Detail

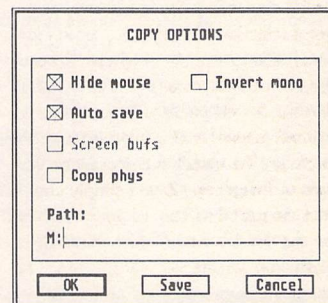
The latest version of Imagecopy performs the following daring feats in its attempt to live up to those uncharacteristically bold ST Club claims that it's "the essential" image utility:

- 1) Grabs images from screen in any ST/TT/Falcon video mode when you press Alt-Help, or by the selection of Imagecopy's "copy" option, and saves them to disk. You can copy images at times when the desk menu is inaccessible, like when a menu or dialog box is displayed or from inside a program which does not provide access to desk accessories.
- 2) Provides a flexible rubber-banding system which enables the exact area you require of an image to be selected with a fine degree of accuracy. Imagecopy 2 works on all the usual Atari monitors, plus TV screens and large screen monitors, and even the "virtual" large screens provided by programs such as MonSTER and Big STE.
- 3) Displays images in any ST/TT/Falcon video mode via Colour-mapping and dithering which is used to display images in video modes which contain fewer colours. Up to twenty images can be displayed at the same time under MultiTOS (6 under other versions of TOS). Images can be displayed either in GEM-windows or via a full-screen display mode.
- 4) Prints images and screen dumps in black and white or colour on a wide range of printers, including 9-pin and 24-pin dot-matrix printers, Bubblejet, DeskJet and LaserJet printers. Imagecopy 2 prints images containing up to 16.7 million different colours (24-bit true colour), and offers print scaling and a choice of halftones.



◁ You might not want to save in .IMG format, even though it's a very compact format and copes with colour and mono in Imagecopy 2. No problem: just click on this option and a pop-up menu pops up! From here you can select the other formats available for saving images in.

▷ The "Copy Options" are another set of choices for you to make. Do you want the mouse pointer visible in the grab? Sometimes you do, sometimes not. Do you want the image automatically saved? Yes please. And where to? The virtual drive M (for Maxidisk) would do very nicely.



What's New in Version Two

Jeremy Hughes has been busy adding loads of colourful new features into Imagecopy 2 to enhance the program's capabilities. Here's what you get over and above the features to be found in earlier versions:

- * Full Falcon and TT support: images can be copied and displayed in any ST/TT/Falcon video mode from monochrome right through to true-colour.
- * Colour-mapping and colour-dithering is used to display images in video modes which contain fewer colours than the image you want to view.
- * Either random or ordered dithering can be used to display any of the many different file format colour pictures on even monochrome screens.
- * 256-colour and true-colour printing: Imagecopy 2 will print images containing up to sixteen million colours (i.e. 24-bit true-colour).
- * Print scaling: Imagecopy 2 can now adjust images up and down in size up to full page size, and you can change or retain the aspect ratio.
- * Variable-sized half-tone matrices (those little coloured patterns of dots beloved of printers) for realistic depth in your prints.
- * A smart new-style user interface comes with Imagecopy 2; its window has a pull-down menu bar and your ST system's information is shown.
- * New colour controls: including colour saturation, RGB/CMY/CMYK adjustment, and RGB order options to fine tune your visual results.
- * A new "print to IMG file" option allows full-colour separations to be sent to disk and subsequently loaded into monochrome DTP programs.
- * A "match palette" option rearranges the image palette so that it matches the current screen palette, giving better screen displays.
- * Up to twenty images (under MultiTOS) or 6 images (under other versions of TOS) can now be displayed on your ST's screen at the same time.
- * A "set windows" option allows a set of images to be neatly displayed automatically in various arrangements on your visual display unit.
- * Images can now be copied directly (grabbed) from screen without needing the additional memory-consuming buffers previously required.
- * You can re-install Alt-Help routines, the "image information" dialog contains more info, and there's more efficient IMG/DEGAS compression.
- * You can display and edit the size of images being copied, and there are brand new Eject Page, Invert Image and Close all Windows options.

Adding a Bit of Colour

Colour bit maps are created by using more than one bit for each pixel. Two bits per pixel can represent four colours, such as black, white, red, and green (as used on an ST medium-resolution screen) and four bits per pixel can represent sixteen colours (as on an ST low-resolution screen). To get more than sixteen colours, you can increase the number of bits per pixel still further: eight bits per pixel gives 256 colours, sixteen bits per pixel gives 65,536 colours, and 24 bits per pixel (24-bit colour) gives 16,777,216 different colours!

Unfortunately 16-bit colour pictures take up sixteen times as much memory as a monochrome picture of the same size and the hardware needed to display it becomes more expensive. When the ST was first designed, this problem was resolved by reducing the total screen size to match the increased number of bits per pixel: different video modes use the same amount of screen memory, but ST medium-resolution screens have half as many pixels as high-resolution screens, and ST low-resolution screens have half as many pixels as medium-res screens.

The human eye can distinguish around 300,000 different hues, but it is more sensitive to certain colours than others. True-colour video systems attempt to reproduce this range of colours by allowing each pixel to represent a different colour shade. Assigning 24 bits to a pixel, each pixel can represent any of some 16 million (16,777,216 to be exact!) different colours, which is more than can be distinguished by the human eye. Less expensive true-colour systems such as the Falcon 030 use 15 or 16 bits to represent 32,768 or 65,536 different colours, which is more than enough to be going on with!

Definite Dither

Dithering is a way of representing more colours or greyscales than are actually available on a particular device screen or printer, by juxtaposing existing colours to create an illusion of intermediate colours. Screen images can be dithered using fixed patterns (ordered dithering) or with random systems that try to avoid fixed patterns (random dithering). Random dithering usually gives better results with realistic images, but isn't so good with cartoons and charts etc., and is slower than ordered dithering. These methods can be used for printing images, but commercial printing systems normally use a third approach known as halftoning. This is similar to ordered dithering in that it uses fixed patterns, but dots are clustered to produce larger dots of varying sizes (halftones).

Halftoning originated as a photographic technique in which net-like screens are placed in front of a camera lens breaking up an image into dots of varying sizes: light shades of grey into small black dots, and darker shades into larger dots which can merge together to leave small white dots between them. Low-resolution halftones are created with coarse screens, and high-resolution halftones with fine screens. Halftone resolution (or "frequency") is measured in lines per inch (lpi) - a line is a row of halftones. In commercial printing this can vary from 65lpi to 300lpi. The angle of the screen can also be varied: greyscale prints are normally created with 45-degree screens which produce a diagonal pattern of dots. Digital halftoning copies this process by combining printer dots (or pixels) which are fixed in size into different-sized halftones. With a 300dpi printer, 4x4 halftones (halftones with a maximum size of 4x4 dots) produce 75-lpi output.

Image Compression

Bitmapped images tend to use large amounts of memory: a standard ST screen requires 32,000 bytes and Falcon true-colour screens can take up half a megabyte or more. 24-bit true-colour images may easily need several megabytes of memory. Images are commonly stored in a compressed format to reduce their size. There are a number of different compression schemes, the simplest of which is RLE compression. This uses run-length encoding to store sequences of identical bytes in a more compact format, usually by inserting code bytes which mean "repeat the next byte x times". This gives reasonably good compression ratios with monochrome and palette-colour images, but is less good at compressing true-colour images which sometimes end up larger than they would be if they were uncompressed.

A more complicated scheme is LZW compression, named after its originators, Lempel, Ziv and Welch. This looks for patterns, which may be variable in length, and normally gives better compression ratios than RLE compression, especially with true-colour images. One disadvantage of LZW is that it takes longer to decode and encode than RLE compression. RLE and LZW are "lossless": the compressed image is identical to the original image when it is reconstructed. It is also possible to compress images so that information is lost and the reconstructed image is not identical with the original image. This is known as "lossy" compression and some types of image (such as photographs) contain information which can be discarded without this being apparent to the human eye. JPEG compression (developed by the Joint Photographic Experts Group) makes use of this fact to achieve very high compression ratios.

Imagecopy currently reads images which use RLE and LZW compression, and can write images using RLE compression. Support for JPEG compression will probably be added in a future version.

Product:.....Imagecopy 2
Version:.....2.01
Price:.....£19.95
Upgrade from Imagecopy
Colour.....£5.00,
from Imagecopy £10
Supplier:.....The ST Club
Telephone:.....0602 410241
Manifest:.....60-page A5
Manual and two
DS disks
System:.....All STs, STEs,
TTs and Falcons

PRINT OPTIONS EJECT PAGE

Page size : 88.25 x 11.70 ins
 Print offset : 88.13 , 88.15 ins
 Image pos. : 88.50 , 88.50 ins
 Image size : 88.88 x 88.88 ins
 Image scale : 100 % x 100 %

Whole scale Portrait
 Form feed Centre
 Copies : 1 Top

OK Save Cancel

< This "Print Options" dialog gives you loads more choices to make. You can certainly be very specific as to how your printed sheet will look. Clicking on each line leads you into further sub-dialogs if you want to alter anything. Measurements are in good old Imperial at present.

PRINT COLOURS

RGB order RGB

Brightness 200%
 Contrast +30%
 Saturation +30%

Cyan CHK 0%
 Magenta 0%
 Yellow 0%
 Black 0%

Balance Blue 0% Grey 0%

OK Save Cancel

△ By altering these settings you can adjust the exact colour balance of your colour prints to cope with varying grades of colour ribbons, ink cartridges and paper quality, etc., all of which can affect the printed output.

VIEW OPTIONS

Mono dithering Ordered dither
 Dither size Auto-sized
 Colour dithering Random dither
 Colour mapping Fixed palette
 Match screen Yes

OK Save Cancel

▷ More options: you can spend a pleasant evening experimenting with all these, although the defaults are perfectly OK for most occasions. As with the other options boxes, each entry leads to another little pop-up menu.

Mouse Master

MOUSE MASTER

Programmed by Peter Topping (c)1992 U.1

1 2 3 4 5 6 7 8 9 10

F. KEYS SHIFT+F.KEYS KEYPAD

Start Rec. Stop Rec. Extend Seq.
 Delete Seq. Del. last Delete All
 Options File Op.s Info.
 View/Edit EXIT Disable
 Speed Mouse Copy Seq.

MOUSE MASTER OPTIONS

Keys used to record events (1-8)
 F. KEYS SHIFT+F.KEYS KEYPAD

Pause (1/50s) for sequence 1 : 15

Acknowledgement alerts YES NO
 Warning alerts YES NO

OK

Mouse Master allows mouse operations and commands to be recorded in the computer's memory and replayed at the touch of a key just as if you were moving the mouse. This overcomes the need to break your train of thought by stopping what you're doing and laboriously making the mouse commands which you use often. Ten different sequences of mouse instructions can be held in memory

at the same time - each containing up to 100 commands, or 'events' such as clicking, double clicking and dragging.

Mouse Master can be used with any program which uses the mouse, though most of the package's facilities are available from a Desk Accessory, so it is best used with GEM based programs or the desktop.

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TKR Fax Modem

AND

Tele Office Fax Software

~ REVIEW BY MARK BAINES ~

The popularity and usefulness of fax machines has increased tremendously over the last 5 years, particularly since the Post Office strike in 1989. Recently, very cheap, high speed modems of 9600 bps and 14,400 bps have become available which have, in addition to normal data transfers, a fax capability. Indeed, it is very difficult to get a high speed modem in this price range (less than £300) without a fax facility and if you could, the price difference isn't much.

But, do you need a fax? I wondered that myself before acquiring a TKR IM-144VF+ modem and Tele Office software from Systems Solutions. Previously I hadn't used a fax machine very much although I could see many occasions when I might. Now, after some experience of sending faxes and the response they usually bring I can see their value. More often than not, they are cheaper than phone calls where you are left on hold at the switchboard, your contact disappears to investigate something or is constantly interrupted by others in the office. I know of many prominent companies that will also not respond to mail. Faxes get attention, you can direct them to the person you want to contact, lay out your message and requirements clearly and give them the time to prepare themselves before contacting you back.

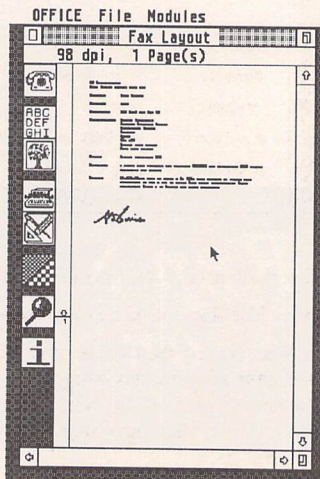
To use a fax modem with a computer requires fax software to produce the fax and to send and receive them. This brings certain benefits over the fax machine. Increasingly, fax messages are written using a word processor and instead of this file being printed off to be fed into a fax machine, it can be used directly by the fax software to form the image to send. This software can use

several of these files, including image files for company logos, diagrams and graphs to accompany the text. There are few restrictions: anything from a simple text editor to full blown DTP package will do!

Incoming faxes can be viewed and read first before deciding whether to print them off. Some faxes don't need printing, but if they do they are printed at a higher quality onto paper which lasts longer than fax paper. Multiple copies are possible, of course. Bob Osola in Issue 19 spoke about the pros and cons of fax modems in more detail.

TKR modem

The TKR modem is a data and fax modem with line speeds from 300 bps (V21) to 14,400 bps (V32bis) and a maximum fax speed of 9600 bps. The MNP 2-5, V42 and V42bis error correction and data compression protocols are included which together can provide a theoretical data transfer rate of 57,600 bps, but which is limited to 19,200 bps on an unmodified ST, STE and TT using the standard serial ports. The fax capability is to Class 2 only (no Class 1) which shouldn't be a problem. It does



not have BAPT approval.

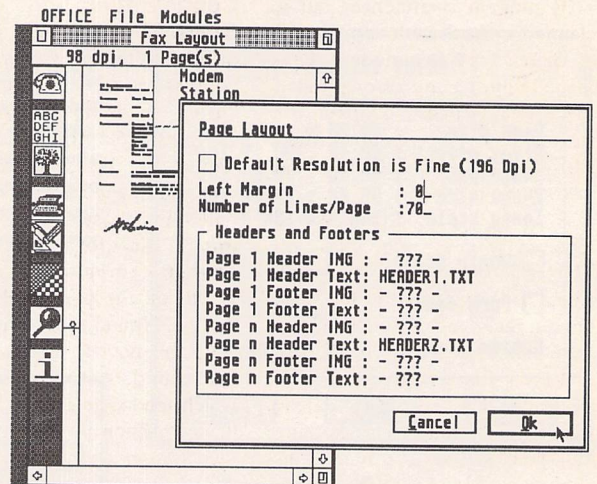
The modem appears to be a Far-Eastern made unit badged by TKR (of Germany). It is black, sturdy and good looking with the serial connector at the back next to a Line jack for connection to the phone wall socket, a Phone jack for plugging in a phone (US style plug only), the power supply socket and the power switch. Power is provided by a separate power supply unit utilizing a built-in plug design. The positioning of the tiny power switch at the back was constantly a sore point. All leads are provided. This is important as some serial cables do not have all the lines connected through, which is essential for high speed operation.

The usual status LEDs are big and clear and a combination of another three show the current connection rate. The manual is an anonymously written and generic affair which never once referred to the TKR by name. It is not bad for a modem manual being generally well written and providing most of the information you need except for anything concerning the fax which is conspicuous by its absence.

The TKR has the reputation of being well behaved and making good connections even on poor lines. Everyone I know who has one get good connections at 14,400 bps almost every time. I'm afraid that nearly all of my data connections failed either to con-

◁ Figure 2.

The Page Layout with a text file and image file of my signature placed.



△ Figure 1.

Configuring the Page Layout with a different Header text file for page 1 and subsequent pages.

nect or to maintain a speed higher than 4800 bps. This was even with high standard modems such as Miracom HSTs although greater success was had with a Hayes Ultra at 12,000 bps. My phone line is known to be of poor quality and this certainly explains some of the TKR's disappointing behaviour. However, as the modem maintained 9600 bps connections with fax machines on the same line, it cannot be the whole answer. Indeed, a Supra V32bis modem on the same line does connect to those modems that the TKR failed with and maintains a high data transfer rate. At the time of writing, Systems Solutions have not responded to the suggestion that the TKR was faulty.

Tele Office

Tele Office comes on three disks, Program, Fax Drivers and GDOS. The manual is A5 sized and well translated from the German by System Solutions, with a good layout and presentation. In places the names of folders don't match those on disks and a few details are a little vague. Certain German idiosyncrasies remain, such as the program's insistence on having German folder names. Systems Solutions tell me this is being changed, although you can live with it.

Hardware requirements are at least 1Mb of memory, a monochrome monitor or colour at a resolution of at least 640 x 480 (which excludes ST colour monitors of the SC1224 type). A hard disk is an advantage and so is a real time clock if wanting to get the software to fax out automatically at a set time. The software assumes a

TKR modem is attached, but is claimed to work with any Class 2 or Sierra type fax modem. Unfortunately, all my efforts failed to get Tele Office to connect to a fax machine with a Supra V32bis FAXModem which is Class 1 and 2 compatible.

An editor or word processor is required to write your own text which can be set up to run from within Tele Office from the Page Layout facility. Graphics can only be included in the GEM .IMG format so a graphics program, such as Touch-Up is useful. Failing that, a file format conversion utility, such as ImageCopy, will be needed. An excellent PD conversion program ST_PIC is provided. Your graphics program can also be set up to run from within Tele Office. Printing is done through GDOS and AMCGDOS (a German rewrite of GDOS, a little faster and more stable) is provided with a sample ASSIGN.SYS file and fonts. Lots of printer drivers are included as are some fax drivers.

These are essentially printer drivers for various programs which enable them to print out a fax compatible image to disk rather than the printer. Actual drivers or details of how to make one are included for GDOS, CompoScript, Calligrapher, Didot, That's Write, Tex, KSpread and 1st Word. A fax driver development kit is also provided (in German) and details of how to transmit faxes from within other programs, such as Calamus or Timeworks Publisher.

Configuration

Setting up the system isn't too difficult although the manual is confused here. Once loaded, Tele Office needs to be configured using the Configuration menu item. Here, the file paths for the text and image editors are designated and those for the text and image directories. The Page Layout configuration sets the length of the page and the left margin. I found that a length of 70 (A4) and no left margin worked well with the 1st Word fax driver which tended to add a margin of its own. Each page can have its own header and footer, the first page being different to the rest if you wish. The path of these files are designated or left blank if not required. Each header and footer can consist of either a text file, an image file or both, making the production of a letter head using a logo easy. Tele Office uses a list of synonyms which can be user-defined and inserted into text, including the header and footer. These are then replaced with their values when the fax is written and sent, much like a word processor mail merge. In this way, a header or cover page can be made up automatically showing the number of total pages, date, time, name and address of recipient, etc. This is a simple yet invaluable function which worked very well.

Next to be configured is the modem, including switches for 14,400 bps speeds, Auto Receive mode and Transmission Lock. Auto Receive mode is vital if leaving the computer and modem

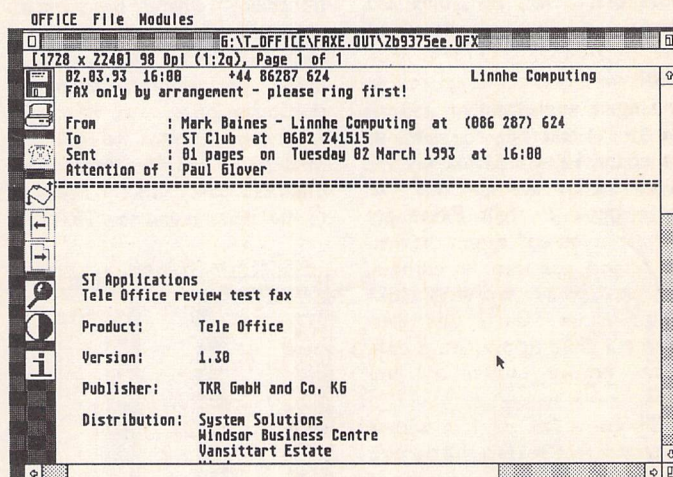
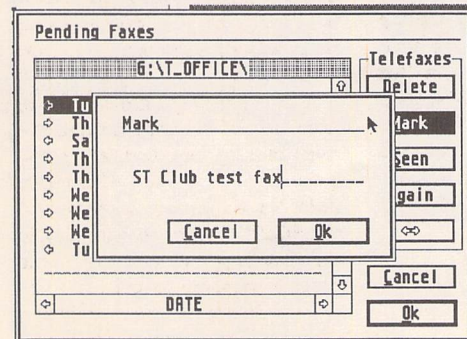
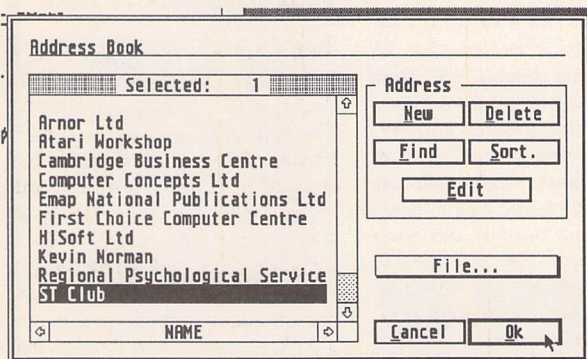
on with Tele Office answering the phone unattended. Transmission Lock stops any fax being transmitted until directed to. Other modem commands can be given and the input buffer sized. The instructions on setting up a Dial Command aren't very clear, experimentation being necessary to clarify the issue. The Station ID consists of your name and fax number which you can choose to have placed at the very top of every fax you send, separate from any header you choose. The completion of various miscellaneous configuration details - the reservation of memory for address book files and a transmission buffer - completes the configuration which is then saved to disk becoming the default set up.

Fax Layout

This menu item enables the construction of a fax using the page size designated in the configuration. Your external text and image editors can be accessed where you produce the necessary files for importing into the fax. On return, two icons are used to select those ASCII text and image files and after a little processing, an outline of the file can be dropped onto the page where you want. Once there, it can be edited or deleted but not repositioned. Files can be placed on top of each other, so that an image file of my signature can be dropped within the "Yours faithfully ... Mark S Baines" gap at the bottom of a letter text file. (Tip: get someone

to send you a fax with your signature on it. Once received, save from Tele Office as an IMG file, load into a graphics program, touch it up and save as a 96 dpi IMG file. The same can be done for logos, etc.) I used the 1st Word fax driver which converted 1st Word text files into IMG files before loading into Tele Office. This enabled the use of bold, italics, underline, light, sub- and superscripts which are not allowed in the straight ASCII text files. This worked surprisingly well, the quality being better than that of ordinary text files where the standard system Atari font is used even if a replacement is installed.

The resolution of the fax can be changed from the default of 96 dpi to 198 dpi, the latter producing larger fax files and taking longer to send, of course. 198 dpi would rarely be necessary as the quality and clarity of my faxes as received on fax machines was excellent. Once satisfied with the layout, clicking on the View icon converts the files into one fax image per page and shown to the screen. Various magnifications can be chosen and the contrast of the image altered, especially useful when viewing received faxes with images in them. The default settings produce an image that is very clear and readable on screen. When satisfied, you return to Fax Layout where you can click on the Address Book icon to select the recipient. The fax is prepared and you are given the chance to set a time and date for transmission. It is then saved to



Above left: Figure 3. The fax finished and the addresses chosen from the Address Book.

Left: Figure 4. Pending Faxes. 'Marking' the fax with a message to remind me what it is.

Above right: Figure 5. View Fax. Notice the Header text file above the double line: all names, page and telephone numbers, date and time are inserted by the use of synonyms. This is the default 1:2 scale. The fax when received will be identical in quality. Icons for saving the fax as an image and loading one to view, print, turn page, next and previous pages, magnification and contrast can be seen on the left.

disk awaiting transmission.

View Fax

As mentioned above, View Fax can be used from within Page Layout but is available for viewing any fax on disk, previously written or received. Selecting View Fax calls the Pending Faxes dialog where incoming and outgoing faxes are listed showing details of their transmission or received dates, recipient or sender ID and a comment you can add with the Mark button. You can label any as 'Seen' and delete old ones. If any attempt to send a fax fails it can be sent again by clicking on the Again button.

Once chosen and displayed, the fax can be rotated if sent upside-down and different pages selected. The construction of a screen image from the fax data can take a short while depending on the complexity of the image. Changing the magnification or contrast results in similar delays. The image can be saved as an IMG file for incorporation into other documents and can be printed. This is done through GDOS and can be a slow process. On a 24-pin NEC P6 it produced an awful dark and dense image, the normal size image not fitting a page of A4. Selecting 90% image size was better. I also had trouble printing images with large blank spaces, where GDOS seemed to assume the end of the image had been reached, stopped printing and gave a form feed. Saving the fax as an image and printing from within ImageCopy at a reduced resolution solved that and gave a better quality and faster printout.

Address Book

A simple but effective address book of contacts can be made up containing name, address, fax and voice phone numbers and two other, short user-definable items.

Sophisticated searches and selections can be made so that a fax may be sent to one or many recipients. Addresses can be imported from other programs to save typing them all out again.

Telefax Drv Accessory

This accessory controls the sending and receiving of faxes communicating with the modem directly with the appropriate Class 2 or Sierra fax commands. To enable a prepared fax to be sent, the Transmission Locked button is clicked on to select Transmission Enabled. The modem then dials the addressee and sends the fax. This worked well generally, getting connects at 9600 bps in all but one case where the speed dropped to 7200 bps. Reception of faxes has to be done by mutual arrangement beforehand so that you can have Telefax Drv set up waiting to answer the line. It is possible to answer phone calls normally and upon hearing a fax carrier signal rather than a voice quickly click on the Telefax Drv accessory for it to take over the call. This will sometimes work depending on how long you take, how long the sending fax machine is prepared to wait and how many times it retries - and whether you have your computer switched on or not! I had difficulty in getting Telefax Drv to acknowledge some calls, having to keep clicking on the Receive button many times. Sometimes it worked first time, others took many goes. I also found setting it up for Auto Receive - where the program waits for incoming calls and answers without intervention - didn't work, the program ignoring the ringing tone.

In an attempt to get the modem to connect with some others in data mode, it occurred to me that maybe the TKR was

defaulting to fax mode and not data mode. Issuing the AT+FCLASS=0 command to place it in data mode and saving this configuration had detrimental effects on further fax use of the modem. Tele Office would not work until an AT+FCLASS=2 command had been given either from within Tele Office's Dial Command line or setting the modem externally with another program. It concerns me that this happened and that Tele Office doesn't do this as a matter of course.

Conclusion

I must say that I was very disappointed with the TKR modem's performance although I know of several very happy users who have no problems whatsoever. However, I was happy with Tele Office, which apart from its little Germanic foibles and reluctance to answer the phone at times, worked well with the TKR to produce high quality faxes quickly and without fuss. The program continues to be developed and some of its quirks may well have been sorted out by the time you read this. System Solutions were negotiating some changes to later versions.

I can't see myself as anything but an occasional fax user and in that respect Tele Office could fulfil my needs, especially at this price. However, STRAIGHT FAX! from the US and now sold by First Choice Computers is certainly a serious challenger and I will be looking at that in the near future.

Points for:

- ✓ TKR - Good value high speed modem with good reputation.
- ✓ Tele Office - Quick and easy to use, versatile production of high quality faxes, flexible viewing of faxes, nice integra-

ted environment, send/receive faxes from within other programs, good price.

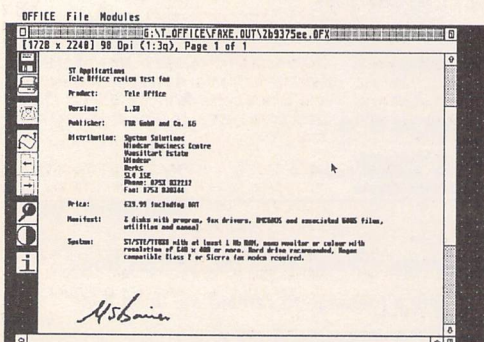
Points against:

- ✗ TKR - limited fax speed of 9600 bps compared to 14,400 bps in Supra and others. Poor performance in my tests. Not BAPT approved.
- ✗ Tele Office - some small quirks and bugs that annoy, poor answering of phone at times. Lack of control over print-out quality and contrast.

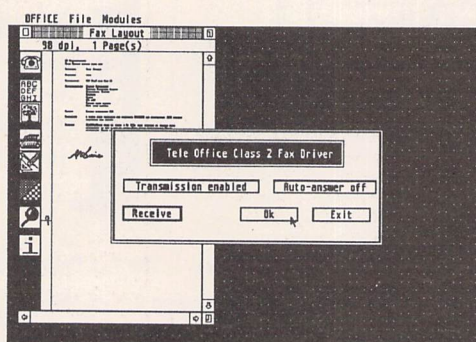
Alternatives

Modems - many, but in this price bracket *Supra FAXModem V32bis* £279.99 from *First Choice Computers* with heavy duty power supply unit, £10 less without (faster fax speed, better manual and more extensive configurability).

Fax software - *STraight FAX!* from *HCS* and *First Choice*.



△ Figure 6. View Fax at magnification 1:3, still readable and showing the signature image file.



△ Figure 7. Telefax Drv accessory called to send the fax. Transmission Enabled is shown, click on OK to send.

Product:.....TKR IM-144VF+V32bis modem
 Manufacturer:..TKR badged
 Distribution:....System Solutions, Windsor Business Centre, Vansittart Estate, Windsor, Berks. SL4 1SE
 Phone:.....0753 832212
 Fax:.....0753 830344
 Price:.....£269.95 inc. VAT (price may change owing to fluctuating pound)
 Manifest:.....Modem, serial cable, phone cable, PSU, manual
 System:.....Any computer with serial port

Product:.....Tele Office
 Version:.....1.30
 Publisher:.....TKR GmbH and Co. KG, Herr Helge Riis, Stadtparkweg 2, WD-2300 Kiel 1
 Distribution:....System Solutions, (address and telephone as above)
 Price:.....£69.95 inc. VAT £39.95 inc. VAT if bought with modem.
 Manifest:.....3 disks with program, fax drivers, AMCGDOS and associated GDOS files, utilities and 43 page A5 manual
 System:.....ST/STE/TT030 with at least 1 MB RAM, mono monitor or colour with resolution of 640 x 480 or more. Hard drive recommended, Hayes compatible Class 2 or Sierra fax modem required.

Imagecopy 2

Image utility for Atari ST/TT/Falcon computers

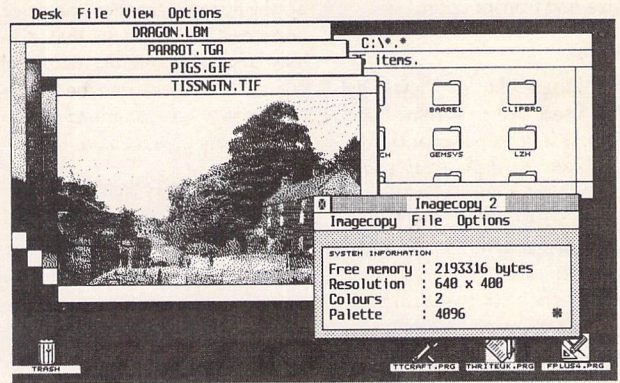
Copy images from screen in any ST/TT/Falcon video mode. Images can be copied by pressing Alt-Help, and a flexible rubber-banding system allows images to be selected with a fine degree of accuracy.

Display images in any ST/TT/Falcon video mode. Colour-mapping and dithering is used to display images in video modes which contain fewer colours. Several images may be displayed simultaneously in GEM-window or full-screen display modes.

Print images and screen dumps in black and white or colour on a wide range of printers, including 9-pin and 24-pin dot-matrix printers, Bubblejet printers, Deskjet, and Laserjet printers. Imagecopy 2 offers print-scaling, variable-sized halftones (up to 16x16) for realistic colour depth, and comprehensive colour controls, and is able to print images containing up to sixteen million different colours (24-bit true-colour). Print-colour options include: monochrome, CMY colour, CMYK colour, CMY separation, and CMYK separation. Colour separation modes can be used to print full-colour images on a monochrome printer.

Convert images between different formats (see next paragraph).

Extensive range of image formats: Imagecopy reads the following formats: TIFF, Targa, IMG, extended IMG, DEGAS,



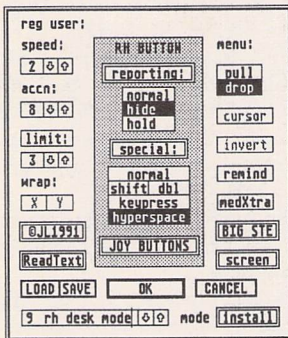
Neochrome, Art Director, Tiny, GIF, Spectrum, IFF/Deluxe Paint, Windows bitmap, OS/2 bitmap, PC Paintbrush (PCX), and Macpaint. Images can be saved in the following formats: TIFF, Targa, extended IMG, DEGAS, and RSC. TIFF support includes baseline TIFF apart from Huffman compression (uncommon), common extensions such as LZW compression, and the ability to read non-standard TIFF images produced by ST programs such as Retouche. The ability to print TIFF files allows Imagecopy 2 to be used as a print program with True Paint.

User-friendly GEM interface, including window menu bar, pop-up menus, colour sliders. Can be used as an accessory or stand-alone program.

Price - £19.95
 Upgrades: from Imagecopy v1
 - £10.00; from Imagecopy
 Colour - £5.00.
 Return master disk only.

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Mouse Tricks 2



- * Mouse Tricks combines many of the functions of existing mouse utilities in a single desk accessory and adds numerous extra functions of its own.
- * Mouse Tricks can set up suitable modes of mouse behaviour for particular programs. An optional screen saver is also included.
- * Mouse speed can be reduced as well as increased. This allows a cross-hair mouse add-on such as "Tracey" to trace artwork of any size.
- * All the functions of Mouse Tricks can be adjusted through a set of easy to follow dialog boxes.

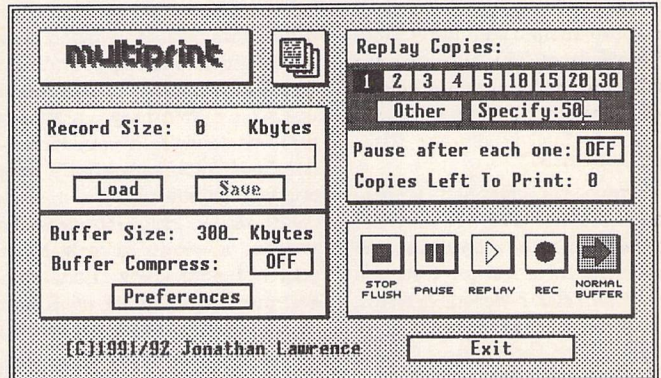
- * As many as 20 different settings can be named and saved, and each mode can be selected via a dialog or a user selected keycode.
- * Mouse Tricks keeps a list of up to 40 different programs; for each program on the list you can specify both the mode you wish to be installed when a program is run, and the maximum amount of memory initially available to that program.
- * Mouse Tricks contains a text reading utility, Read Text, with which you can load, read and switch between as many as eight text files from within any program that allows access to desk accessories.
- * Read Text can also be invoked by double-clicking on the desktop icon of the file you want to read, or by pressing a user defined keycode.
- * Big STE is a virtual screen utility that uses the STE's video display hardware to provide instantaneous smooth scrolling around virtual large screens of any (feasible) dimensions, with the option of an interlaced display for any screens with double (or greater) the normal screen height.
- * Tutorial function to help you learn to use Mouse Tricks.

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Multiprint



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Replay of recorded data for high speed multi-copy printing of letterheads or leaflets.

Saving of data to printer file (*.PRN or compressed *.PCN) and loading of buffer with previously created printer file - for quick'n'easy reprinting at a later date. No need to rerun your DTP or art program.

Option for compressed buffer and printer files for minimum demands on memory and disk space. Average 300 dpi DTP data compressed to 40% of its original size.

Load and print printer files produced by other programs - and compress them to Multiprint's own PCN format for better use of disk space.

Background printing with "Priority Delay" allows you to share a chosen percentage of your computer's time with Multiprint.

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Comprehensive printed manual

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OS9 68000

Multi-Tasking

Operating System

Graham Curtis

In the days before PC domination, Motorola and Microware got together to produce an operating system for Motorola's then state of the art 6809 micro-processor and OS9 was born. For those of you with long memories, the system could be purchased for the 6809 based Dragon computer in the early 1980's. Although never a competitor to MSDOS in the domestic market, OS9 has always been at the forefront for scientific, industrial control and monitoring applications. Microware went on to create OS9 68K for the Motorola 68000 series of microprocessors and have more recently branched out into the processor-independent OS9000 which brings real-time multi-tasking to Intel 80x86 and RISC processors.

Being a commercial 'professional' system, OS9 has been out of reach of most casual users in any of its three guises: Industrial for small ROM based systems, Personal for scientific desk machines and Professional for full development environments. Many people may have used OS9 unknowingly as it is, in fact, used by Phillips as the operating system in their CD-I products. In this incarnation it operates under the alias of CD-RTOS (Compact Disk Real Time Operating System).

Cumana have been associated with OS9 from BBC Micro days, and recently they have taken a bold step to bring OS9 to a larger audience by making the complete system available to private individuals for just (!) £99.95. This is a considerable reduction from the previous price of £500 or £300 to

educational establishments.

What is it?

As mentioned above, OS9 is a multi-user, multi-tasking, 'real-time' operating system for 68000 based machines. It is widely used in industrial process control and monitoring systems, where the hardware is usually a rack mounted processor surrounded by i/o cards connected to sensors of all kinds. The applications range from the control of astronomical telescopes, through marine research to monitoring of railway locomotives. Among OS9's advantages are its compactness, modularity and speed of interrupt response.

Unlike systems such as Microsoft Windows, OS9 can happily cope with real-time events, responding to interrupts in milliseconds. Each application can be assigned a priority such that important functions are always carried out at exactly the right time, while lesser tasks can use up the less critical time slices.

We have all heard how memory-hungry multi-tasking is, haven't we? The OS9 technical manual suggests that OS9 needs at least 256KB of RAM! I have successfully run a diskless, ROM-based system with only 128KB, so even this is not a hard rule.

The core of the system, or 'Kernel' as it is called, is an 18KB chunk of carefully optimised machine code which supervises the whole system and runs in 68000 supervisor mode. The kernel is usually called every 10 milliseconds to handle i/o routines and to decide which process

There has been quite a bit of press coverage recently about the amount of work that has gone into producing the forthcoming MultiTOS for the Falcon 030. This system began in the Public Domain (MiNT) and mimics UNIX, which also has its roots in the public domain. Surprisingly, the ST has had a UNIX-like, commercial multi-User, multi-Tasking operating system, in the form of OS9, for a number of years.

should get the next slice of processor time. To make a useful system you have to add i/o functions to the kernel. This is done by use of add-on file managers and device descriptor modules, as shown in Fig 1. Only those bits of the operating system which are actually needed are built into a running system.

If you build a piece of hardware which does not use disk drives, you can leave out the bit of the OS which handles disk

storage. Likewise, if you need six serial ports then they can be added in with an overhead of about 120 bytes per device. OS9 is fully ROMable so you can build a dedicated system which just boots up from ROM and performs its allocated tasks without any operator intervention.

This all makes for a very compact system which can be contained in many times less memory than UNIX or other equivalents.

Getting Started

Because OS9 uses a completely different disk structure from GEM, the system must be booted from the GEM format disk which then 'bootstraps' the OS9 system from the OS9 format boot disk. The friendly GEM desktop disappears, and you are greeted by the startup screen and a prompt asking for a user name and password.

OS9 will make use of an Atari hard drive partition if it is renamed from 'GEM' to 'OS9' in the partition table. (This is easy with ICD's ICDFMT.PRG.) If the partition is at DMA address 0 SCSI address 0 then the system will actually boot from the Atari drive too. The TOS boot program can also live on your hard drive so the system can be independent of floppies when you are up and running. Once the system has been configured (there is a program to do this for you) you can now explore the OS9 system.

You are now in a completely different world where several things can be happening at once! Everything revolves around the command-line interpreter, or shell, program.

Typing 'PROCS' will show you which processes are currently running, how much CPU time they are using, who they belong to and how much memory they are using.

Id	PId	Grp.Usr	Prior	MemSiz	Sig S	CPU Time	Age	Module & I/O
2	0	0.0	128	0.50k	0 w	0.19	0:00	sysgo :h0 »term
3	2	0.0	128	3.75k	0 w	0.63	0:00	shell :h0 »term
4	3	0.0	128	4.00k	0 w	1.78	0:00	shell :term »term
5	4	0.0	100	6.75k	0 w	0.32	0:00	list :term »p »term
6	4	0.0	128	15.50k	0 *	0.08	0:00	procs :term :h0 »term

In the above case, five tasks are running:

Sysgo starts the system up, reads the startup file from the boot disk and configures the system before launching the shell program.

Shells are simply OS9's way of communicating with users or files.

List is listing a program to the printer.

The last program 'procs' is the one we have just run to find out what is running!

Modules

OS9 has an interesting way of dealing with program modules. Most utility commands are stored in a CMDS directory on the boot disk but can be loaded into memory for instant access. You can load as many modules as you wish and they will be run just by typing the module name at the '\$' prompt. Even modules with the same name can be in memory. Only the latest version will run though. This makes it easy to upgrade the ROM based operating system with RAM loaded versions. The 'MDIR' command lists the modules currently residing in memory.

Module Directory at 19:32:15

kernel	init	stclock	sysgo	rbf
scf	stfd	sthd	stcon	stpar
null	nil	pipe	h0	h1
d0	d1	p	term	keydef
shell	link	cio	iniz	login
load	dc	procs	mfree	dir
mdir				

The system modules are shown first and you can see how functions are added by individual independent modules. **STHD** is the Atari-specific hard disk driver and uses the device descriptors **H0** and **H1** for two logical hard disk partitions. Similarly **STFD** is the floppy disk driver along with its descriptors **D0** and **D1**.

OS9 extends the MSDOS concept of a default directory by having a default data directory and a default program directory. Usually you 'CHD' to your data directory and the startup file 'CHX' to the CMDS directory. All OS9 utilities are provided with a '-?' switch which provides on-line help for each option.

Program priorities can be set at the command line by simply typing a '^' followed by the desired priority from 0 to 65535 after the program name. Output can be re-directed to any file or device by typing '> name' after the command. By typing a '&' at the end of a particular command line the command is run in the background and control of the machine is immediately returned to you as the machine gets on with the task.

i.e. list notes.txt >p ^100 &

will send a file to the printer at priority 100 in the background and immediately return with the '\$' prompt. To users of WIMP interfaces this may seem a little archaic, but it is very powerful and provides many facilities with little use of machine resources.

MFREE

Memory usage can be viewed with the program 'MFREE'. If used with a '-e' option it will display all of the available memory areas.

Minimum allocation size:	0.25 K-bytes
Number of memory segments:	4
Total RAM at startup:	2007.37 K-bytes
Current total free RAM:	1789.75 K-bytes

Free memory map:

SegmentAddress	Size of Segment	
\$1F200	\$1BEC00	1787.00 K-bytes
\$1EDE00	\$500	1.25 K-bytes
\$1F4A00	\$500	1.25 K-bytes
\$1F5000	\$100	0.25 K-bytes

What you get for £99.95

The Cumana 'OS9 Upgrade V2.3' system arrives as three large ring-binders and six disks containing the following:

GEM boot program	
'C'	Compiler
Umacs	Editor
R68	Relocatable Macro Assembler
Basic09	Procedural BASIC
Stylograph	Word processor
Sculptor	Application generator
Dynacalc	Spreadsheet

The package also contains many standard OS9 utility programs and public domain programs for reading and writing TOS disks.

Development Tools

The OS9 Professional package is aimed squarely at software developers. The accompanying disks contain source codes for many of the operating system libraries. Additionally, many device drivers are included for different screens, disks and terminals. It is possible to run the ST as a proper multi-user system with other users connected via terminals to the serial ports (three on the Mega STE). MIDI is also supported.

'C' Compiler

The 'C' compiler provides access to all the operating system libraries. And allows the creation of compact programs through the use of Trap handlers for common I/O functions. The 'CIO' and 'MATH' libraries exist only once in memory regardless of how many running programs need its functions.

Assembler

The two-pass relocating 68000 macro assembler provides access to all the OS9 functions via a macro which simplifies all system calls by giving access to symbolic names given in relocatable library files. The statement:

```
059 I$Read
```

is assembled to produce the same code as :

```
TRAP      #0
dc .w     I$Read
```

Basic09

Microware's BASIC is a fully structured system, rather like Fast BASIC. As programs are typed in they are translated into a special 'intermediate code' ("I-Code") form. The I-code is quite compact and can be executed very quickly. It can also be 'de-compiled' back to the original 'source' for listing programs or debugging.

Programs can be saved or loaded in either source or I-code formats singly or groups of procedures. I-code programs are ROMable and can be run using a small run-time interpreter 'RunB'.

Applications

Although three application programs (Sculptor, Stylograph and Dynacalc) are supplied with the system, they are rather outdated compared with even PD offerings for the ST generally. Sculptor might be of use for investigations into multi-user database programming. If you do however, thrive in the CLI-driven 'professional' world of computing then these could be just what you've been looking for.

Conclusion

What a pity that Atari didn't see the benefits of OS9 when they were pondering the way forward for the ST series. I began using OS9 68000 long before I bought my ST in 1987. Atari could have had a ready-made entrance into the world of CD-I and could have built a multi-tasking graphical workstation many years ago without having to wonder how they would squeeze UNIX into such a small box. Source-code compatibility with UNIX would have meant that many high-power applications could be made available.

From my point of view, as a developer who uses OS9 on machines costing many times more than my Mega STE, it really is a case of Atari (with a lot of help from Cumana & Microware) supplying 'Power without the price'. A VME based 68000 development system can cost £5000 or so. A Mega STE or TT could provide the same functionality and still provide you with an excellent machine (in the same box!) for producing documentation and manuals.

OS9 will not be everyone's cup of tea, but if you are into hardware and programming you will have to go a long way to beat this package.

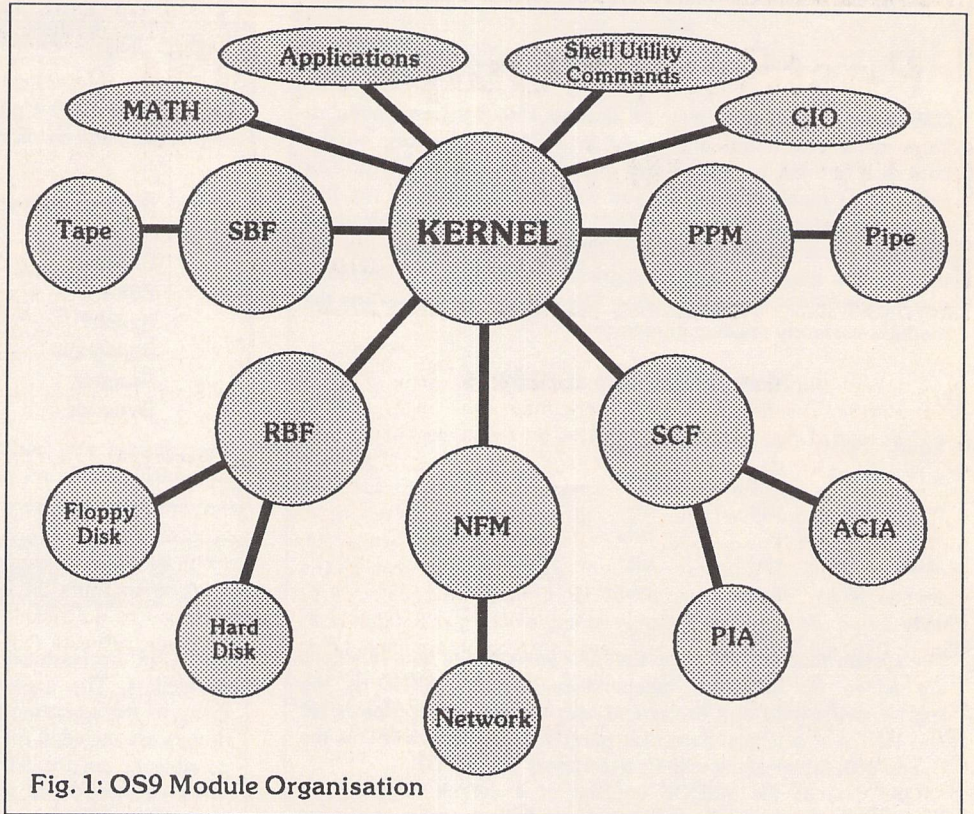
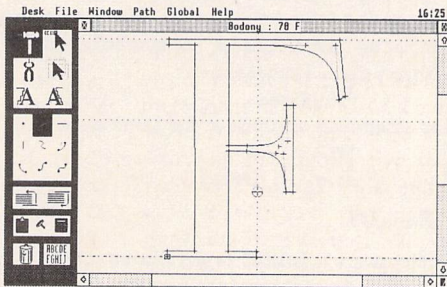


Fig. 1: OS9 Module Organisation

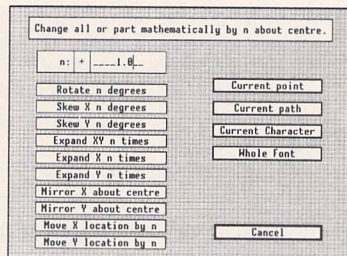
This is a fully featured editing program for creating and editing Calamus CFN-format font files. Also, when used in conjunction with C-Font or Fontkit Plus, CFN files created with Fonty can be used to generate sets of bit-mapped fonts for use in packages such as: K-Spread4, Degas Elite, Timeworks DTP, Calligrapher, That's Write, Redacteur 3, and Wordflair.

Fonty

Calamus Font Editor



Fonty features include: draw mode icons (Hammer mode, Pliers mode, Move mode, Select path mode, left and right kern mode), Grids and Guide Lines, Manual and Automatic kerning, Backgrounds for tracing (a Degas picture or a complete GEM font), a full feature Calculator to mathematically manipulate fonts, and Window scaling. A separate program, PFB2CFN, reads a Postscript Type 1 Font file and copies it into a Calamus CFN font file.



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PostScript Output from Publisher 2

by Bob Osola

Michael Baxter's recent PostScript series (STA 26 & 27) described how PostScript can be used with up-market ST programmes to produce professional output. This article is more for the low-end DTP user - more specifically, the Timeworks 2 user; people like me for whom CMYK could be a local radio station, Pantone a manufacturer of womens' underwear and Off-set Litho a condition requiring urgent medical attention. We DTP non-professionals may enjoy reading about the ST's performance (or lack of it) in the high-end DTP arena; however, I suspect that the exotic software and hardware needed to obtain professional results is well beyond the resources of the home DTP dabbler. Most of us use Timeworks and a dot matrix or bubble jet printer - and most of us get pretty horrible results judging by the newsletters and fliers I see locally. Stylistic and layout gaffes may be improved upon by studying some of the myriad of DTP books available - but how to improve your print quality for important pieces of work (CVs, theses, etc.) without spending a fortune? The answer lies in that much underrated Timeworks facility - the ability to produce PostScript files which can be sent to a bureau for printing.

The Problems with Home DTP

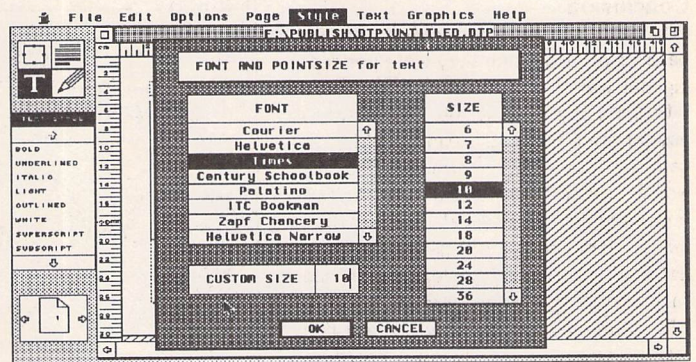
Owners of the very popular DeskJet family of printers may be objecting already; surely a bubble jet is capable of near-laser quality output? Well, yes and no. Bubblejets are very choosy about type of paper used as recent Forum letters testify. Cheap photocopy paper tends to produce unpleasant spidery runs owing to capillary action on the wet ink. Graphics with large black areas can often have slight banding owing to partial nozzle clogging or over-runs. Sometimes fine white tram-lines appear. These imperfections are variable - a run

of copies of the same piece of work may show all or none of these problems depending upon the age of the ink cartridge or the alignment and type of paper. That said, bubblejets are far superior to dot matrix printers which can only really produce half-decent DTP if they are of the 24-pin variety working at 360dpi. However, such beasts are mind-bendingly slow and tend to produce unpleasant banding effects in graphics.

So we need laser output or better, but that is only half the story. Another source of quality loss is the Timeworks fonts, particularly the bold and italic versions. In order to keep costs down and conserve disk space, Timeworks uses the standard font to produce bold and italic versions. The bold is a sort of font de foie gras - a grossly fattened up force-fed version of the original which often looks crude in print. Timeworks italics are even worse - they are simply a slanted version of the original font and are plain ugly. These quasi-italics are identifiable at a thousand paces as a sure trademark of a Timeworks-generated piece of work. Both problems can be worked around by installing proper custom bold and italic fonts, but that involves the usual ASSIGN.SYS and GDOS nightmare and still does not overcome the biggest problem of all - fixed font sizes. I imagine that every Timeworks user has cursed this at one time or another. Fonts are either too big or too small for the desired effect, or are the wrong size for the last frame in an otherwise perfect page. In addition, large fonts gobble up disk space: 36 point 300 dpi printer fonts may be over 350K in size.

PostScript to the Rescue

TW PostScript fonts are scalable from 3 points to 250 points. Each one has a beautifully crafted normal, italic, bold and bold italic version. Best of all, commonly-used PostScript printer fonts live



PostScript Timeworks allows the user to select custom font sizes from 3 to 250 points - i.e characters of nearly 9 cms in height!

in the printer or other output device. A normal laser printer fitted with a PostScript card usually has 35 or so fonts on board - others may be downloaded using appropriate software (but not in Timeworks). This frees up disk space enormously - my Timeworks set-up is for 300dpi DeskJet output with all additional supplied fonts installed. This requires 2 Mb of RAM and creates a PUBLISH folder nearly 6MB in size. An equivalent PostScript set-up uses only around 1.3MB of disk space.

If you're thinking that all this is too good to be true - you're right. There is a price to pay. Firstly, Timeworks as installed to a floppy system does not allow the saving of PostScript print files. This can be overcome by fooling Timeworks into thinking that you have a hard disk by using a RAM-disk as drive C, provided that you have 2 Mb of RAM or more. Hard disk users simply install for both their own printer and the PostScript laser. The main problem though is the loss of WYSIWYG. Firstly, only the GDOS fonts Serif, Sans, Courier and Dingbats are directly supported by PostScript equivalents. Timeworks cannot hope to emulate all the other PostScript fonts, so it shows a screen font of either Serif or Sans to represent your chosen PS font. Secondly, if you use a font size beyond that of your installed screen fonts (or GDOS-doubled versions), you will lose the correct screen character height and spacing. All is not lost though, as line spacing, word and paragraph breaks remain accurate. In other words, while the screen characters may not look like the final printed version, you can do sensible work provided that you choose leading and paragraph indents appropriate to the size of your chosen font. If you work

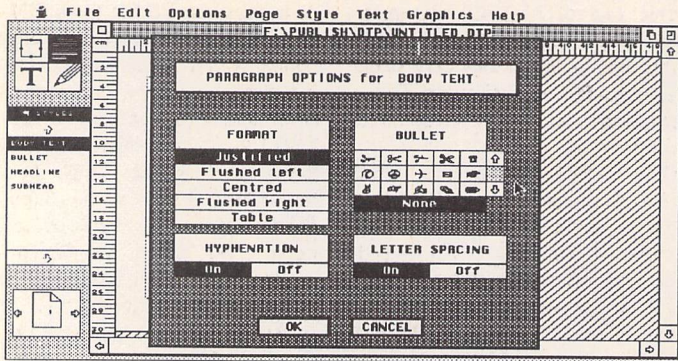
only in Serif, Sans or Courier at normal GDOS sizes, you will of course get full WYSIWIG.

Timeworks 2 supports eleven PostScript font families. You cannot add to this list or download extra fonts, but the ones supported should allow for most types of domestic work unless you are into really fancy output. The fonts are not loaded in the normal GDOS manner but appear as options from the font menu which are translated into printer instructions by the .PS file produced by printing your output to a file. The table shows the fonts that are available in the Timeworks PostScript mode plus the GDOS fonts used to represent them on screen:

As the table demonstrates, apart from the GDOS equivalent fonts, WYSIWIG goes out of the window. You do get a much bigger choice of bullets - the bullets window can be scrolled up and down to see the full selection. The Symbols font is very difficult to use, as the screen representation is nothing like the final version. I got to know which key did what in this font by printing out a test sheet containing a "quick brown fox..." paragraph, but for all practical purposes, this font is next to unusable.

Floppy Set Up

This is the nitty gritty section. You need to have at least 2MB RAM for this installation. This is because the Timeworks install programme creates a PUBLISH folder of just over 1.3MB, so if you want to install a brand new PostScript set-up to a virtual C drive, you initially need a C drive RAMdisk of 1.4MB. The installation will be later reduced to fit on one self-booting and auto-loading floppy, so that your disk boots into a desktop containing a C drive with all files, folders and



Notice the new bullets available when working in PostScript mode – the full selection can be viewed by using the new scroll arrow.

GDOS fonts loaded and ready to go. Move over Paul Daniels.

1MB owners with a lot of patience may be able to follow the broad outlines of this installation by cannibalising their existing Timeworks floppies onto one disk and adding the PostScript drivers and other tweaks as described in the hard disk section, plus editing a C:\publish\GEMSYS path in their ASSIGN.SYS file – but I cannot guarantee the results. They would definitely have to pack PUBLISH.APP down and use Trimfont as described in STA 18. Even then there may not be enough free system RAM to properly run the programme. The 2MB installation does not need compressing, nor any other kind of hacking. I believe that older versions of Timeworks can be installed this way, but not TW2 – I would be happy to be proved wrong, however.

You will need:

- * 2 floppies formatted to 10 sectors and 82 tracks – hereafter referred to as TEMP and TW – most PD formatters can do this. Normal floppies do not have enough room on board.
- * The amazing RDE/STE RAMdisk on DMG 31 which works for all TOS versions, and can be saved to disk with all your files and folders held in one bootable file by using the included GEM interface or the external shell.

Create a bootable RAM disk of 1.4 Mb on your TW floppy as drive C – you may need to use the shell configuration programme to do this as the rather limited GEM menu may make unwanted assumptions about how much free RAM you need. Next, install Timeworks to your new drive C following the usual prompts – do not install additional fonts. Choose PostScript laser as your printer. Note that some large fonts will not install owing to

memory limitations – you will get a few error messages saying that the fonts cannot be extracted. Just hit return and carry on when this happens. When the installation is finished, hit the reset button. This loads GDOS into the system from your new bootable C drive AUTO folder. You should still have your C drive plus contents as RDE is soft reset-proof.

Now run FONTWID.APP. This installs two additional files PUBLISH.WID and SCREEN.WID to your PUBLISH folder. Check that it has done so, then hit the reset button again. You now have a basic Timeworks installation. Run Timeworks and set your default working mode plus paths to files – set DTP, print-to-disk, text and picture import to a floppy. You can leave the default style sheet on C if you like. Once you have the programme to your liking, save the defaults and quit.

You are now ready to begin chopping out the bits you don't need. Delete the following:

- * The folders (plus contents) DTP, PICS and STORIES – you already have these on your normal Timeworks floppies
- * FONTWID.APP plus associated .RSC and .STR files – these have done their work and are

no longer needed

- * All the .HLP help files – use the manual if you need help!
- * If desired, the .OVL files described in STA 18, though it is not necessary to delete these for this installation
- * The really keen deleter can free up even more space by deleting all the fonts other than Sans, Serif, Courier and Dingbats, and editing the ASSIGN.SYS file accordingly, though again this is not necessary.

You now have a slimline Timeworks installation. The next bit will take some time. Copy the contents (everything) of your C drive to the TEMP floppy. Time for a coffee. You now have to make a smaller RAMdisk of 1MB to free up enough spare system RAM for Timeworks to run in when finally installed. You cannot alter your 1.4MB RAMdisk, so you have to make a fresh RAMdisk of 1MB. Turn off the machine and wait half a minute, then turn on again. This should load to a desktop with a 1MB C drive. You can now load the TEMP floppy and copy the contents into the C drive. Time for more coffee.

Now save the desktop as desired – TOS 1.4 owners may wish to have PUBLISH.APP auto-load itself. If you have deleted the extra fonts and .OVL files you will have plenty of room to install a desk accessory or two onto your C drive (provided that you don't go mad with memory hogs such as Harlekin). Finally, save the C drive contents into the RAMdisk from the menu or by using the shell – this is the part where all the files and folders are saved into one RAMdisk file on your floppy.

Time for another cold boot to

check out your new installation. You should find that the RAMdisk loads in about 60 seconds to reveal a C drive containing your slimline Timeworks PostScript installation with GDOS and any accessories loaded. You can now delete your TEMP floppy; it is no longer needed. Finally, you should set the write protect tab on the TW floppy to protect the contents against disaster.

Hard Drive Set Up

The install programme theoretically allows additional printers to be added to an existing installation, but this option is not yet supported. New installations to hard disk allow up to four printers to be installed. This means that you can either make a brand new installation to include the PostScript laser as well as your normal printer, or attempt to cheat by the following method:

- * Copy the files PS1.PRE, PS2.PRE and PST.CNF from Master Disk 3 to your PUBLISH folder.
- * Copy the PSCRIPT.SYS file from Master Disk 3 into your GEMSYS folder.
- * Add the following extra line to the bottom of your ASSIGN.SYS file:
* 22 pscript.sys
- * Re-boot, and run FONTWID.APP. You should now have the choice of whether to select your regular installation or a PostScript installation. Choose PostScript, and away you go. If the above cheat does not work, you will have to make a new installation. Note that FONTWID re-writes the two files PUBLISH.WID and SCREEN.WID appropriate to whatever output device you select. I have refined this further by saving a DeskJet and PostScript pair of these files in separate folders in my Superboot folder so that I can load to either DeskJet or PostScript Timeworks

Timeworks PostScript Fonts

Font	Description	Screen font
Courier	same as GDOS Courier	Courier
Helvetica	same as GDOS Sans	Sans
Times	same as GDOS Serif	Serif
Century Schoolbook	shown on page 214 of manual	Serif
Palatino	shown on page 214 of manual	Serif
ITC Bookman	an attractive rounded serif font	Serif
Zapf Chancery	italic only – shown on page 214	Serif
Helvetica Narrow	around 80% narrower than Helvetica	Sans
ITC Avant Garde	shown on page 214 of the manual	Sans
Symbols	mainly Greek symbols	Zapf Dingbats
Zapf Dingbats	the full set, not just the 15 GDOS ones	Zapf Dingbats

at the flick of an F key during boot-up.

Working in PostScript Mode

There are a few ground rules here. Firstly, as pointed out in the manual, any clear-visibility frame tints, apart from clear white, will be printed as opaque. Opaque frame tints are printed correctly, so you need to think about the visibility of your frames and how you stack them. Secondly, if you import any existing DTP files to give them the PostScript treatment, check carefully that you have changed the fonts. If you had, say, Rockface in your existing work, this must be changed to a PostScript font, otherwise it will be printed out in whatever is the default font in the output device.

Floppy users will be falling off their chairs in surprise at the speed with which Timeworks loads and runs off a RAMdisk. They must remember to save their work regularly to a floppy in case of disaster. This applies in spades to anyone with a 1MB ST attempting a hack job - they are almost certain to run into problems at some stage because of insufficient RAM, especially when trying to import graphics. A row of bombs may appear, necessitating a cold re-boot and possibly a hair transplant if a morning's work bites the dust.

The main thing is to be scrupulously thorough in your proof reading and error correcting. The following tips hold good for Timeworks in any mode, but are particularly important when sending out to print, as you only have one chance to get things right. I suggest the following working method, having fallen into every potential trap at one time or another:

Write all your text in your word processor. Spell check and print it out. Proof read several times - if you have time, let someone else proof read it as well. Proof read again after a good break. Then do it again. And again. Next, add the markups for headlines, subheads, etc. If you do this while writing the text, your spell checker will fall over at each one, which can be annoying if you have lots of marked tag styles, as well as being difficult to proof read. I use macro keys for my commonly-used markups which make marking up even a long document just a few minutes' work.

When all is satisfactory, load the document into Timeworks. If you use autoflow, be very careful

to check the continuity of text as it flows from the bottom of one frame into the top of the next. Lines of less than the full column width are very prone to being missed out of the flow process. You are guaranteed to discover this on your final print if you do not check text continuity very carefully indeed. The solution is to temporarily drag down the bottom edge of the frame where the text disappears from. This reveals the missing words. You can either add an extra line break or two on the last visible complete line (Control + Return) to force subsequent lines into the next column or copy the missing words then paste them into the top of the following frame. Don't forget to re-size the first frame back to the original size.

Finally, when all is to your liking, save the file BEFORE printing. Timeworks appears to read information from the saved DTP file when printing to a PostScript file, so you need to have a saved file before trying to print. Timeworks will automatically give the work the same name as your saved DTP file, but with a .PS extender. The file produced will be fairly large, so ensure that you have enough disk space - any work full of graphics will be particularly disk-hungry.

Subtle differences...

PostScript output will be different from your usual printed output. Apart from the vastly improved fonts and lovely deep blacks in graphics, you will notice other changes, particularly in fill patterns. True PostScript graphics programmes use vector graphics so that your artwork is as resolution-independent as the fonts. Timeworks cannot hope to match this, but instead reduces your gra-

phics to a sort of ASCII bitmap on the output device - if you scroll through the .PS file quickly using an ultra-fast text editor like Tempus, you can see your graphic reduced to patterns made up from ASCII characters. This results in graphic fill patterns coming out at larger scale. Frame tints are similarly effected and become more visibly dotted; they appear darker than their DeskJet equivalents, at any rate. Normal clip art comes out looking a little darker.

In the absence of a crystal ball, I found that the best way to predict the outcome of a fill or tint was to prepare a PostScript test file. You need to make up a page with all the fonts on display, plus all the frame tints, a handful of graphic fills and a few pieces of clipart in different formats; say, IMG, Degas and GEM or whatever you use. You should also put in frame borders at the corners so that you can allow for any page offsets which are bound to be different from your own. Once I got my test sheet printed I knew what a given effect would look like. Since then I have prepared a lot of stuff for work using Timeworks. I send the .PS files to my work account by modem and initiate a print run on the office PostScript printer remotely from home.

External Printing

Your Yellow Pages will have many print service companies or bureaux offering to process PostScript files. They will do anything from 300 dpi laser work at around a pound a page up to whatever level of print quality you may require (or can afford). You may, like me, be fortunate enough to be able to get access to a PostScript printer at work. All you need to

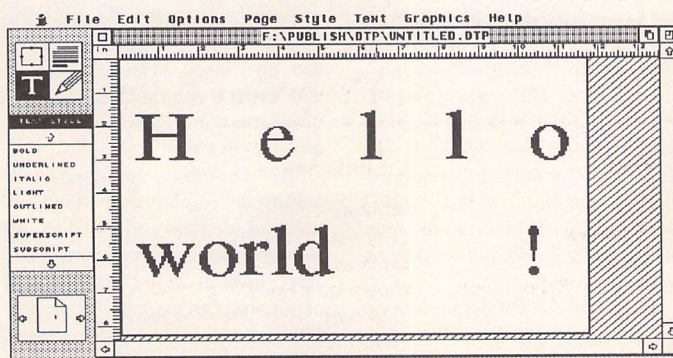
do is copy the .PS file to an IBM-compatible disk, and tell the print company that you have an IBM PostScript file. Any mention of Atari tends to confuse matters. TOS 1.4 and later owners already have an IBM-compatible boot sector byte written to any floppy formatted. Earlier TOS owners need to use any of the PD formatters which offer this facility to prepare a suitable floppy.

Alternatively, many companies offer a modem service. There can be a problem here if you are forced to use the Kermit transfer protocol. Kermit has an internal command which conflicts with the Atari end of line command. Uniterm deals with this by stripping out the offending character. This removes all LFs from your .PS file which can result in a buffer overflow at the receiving end - i.e. total transfer death. This problem is quickly resolved prior to going on-line by opening the .PS file in your favourite editor (or WP in ASCII mode) and re-saving so that you get a CR at the end of each line. My modem was nearly booted to Pluto before I discovered the cause of that particular problem hidden in the depths of the Uniterm manual.

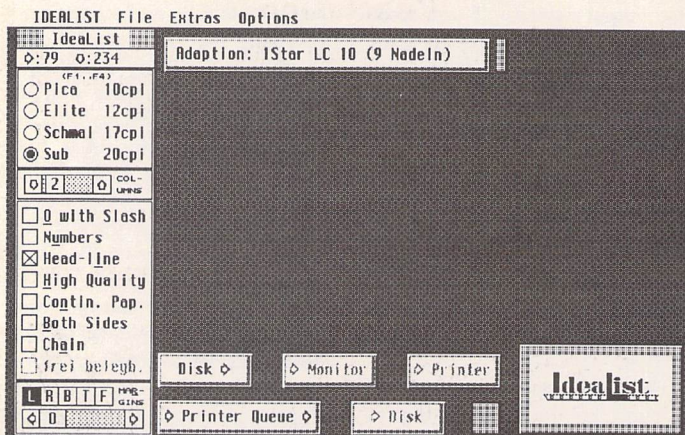
Last Word

With TW2 available for under £40 from the Home Computer Club, there has never been a better time for the poor (or just plain mean) to get into PostScript DTP. I maintain that important work deserves the best output quality you can reasonably afford if you are to stay a step ahead of the competition. PostScript originals also produce much better quality photocopies where multiple copies of work are required. A moderate outlay in time and a modest outlay in printing costs will enable you to produce just as good a quality of black and white output (albeit with fewer whistles and bells) as the Mac and PC users in professional circles who have much deeper pockets than the like of us.

Finally, though I use a hard disk, I can vouch for the efficacy of the RDE floppy set up with 2MB RAM. In researching this article, I used the methods described to create PS output which I later successfully printed. Indeed, I was so impressed by the versatility and speed of the RDE programme that I now have various emergency RDE versions of my major applications in case of hard disk disaster.



This shows Timeworks struggling to represent a 250-point font on landscape A4. Individual character height and width has gone awry, but line, word and paragraph breaks are maintained. The final print will therefore start and stop at the right places.



△ Idealist's interface has a 'backpacker' philosophy - trimmed to the minimum and easily moved around.

The Interface

Interfaces for printing programs are usually pretty awful - from the desktop's expansive options ("print YES/NO?") to First Word Plus's determination to re-set to default values at every opportunity. Moreover, moving between programs presents a completely new sub-interface to help you chew through handfuls of paper trying to get the page set up on your printer.

Idealist by contrast has an interface that bears all the characteristics of a mature and thoughtful design. All parameters are configurable and can be saved to a file. If settings are changed, Idealist even asks if these new values should be saved when you exit (and naturally this option can be toggled too).

There are many subtle touches which smooth the program's operation - for example the 'zoom' effect on dialogue boxes can be turned off, and dialogues all have 'handles' so that they can be placed anywhere on screen. A particularly slick feature is a 'pro' mode; making selections whilst holding down the control key will omit any alert boxes. Similarly, if you click on something with the alternate key held down, a small help box pops up... in German (well, the idea's a good one if nothing else!). And, as you might expect, all options have keyboard short-cuts indicated by underlined letters on-screen.

The current text file can be viewed with an enhanced desktop-like display. If any of the viewer accessories 1stGuide, 1stView, Gemview or Clipboard

are installed, Idealist calls these instead.

At first sight the arrangement of Idealist's desktop seems a little odd - why not use up all that empty space for options hidden away behind menus? The reason is that the program is designed with Multi-tasking in mind - by keeping just the essentials in a single column, there is plenty of room to run another process in a window on the rest of the screen. Even without Multi-Tos, it is handy to be able to pop up accessory windows without obscuring the rest of the display.

Printout Options

So, the interface is a modern marvel, but what's underneath? In its most basic form, Idealist can be used to print out plain ascii or Wordplus formatted files with numbered pages, and headers for filename, time, date and so on, much as you would expect from a decent text viewer or Wordplus itself. The main appeal of Idealist, however, is that it can also do this with a range of fonts and in multiple columns. There are other PD utilities around that will print in two columns, but Idealist can handle up to nine. Furthermore, the re-formatting is done automatically, with over-long lines being neatly continued on the line below.

Font options are dependent on the printer - idealist allows the choice from one of four different fonts, as determined by a printer configuration file (more on this later). By selecting an appropriate font, the user is able to optimise the output characteristics accord-

IdeaList

...is designed to be a versatile text printing utility, handling both plain ascii and First Word (Plus) files with full recognition of control characters for different text styles. Now up to version 3, the program is highly polished and could save an awful lot of paper.

Idealist comes in two versions: an accessory and a stand-alone program. This review will be primarily concerned with the latter, though it can be assumed that most of the comments apply to both versions.

Reviewed by Sam Marshall

ing to the line length in the text file and the number of columns selected. Hence a text file of normal line length (65-70 characters) will fit neatly into two columns using a 20cpi (characters per inch) font. This means that the equivalent of 4 pages of A4 pica text will fit on a single sheet. Greater than two column printing can be very useful for text files that just contain lists of words/data. Many dictionaries for example are stored like this, and can be compactly printed without the need to re-format the original.

Optimizing the layout of text on a page is made even more simple by a page preview option. This displays the outline of the full page, and gives statistics on the number of broken lines, number of lines in the printed output and so on. A small 'magnifying glass' can be passed over the page to give a single zoomed line of text in the menu bar - fast, but tricky to use effectively.

All margins, header/footer parameter settings can be adjusted, and Idealist can assist in this with an automatic "optimise margins" option. If you use fanfold paper this can also be taken into account and a little more squeezed onto a page by reducing the space at the ends of each page.

Configuring the Printer

Idealist comes supplied with dozens of drivers, including ones

for the Cannon BJ10e, Atari Laser, HP LaserJet and DeskJet (several versions), 24-pin and 9-pin dot-matrix printers. In addition, the manual gives detailed instructions for defining your own configuration files. The format is very similar to that used by Wordplus, including the character translation table facility. This has never been the most friendly way of making printer drivers, though given the range already supplied, it is unlikely that most users will need to get involved in this unless they're determined to make the very most of an obscure printer's facilities.

Idealist supports the downloading of fonts provided that they are defined within the printer file. The Laserjet drivers that come with the package, for example, are already designed to use some of the extra fonts available for it. This system is not as simple to use as that offered by Fontswitch, but is still a welcome facility. Incidentally, if you have Fontswitch, the two programs work together well. It is also possible to use downloaded fonts with Idealist on any dot-matrix printer by installing Fontkit's Fontprint, though I was unable to get Idealist to control the downloading of fonts to Fontprint directly.

A final trick up Idealist's sleeve is a 'Joker' option. This gives a spare button on the main control panel that can be con-

figured to send any control character to the printer - to switch to bold for the whole document would be one possible use.

Actually Printing

Just when you thought it was time to actually send the thing to the printer, more options appear! These allow you to print only odd- or even-numbered pages (very useful for continuous stationery, and a feature conspicuously lacking in Wordplus), to print in reverse order (handy for cut-sheet feeders) and to skip selected pages.

Naturally the quality and speed of the output depends largely on the printer and font, but with a good driver the results can be very pleasing. Near-letter quality can be produced on just about any dot-matrix printer (though at small point sizes this can produce a rather blurred result). 9-pin DMP output at 20cpi is quite legible - certainly adequate for dumping "README" files, and all text styles are still retained (the Star LC driver even gets £ signs right!). Unfortunately, graphics embedded in Wordplus files are skipped - support for both normal and appropriately reduced output of these would be a useful addition.

A potentially very useful feature of the utility is the ability to print a file to disk. This outputs the text with all the printer-specific formatting control codes embedded in the file. The document can then be printed later (for example from the desktop 'PRINT' option) and appear as it would if output directly from IdeaList. Such portable files are very useful if you have access to a better quality printer elsewhere. It should also be possible to use the 'PRINT' command in MS-DOS or 'lpr' in UNIX to the same effect.

Finally, IdeaList has a built-in printer queue system. Up to eighteen files can be lined up to print in order, complete with independent settings for each one. The order can be easily changed with a few mouse clicks, and the list of entries saved to disk.

Extras

The registered version of IdeaList comes with several tools to further enhance the program:

Ideaform - This is a text filter for use with source code listings. It allows you to define a set of keywords, commands and control codes in a 'key' file. Ideaform then modifies the text to highlight

these features. When used in conjunction with the 'number each line' option in IdeaList this can significantly enhance the readability of code. Key files for C, Pascal, LaTeX and other languages are provided.

Ideabook - This is a program to reformat text in a book(let) format - most useful with printers that have a 'landscape' option. The output allows a central staple margin, and numbers pages accordingly. For example, for a 4-page booklet Ideabook will print page 4 on the left and page 1 on the right to form the outside cover when folded.

1st View - This is an independent freeware accessory by Guido Volbedding that integrates well with IdeaList's 'view file' option. The text in memory is passed to 1st View and displayed in a full GEM window with very fast scrolling. The degree of compatibility is such that with the accessory version of IdeaList called-up, it is still possible to use several 1stView windows. The program is an impressive general 'viewer', supporting Wordplus files with a range of text sizes, as well as displaying .IMG, .IFF and .GEM (vector) graphics - it even plays samples!

The down side to these extras is that only German documentation exists. Much of their functioning can be guessed, though I'm sure there are many subtleties that are lost without a translation of the instructions.

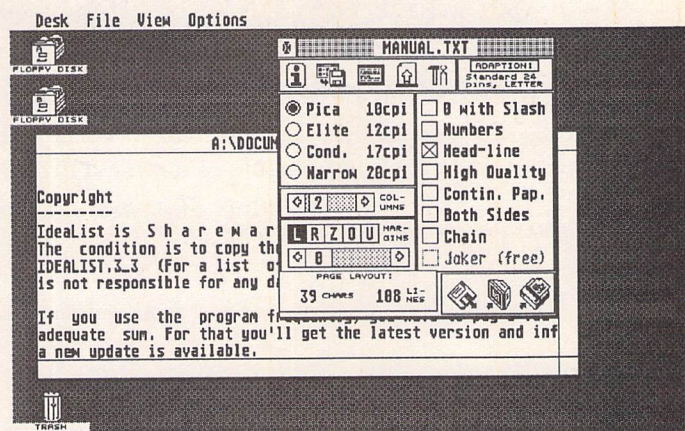
The Accessory Version

The IdeaList accessory supports almost all of the full version's features. The main losses are output to disk and support for medium resolution. The lack of the former seems a shame, as it would be very useful to be able to save a printer file to disk from within a word processor. According to the author it was omitted to reduce memory demands - requiring over 200K the accessory is already quite glutinous. The utility comes into its own in conjunction with a text editor for generating compact draft copies of documents or for quick hard-copies of code.

No compatibility problems have been detected so far - the author claims that it will work with all other accessories, and it has not conflicted with programs such as Wordplus, Redacteur, Mortimer or Harlekin.

Conclusion

IdeaList offers many of the printing facilities found in only the most expensive word processors, and more besides. It is ideal for the economic printing of documentation and code files, and with an excellent interface is a pleasure to use. Support for other WP formats - such as the 'Rich Text Format' standard would be a useful addition, and PostScript support would make it a very powerful system indeed (though that's asking quite a lot!). Recommended.



△ The accessory version of IdeaList uses a compact icon-driven approach yet still offers nearly all the functions of the stand-alone version. The window in the background illustrates the simultaneous use of 1st View to display the original text.

Summary

Points For:

- ✓ Very flexible
- ✓ Can make optimal use of printer
- ✓ Excellent interface
- ✓ Saves time and paper

Points Against:

- ✗ Help and documentation for extras is in German only
- ✗ The zoom facility in the preview mode could be improved
- ✗ No support for graphics in Wordplus files

Competition

ST Club disk WPD*33 contains 2Columns and X-column which offer multi-column printing, and 1st Print which will output Wordplus files - all are very limited by comparison.

Multiprint (ST Club £9.95) or PARSER (PTR.17) will capture printed output to disk.

Product:IdeaList
 Version:3.3 (1993)
 Manifest:Program and accessory versions, 10-page manual on disk. Registered users get extra tools and the latest version.
 Available:ST Club Disk UT1.209
 Author:Christoph Bartholme, Ettlingerstraße 37, W-7500 Karlsruhe 1, Germany.
 e-mail:Christoph_Bartholme@ka2.maus.de
 Registration:20DM (£8.50 approx.)
 System:Any TOS. Medium/High resolution ST modes. TT modes of 640*200 pixels and above. Parallel and serial printers supported. Accessory version mono only on ST. 1MB strongly recommended.

DRAWING OUTLINE FONTS

4. Letterforms: Geometry & Art (continued)

Graham McMaster

*It is always possible to devise a drawing technique to achieve any desired effect.
What is often more difficult is deciding what to draw.*

Diagonal Letters

Some letterforms which might be thought difficult to draw - perhaps 'g' and some of the other curved letters - are surprisingly easy, thanks to the ease with which Bézier curves can be plotted and shaped; while others that appear simple e.g. 'straight line' letters - specifically those containing diagonal lines - can be quite difficult in the sense that a drawing technique needs to be devised.

The nature of the difficulty is illustrated in Fig 1(a) where the co-ordinates of the points A and C and the perpendicular distance between the diagonal lines are known but the co-ordinates of B and D are not known. It is possible with the information available to calculate these co-ordinates. Indeed, the co-ordinates of the outlines

of almost all letterforms can be calculated and that will be an added attraction for some. However, the calculations are long and cumbersome and can be avoided by using the tools provided by most font editors.

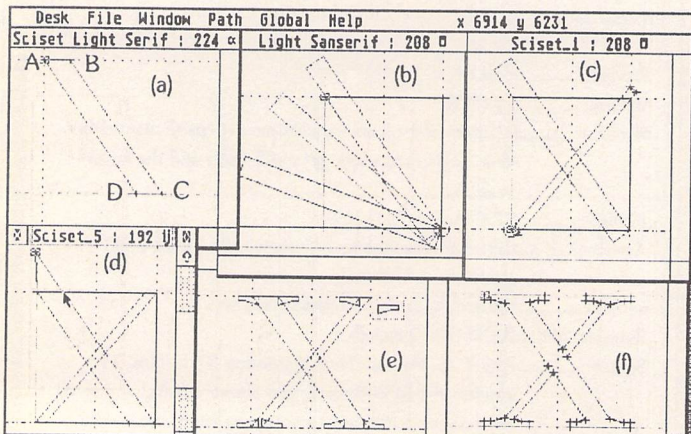
Although we cannot immediately draw the diagonal stroke, it can be drawn either when lying horizontally or when standing vertically (Fig 1(b)). Fix the drawing pin at an appropriate corner where it defines an origin for the rotation function on the editor's calculator. As the desired configuration approaches, zoom up to high magnification to ensure accurate positioning of the path. (In Fonty rotations as small as 0.1° can be specified.) Repeat the procedure for the other stroke (Fig 1(c)). The overshoots are readily trimmed by editing their co-ordinates.

For example, the last point to be edited is shown in Fig 1(d). Its current co-ordinates are obtained by calling up the 'current point' dialogue box and entering the new co-ordinates which are indicated by the mouse pointer and displayed on the menu bar. Normally this would be done at high magnification when the mouse cursor can be positioned precisely. Next, from a bits and pieces 'warehouse' drag a set of serifs into the window (Fig 1(e)) and position them precisely at high magnification. The whole procedure takes about five minutes and is applicable to all letterforms containing diagonal strokes.

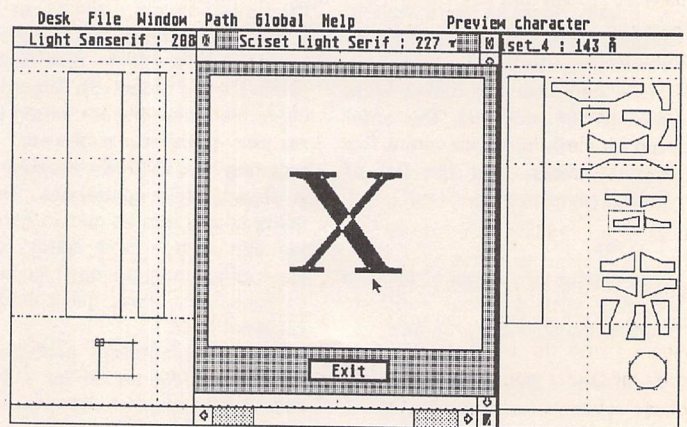
I also calculated the co-ordinates for this letter - a process that took a full hour, covered six A4 sides and left my pocket calculator red hot -

and compared them with those obtained by drawing. The maximum distance between a calculated point and a drawn point was less than 10 editor points, and that is a negligible quantity.

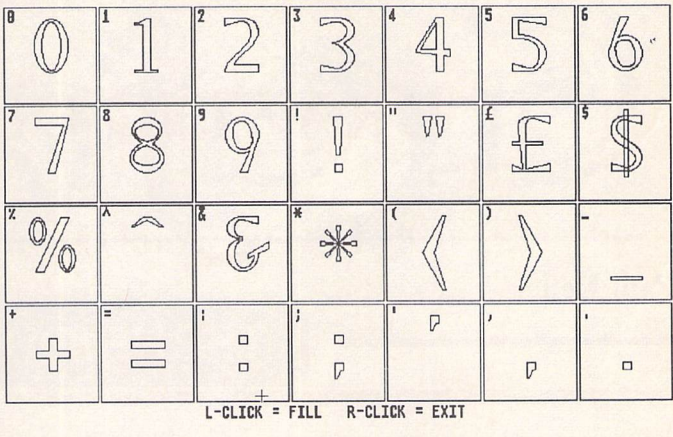
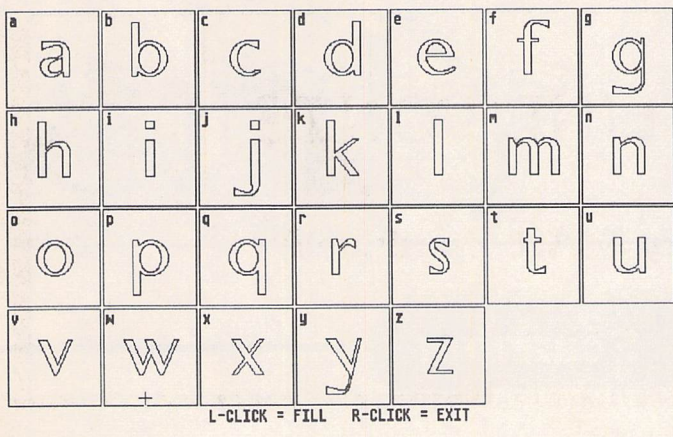
A character such as 1(e) which consists of many closed paths can be left in that form: Calamus happily accepts letters constructed from bits and pieces. The only problem that might arise is illustrated in Fig 2 where the white areas within the 'x' in Fonty's preview window indicate that some paths have been drawn in the wrong direction. It is easily rectified by displaying the path directions, selecting the offending path and reversing its direction with the menu function provided. Outline Art, the companion graphics program to Calamus (1.09N), is less forgiving and



△ Fig 1: Diagonal strokes need to be constructed rather than drawn 'in situ'.



△ Fig 2: Characters composed of bits and pieces may have 'holes' in them if the directions of the paths are incompatible.



△ Figs 3 & 4: The essential elements of a typeface are a set of proportions and a unifying shape theme.

may crash if composite characters are loaded into it. Cherry Fonts had to re-issue some of their early typefaces for that very reason. Nevertheless, it is worth delaying for as long as possible the final step of converting each letterform to a minimum number of closed paths; certainly until all the characters have been drawn and printed, because it is much easier to make adjustments and alterations while in the 'bits and pieces' form.

Converting a composite character to one with a minimum number of paths (letters such as 'o' and 'g' have a minimum of two and three closed paths respectively) involves the simple but laborious task of tracing the outlines. I prefer to avoid repeated zooming in and out although it is probably the quickest method. Instead, I make a rough sketch of the character and write in the coordinates of the outline. These are obtained either from the 'point position' dialogue box or by positioning the mouse pointer at the intersection of relevant lines (at high magnification) and reading the values from the menu bar. It is then a simple matter to plot the points on top of the existing character. Again I find the point dialogue box the most convenient way of achieving precision. At the end of the procedure the newly plotted outline is sitting on top of a stack of paths. With the icon provided, place it at the

bottom. Now comes the nail-biting part: 'pop' each path from the stack and delete it until only the new outline is left. The tension can be reduced by copying the window to the clipboard before starting - something I used to do until I found both the technique and the editor to be completely reliable. It is also worth keeping a copy of the multiple-path version of the font, particularly if bold and italic faces are being considered.

Font Themes

It is always possible to devise a drawing technique to achieve any desired effect because the problems posed are purely technical. What is often more difficult is deciding what to draw. 'X' is a particularly simple letter with not much variety of form but letters such as 'M' and 'W' have a multiplicity of forms. Should 'A', 'V' and 'W' all have the same slope? Should 'W' be the superposition of two 'V's or should the inner arms have different slopes? These are just a few of the many choices. If the objective is to reproduce a classic typeface, the answers can be found by making measurements on existing examples, but when modifications are being made or when a new typeface is being attempted, it is essential to have a guiding theme or themes.

The elements of a theme include a set of proportions for

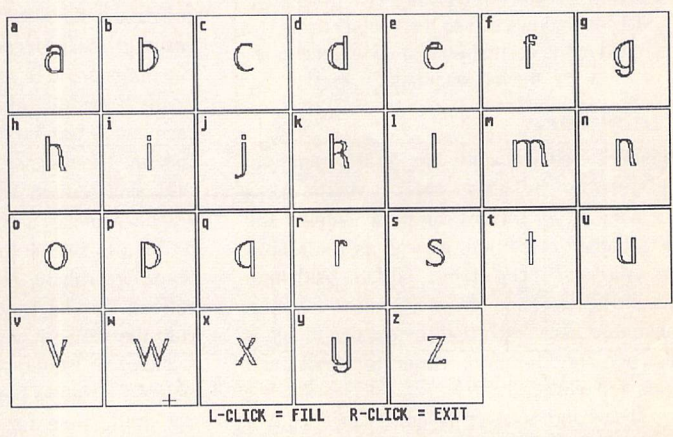
the letterforms, a particular contrast ratio and stressing angle and a set of serifs. (The PANOSE system mentioned in an earlier article identifies six different serif forms.) Completing the theme are the letterforms themselves. Often there will be one or more shape sub-themes linking letterforms and in some typefaces there is an eccentric or unique or characteristic letter. For example, I associate the high cut 'e' with Times despite the fact that in some typefaces it is cut even higher (e.g. Fig 5); and when I think of Garamond its unique 'a' springs to mind.

Fig 5 is from the PD font Middleton - the screenshot does not flatter its letterforms

which look much better when printed - in which there are several shape sub-themes: for example, the highly asymmetric 'a', 'e' and 's'; the very narrow 'f', 't' and 'r'; the curved leg on 'h', 'm' and 'n'; and the wedge-shaped thin arms of 'v', 'w' and 'x'. The characters in Figs 3 and 4 are from one of my own typefaces. It is a medium weight, sanserif face from the Sciset collection which I have just redrawn for Calamus and I offer it to the reader to analyze and criticize.

In the last article in the current series the final step in creating a typeface will be considered: kerning.

▽ Fig 5: The PD font Middleton contains a number of themes which unify the characters.



Grafix Arts

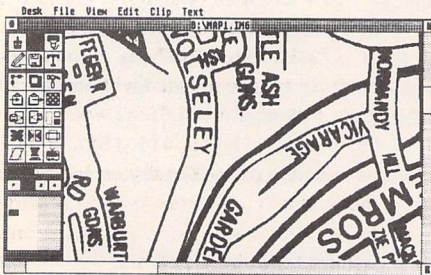
Paul Keller

TECHNIQUE – Scanning

In this month's column we look at scanning and, more specifically, the 'Naksha' scanner. Scanners are used mainly in the DTP line of work where artwork needs to be quickly transferred to the computer for manipulation. They can save a great amount of time and money in this line of work and most professionals wouldn't be without one.

Contents

Hand scanners such as the 'Naksha' come with a comprehensive manual and 'Touch-Up' software, a cartridge adaptor and power supply. This is all housed in a neat-looking plastic box cover with carrying handle and grey foam to protect the contents. The manual is an excellent ring-bound 200-page-plus affair and is very comprehensive, covering the set-up procedure of the hardware and running of the software.



△ A scanned image within the Touch-Up software at optimum viewing. Touch-Up uses GEM windows and so the image can be scrolled in the normal way to view the rest of the hidden image.

Hardware

Memory requirements are 512K minimum (preferably at least 1MB). With extra memory larger images can be scanned in and at a higher resolution, as well as the ability to edit and print from GDOS. Although Touch-Up works in all resolutions it is best in high, as at this resolution the picture image is sharper and therefore easier to handle and view for editing.

The hand scanner is quite large with a

scanning width of 105mm, but for any images larger than this two or more scans will be needed. For general use such as the scanning of logos and pictures this size will be found adequate and it is the standard width found on almost all hand scanners.

The scanner itself has four switches, one for activating the scanner just before use, located on the top. Another is for contrast control found on the right-hand side; this is used to lighten or darken a picture image before scanning it into the computer. The third control, also found on the right-hand side, is used to set the dithering mode. This switch has four settings: setting one is for 'no dither' while settings two to four are for various sized dithers (dot patterns) from a large size to a finer one with more grey shades or dithering patterns. The fourth switch, found on the left-hand side, sets the resolution. The switch can be set to 200dpi, 300dpi or 400dpi. The greater the resolution the more detailed the scanned picture image will be, but also the more memory it will take to store the image area.

In action

In addition to scanning simple black and white logos and text, the 'Naksha' can also scan in photos or colour pictures. This is done by use of the grey scale dithering switch with its four-mode function. A scan at 400dpi on dithering mode four and printed out on a laser printer gives the best detail. With all scanners there is a distinct difference between what you see on the screen and what the final printout looks like. It is wise to take several scans in the different modes before quitting the programme to print your results.

It is useful to have a strong steady surface handy for the image or images you wish to scan. The scanner is pulled slowly and steadily down over the image to capture it. When scanning a book it may be sometimes difficult to get the full page, and in such cases scanning from a reduced photocopy might suffice. The flatter your image is as a general rule the easier it will be to scan in. For the scanning of colour pictures the dithering setting of four gives best results as it offers finer dot graduations for grey scale reproduction

than the others.

This setting is also best for scanning high resolution snapshot pictures for use in art packages such as Degas. If you have Deluxe Paint you can save in IFF 16-grey scale for best results of converting colour scanned images into a low resolution bit mapped art package.



△ The impressive 'Naksha' hand scanner - a bird's eye view.

If you need to scan a light-coloured image such as a yellow logo you may have difficulty, and in such cases a darker contrast setting needs to be made. For most purposes this will suffice. If not, however, the original artwork will be needed as this will provide you with a black image to scan from, giving optimum results.

The 'Naksha' scanner is made in Japan. It is a quality mechanism with three rubber rollers for stability and smooth movement. It is a hardware and brilliant device and it has paid for itself within just six months of purchase. It was purchased from Cambridge Business Software who offer a very good, fast and knowledgeable service (a company found within these pages!).

LAST WORDS

"Machinery didn't take up the whole of life; there was time for living, and we made the most of it."

Pierre-Auguste Renoir



FALCON

APPLICATIONS

Aggressive Marketing In Europe

Atari are to spend £1.2 million on a Europe-wide advertising campaign in Atari-based magazines. The three month blitz is primarily aimed at existing ST users who are thinking of upgrading to a Falcon. Other magazines, particularly music based ones, will be targeted later in the year.

Educating The Salesmen!

Atari are to organise two dealer training sessions at Slough on 31st August and 1st September. The first is intended for general computer retailers and will include demonstrations from various software producers, combined with some sales tips. The second event is aimed specifically at music dealers with the demonstrations geared primarily towards their more specialised needs. Educating dealers on the Falcon's hardware, and showing what's available by way of software, is a smart move by Atari. It just depends on how many dealers take up their offer.

More Storage, Same Price

By the time you read this, the Falcon will be being sold with an 80 Megabyte hard drive rather than the current 65 Megabyte version, at no extra cost. Although we would all like to see the cost of the machine itself fall, the extra 15 Megabytes of hard drive space won't go amiss. Atari have put the increased capacity down to being able to obtain larger drives from their suppliers at no extra cost.

Hard Drive Bug Fixed

The hard drive formatting software originally supplied with the Falcon 030 had a bug in it that could cause the end of one partition to overwrite the beginning

of the next, if you completely filled a partition. Many users, myself included, have lost data because of this problem. Atari have released a bug fixed version of their software (which appears to be working so far!). If you have a version of HDX lower than 5.04, then you are well advised to get hold of the new version. Also included in the distribution is FPATCH2 which resolves the 'silent problem' when running STE or TT programs which use DMA sound. A couple of less important fixed programs are also supplied in the same archive. The software you require is available on CIX, NeST BBS's and from several PD libraries.

CD Possibilities Opened Up By New Deal

Atari have licensed Cinepak video compression technology from SuperMac Technology for use on the Falcon and Jaguar. It is a method whereby you can

Falcon News

compress and decompress video stills and animations to take up a fraction of the normal disk space. Cinepak is already in use on the Apple Macintosh and the developers claim to be able to fit a full length feature film onto a single CD, using their software. The advantage of their method is that the compressed images are exact replicas of the originals. This is in stark comparison to the other currently available option, MPEG. This is an adaptation of the JPEG picture file format, specifically designed for animations. The space savings under MPEG

are enormous (as with JPEG) but the end result is stored as an approximation of the original rather than a true copy. The results with JPEG and MPEG are usually indistinguishable from the original to the human eye, but since both are 'lossy' forms of compression, each time you compress and decompress, you lose quality. Do it a few times and the results are noticeable.

Latest Products

Compo Software have confirmed that both Falcon Speed (the PC emulator) and ScreenBlaster (which boosts resolution to 1152x860 on an SVGA monitor), both mentioned in last month's issue, are now available at £229 and £79 respectively. Contact: *Compo Software, 7 Vinegar Hill, Alconbury Weston, Huntingdon, Cambs; Tel: (0480) 891819.*

CGS Computerbild have released a memory expansion board for the Falcon at £76.38 plus P&P. It allows the memory to be expanded with low cost 1 Meg (only of use to 1 Meg owners wishing to go to 4 Meg) or 4 Meg SIMMs up to a maximum of 14 Megabytes. It replaces the original memory board and requires no soldering. The current board is only 67mmx120mm in size and the version for the 1 Meg Falcon will be even smaller! Fitting can be arranged at an extra charge. Contact: *GCS ComputerBild, 19 Ledbury Place, Croydon, Surrey; Tel: (081) 686 8121.*



When Atari first brought out the ST, they did something rather surprising which completely blew away the standards of the rest of the market: they brought out a mono monitor.

That doesn't sound very impressive, but the specs on it were great compared to the PC fodder. Most impressively, it worked with a refresh rate of 70Hz, making the display incredibly solid and stable, an absolute pleasure to work with when you'd been forced to sit in front of a CGA or EGA screen, or even a VGA with a 50Hz refresh rate. And it cost less. Thunderous applause.

To make the most of this achievement they, quite naturally, never made it available to the main market place, never adapted it to work with VGA cards and never improved on the original design.

Now the Falcon's out. With the Falcon, they've made True Colour available (Taaa Daaa!), they've made it possible to plug in standard VGA monitors (Taaa Daaa!), they've completely bollixed it up and given it a life expectancy of two years (Taa oops).

Since the arrival of the Atari mono monitor, standards have changed. It's now the subject of the European Community Screen Directive, introduced on January 1st by the UK Health and Safety Executive for new machines and due to become British statute in 1996 for older equipment, that a monitor in the work place should have a refresh rate of at least 72Hz to ensure that "the image on display screen equipment should be stable, with no flickering". Most VGA monitors now on sale will conform to that (but check to make sure). Atari, however, have got around this happy state by limiting their VGA output to 61Hz. And, just to add a top sprinkling of satisfaction, they've not let them display True Colour (showing less than 0.5% of that because "the monitors can't handle it") or switch to SVGA mode in overscan.

Those of you who read the Falcon review will know that I tried it out on an SVGA monitor and was very happy. It displayed more text on screen than the mono monitor, and was stable enough to work with. Since that time, I've been able to do more realistic compari-

Monitors

VGA

Piper tries out a selection of VGA monitors with the Falcon and sums up their respective strengths and weaknesses.

sons and have seen that the mono display is still clearer than the VGA, although the VGA is quite adequate (I'm using one at the moment) and does allow some colour, despite the Atari restrictions. I've also used products other than a word processor on it, and found that the colour of the VGA monitor can be a substantial bonus (like letting you know that you're in Record mode for D2D's 4T/FX). It's good enough. But in just over two years it'll probably be illegal to expect people to work with it. How dumb.

Games will be coming out on the Falcon. Some will be translations from the PC, and as such will be designed to work with VGA, so the translation will be much easier (and more likely) if the Falcon uses VGA mode. For serious work, if you want to use more screen than on the mono and have colour whilst avoiding the Falcon's stunningly well thought out Flicker Mode for TVs and ST colour monitors, you'll need a VGA monitor, despite Atari's pointless limitations. Sometimes I despair of them. We can only hope that they'll fix the fault (and illegality) in a future upgrade.

In the meantime, we have the promise of the Screen Blaster from Compo, which will take the refresh rate to 80Hz in VGA and allow the Falcon to use SVGA (800x600) and higher, non-standard resolutions, as well as investigations by Titan Designs and others into including True Colour mode for their own graphic enhancers.

Bottom line: if you get a Falcon, you need an SVGA.

Idek Iiyama MF-5314

A company with a strange attitude. I phoned them to ask if they could send me a monitor so I could check if it worked in Atari's overscan mode. Certainly not, they said. They then proceeded to invite me down to their newly opened office in Stevenage so that I could try out every single one of their monitors to see if they could help out.

Idek Iiyama are an established monitor company, but have just set up a direct sales business in Britain, which gives us the dual advantage of dealing directly with the manufacturer if things go wrong, and having a pretty good price too. Their monitors range from 14" with resolutions up to 1024x768, to 21" with resolutions up to 1600x1200 (all with unlimited displayable colours - Atari please note). They specialize more in the higher end of the market, but are currently in the process of producing an entry level 14".

One of the reasons for getting in touch with the company was that they had advertised that their monitors could go into overscan. The idea of getting all the Falcon VGA overscan mode on screen made me all shivery, so we proceeded to open numerous boxes pulling out different monitors of different sizes and specifications to find out the joyous fact that IBM-speak and Atari-babble are different languages. Overscan for an SVGA monitor is not overscan for the Falcon. None of the monitors performed the joyous act.

I was then offered - well, actually I was offered a stiff drink and a quiet place to have a sob. But then I was generously offered one of the 17" models to take away and try out for a couple of weeks. Instead, I asked for one of the 14" models, since that would be more in the price range of someone trying the VGA option for the first time. And it would be lighter to carry. There were two 14" models, the DR-3114 and the MF-5314. Comparing the two, the MF-5314 seemed to have a more stable image and better technical specifications (and besides, it was the model that the technical support engineer, Richard Edgar, was using on his desk), so that's what I've got here now.

The specs for it show that it will handle 30-60kHz horizontal scanning frequency, go as far as 90Hz vertically (using auto-scan, so it selects the right frequency), has a 0.28 dot pitch, conforms to MPR-II and will stretch to displaying 1024x768 pixels non interlaced. The screen is non-glare and anti-static. (Turn on the TV, then put your hand near it. The screen crackles. Doesn't happen with anti-static screens.) Front panel controls allow you to change the vertical and horizontal size and position, the brightness and the contrast. Like most SVGAs, it has no speaker.

A drawback of this model (and all the 14" models on test) is that it does not have an FST (flat square tube), that first appearing in the 15" MF-5315. FSTs are definitely an advantage and should be grasped firmly if on offer.

To work with, it's fine. No, it's not quite as solid as the mono monitor, but even with Atari's silly output, it's pretty good. Going back on old ST games is a pleasure because of the greater clarity available, and with this around I don't switch back to the mono monitor for writing.

When I first saw the prices in the office, I got quite excited about it. Here were SVGA monitors at prices within a few pounds of the Atari colour monitor. It was only later I realized that these were prices excluding VAT. With that added on, the MF-5314 is priced at £318.43, still quite reasonable. The DR-3114 is slightly cheaper at £274.95, whilst the micro-controlled 15" MF-5315 is £455.90. One of the other nice things about the company is that there is a 30-day money back guarantee, so if you get one and don't like it, you can send it back.

If you're looking around for an SVGA, make sure you check out one of these.

Product:.....MF-5314
Price:.....£318.43
Company:.....Idek Iiyama
Address:.....8, Viewpoint,
Babbage Road, Stevenage, Herts,
SG1 2EQ
Tel:.....0438 745482

Tatung TM3401

Something you may notice if your hearing stretches to the high range is that this monitor has a tone similar to that of a TV. Not anything to do with a speaker, just a sound the screen makes. Not a problem, just an observation.

The horizontal scanning frequency is 31.5-38kHz, whilst the vertical frequency covers 55-70Hz, selected through auto-scan, with a frequency of 87Hz if you kick it into interlaced to get the maximum resolution of 1024x768.

Controls are for the standard brightness and contrast with width, vertical centre and, in SVGA mode or above, horizontal centre and vertical height.

The screen is non-glare and suffers a little from static attacks when you turn it off or on, but these seem to clear up quickly. Dot pitch is 0.28mm.

When it's turned off, it looks a little better than the Idek offering, with a round tilt and swivel base rather than the Idek's square ver-

sion, but that's merely a matter of taste, not performance.

As I'm writing this section, I'm using the Tatung and find that I have a slight preference for the Idek (currently switching, just to check - yep, I do), but no firm facts to base that preference on. The Tatung is quite a reasonable performer.

It slips slightly when the price is brought in and future upgrades are considered. With its interlace mode, it may not be able to cope well with any add-ons that can upgrade the Falcon's resolution, and at £386.58 is £70 over the Idek.

If you can get it cheap or second hand, it shouldn't be dismissed. At full price, there are better, cheaper models around.

Product:.....TM3401
Price:.....£368.58
Company:.....Tatung
Address:.....10 Stafford Park
Telford
Shropshire
TF3 3AB
Tel:.....0952 290111

Hyundai HCM-425E

Staying down in the colour monitor price range, we have the Ladbroke contribution which, finally, has a colour limitation. Yes, Atari were right. With this monitor, you can only display 262,144 colours. Since the Falcon can only produce 262,144 colours, this doesn't look like a real drawback. Especially since the Falcon can only handle 65,536 colours for any one screen.

Front panel controls on the monitor are limited to just brightness and contrast, though there are some twiddly bits at the back to let you adjust the horizontal position and the vertical size. Again, there's no horizontal size control, limiting you to just under 9.4" screen width compared to just over 9.7" for the AOC.

Horizontal frequency is 31.5-35.5kHz, with vertical frequency putting in a 56-87Hz range, the upper part of the range again being restricted to the interlaced 1024x768 resolution. For normal everyday VGA mode, it keeps to a frequency of 59.9Hz, making it entirely adequate for Atari's dreary 60Hz output. Although in use I found the AOC slightly clearer, once

more we find that the display differences are fairly small since the Falcon gives such a low grade output which all the monitors on test can easily cope with.

The price on this model is £239.99, making it a definite contender with the AOC. Dot pitch is 0.28mm, and again there are no MPR-II compliance claims. It has slightly less rounding to its corners and suffers the same amount from static on its non-glare screen.

If you're going for the cheaper option, the AOC saves a couple more pounds, has a slightly larger display and has the centre and size controls at the front.

Product:.....HCM-425E
Price:.....£239.99
Company:.....Ladbroke
Computing
Address:.....33, Ormskirk
Road,
Preston, Lancs,
PR1 2QP
Tel:.....0772 203166

AOC CM-335

Moving firmly into a different area of the market, we come across Titan Designs' offering, a 14" monitor which they will provide either as part of the Falcon bundle or as a separate purchase.

Let's start out with the good side: it costs £233.82. That's pretty good. To get to that price point, certain concessions have been made, but keep the price in mind.

The screen looks like a cheap one. The rounding of the corners is very visible, and static stays with it throughout the session. There's no claim that it adheres to MPR-II standards, but I couldn't check it out as my utility belt had run out of radiation checking devices.

There are controls for brightness, contrast, horizontal centre and vertical size, though none for horizontal size, so the usable portion of the screen is smaller than on the Tatung or Idek.

Specs for the monitor show it has 0.28mm dot pitch on a non-glare screen. The horizontal scanning frequency is 30-38kHz, whereas the vertical range is 50-90Hz, though the high end of the vertical frequency is

used when the monitor is switched to interlace to achieve its maximum resolution of 1024x768.

To avoid this interlace and improve the display, Titan also have the AOC 15" model, with FST, 0.26mm dot pitch, microprocessor controls and a £468.83 price tag. Twice the price, but it's not just for the extra inch.

The screen display when looking at pictures did not seem as good as that of the Tatung, but when using the word processor it seemed to be slightly sharper, though not quite as good as the Idek. Once again, these were small differences that you'd only notice by setting them up together and looking, not when you're just working.

Well worth a look if money is a deciding factor.

Product:.....CM-335
Price:.....£233.82
Company:.....Titan Designs
Ltd.
Address:.....6, Witherford
Way, Selly Oak, Birmingham,
B29 4AX
Tel:.....021 414 1630

Techie Bits

Dot pitch: The distance between dots. Not the same as pixel size, since at least three colour dots go to make up the pixel. 0.28mm is the current standard. The smaller the dot pitch you have, the clearer the picture will be. Unless it's zero, in which case you won't have much of a picture at all, just a very bright spot.

MPR-II: Sweden's comprehensive health and safety standard for

monitor radiation emissions, a lot lower than the previous safety levels and taken as a standard to be measured against.

Interlaced: For the Falcon, read Flicker Mode. In interlace mode, every time you refresh the screen, you actually only refresh every second line, so you halve the screen's refresh rate. To be avoided unless the refresh rate is very high.

Conclusion

NONE of the monitors seen here was pushed to its limits by the Falcon's Statute-defying display, so an absolute best is difficult to determine. If price is a major consideration, try the AOC, and ask Titan Designs about the package price if you buy the Falcon from them as well. Ask the same of Ladbroke, since the price differential is minimal, and the displays are very similar.

For something a little more future proof, the Idek has the best display at the highest refresh rate and will cope with 1024x768 resolution without interlace, all at a reasonable price. The only problem with that is that the Falcon can't match it. But give it time, give it time.

FALCON

FORUM

From this issue on all readers' letters that deal exclusively with Falcon-related matters will be printed on these pages. The layout is similar to the standard Forum pages - see p.39 for key.

Why not buy a Falcon?

I May I take this opportunity to congratulate you on the great service you provide to Atari users and say how much I look forward to ST Applications each month?

While I am on the subject of the magazine, I would like to add my comments to the great 'Atari versus PC' debate.

I have read all the letters sent into the Forum section on the above subject with great interest. It was a few weeks ago that the time had come to upgrade my old STFM. I thought seriously about buying a 486 or a Falcon. All my friends have PC's of one description or another and were keen to persuade me to buy an IBM compatible.

After comparing the two machines' specifications it was pretty clear that as each machine had its own merits and disadvantages the decision was going to come down to one thing: availability of software and support. This is where the Falcon took the lead as I have a large library of Atari software and no PC software, and the question of software compatibility wasn't really a worry as it had been made clear that well written software would run on the Falcon.

Many letters have been written on the lack of support for the ST and Falcon but I must say although this is correct at first glance a closer look shows things are not that bad. I bought a Falcon for three reasons:

1. The ST Club
2. Cambridge Business Software
3. HiSoft

Having used all three of the above companies I can strongly recommend anything you require for your machine to be purchased from them.

My friends thought I was one sandwich short of a picnic when they saw my new machine - notice I said *thought*, past tense. I even got a comment from one PC user on what a great idea it was to put it all in one case.

Software that runs on my Falcon includes: Calligrapher, Superbase Professional, PageStream 2.2, Data Manager Professional, Harlekin 2, NeoDesk 3.3, Diamond Back 2, Diamond Edge, UIS III, Easy Draw, Fontkit Plus 2, Imagecopy 2, Touch Up with Naksha scanner, XBoot 3, Knife ST.

K Beardsworth

Falcon Compatibility

I Well, the Falcon has landed, and so here's my list of things that work. The best advice seems to be to try everything!

Applications

GEM applications will usually happily run in VGA modes as well as ST modes giving 20% greater screen height.

1st Word 3.02: OK, except that it grabs all memory so that CPXs won't load.

HyperDraw: Works better! The mouse pickup problem (on my old ST) disappears.

That's Write 2.03: Crashes when trying to print! Those clever Germans have already fixed this bug, and COMPO will send v2.09 free of charge. 2.09 also has some minor improvements, though in VGA mode the windows are apt to get confused about displaying sliders and buttons.

Degas Elite: OK, but only runs in ST modes of course.

Opus 2.2: OK, but a peculiar bug stops all graphs from being displayed in VGA modes.

Utilities

Superboot v8: OK. The welcome screen is in colour, as the Falcon starts up in ST Low Res mode! Hint: NEO pictures will display with correct palette only if Animation is turned on.

Little Green Selector: OK, except the more heterodox the screen resolution the more likely it is to pop up in the wrong place.

Neo Desk 3.03: This has the Falcon fixes and a free bug - it won't delete folders!

Games

Protected disks, the sound glitch and not being able to turn the volume down are the main snags. Knights of the Sky is the only Microprose game I've found to work. Contrary to Piper's experience, my copy of Sim City runs fine off the hard disk, and at a decent speed! A warning to Railroad Tycoon addicts: it will crash after about twenty minutes play...

MultiTos

Initial impressions are favourable - it does try very hard to run awkward programs. It actually copes better with some programs than the current Falcon TOS! Publisher 2 for example now runs apart from needing some assistance with screen redrawing (try ALT-E to force a redraw). Contrary to Dan Wilga's optimism, I can't get NeoDesk 3.03 to run under MiltiTos.

Speed though is another matter: down to worse than the ST even with a single application running. In its present form MultiTos is only worth using if you really need frequent swapping between programs. I've just found a bug - That's Write 2 mysteriously misses out characters when printing!

Picture Display

Experimentation with TruePaint, a TV and a VGA monitor suggest the best screen modes for pretty pictures are:

On a TV/Atari monitor: True color, 80 col, interlace, overscan ON (768 x 480); and on a VGA monitor: 256 colour (shame!) 80 col, double line OFF (640 x 480). Try the Astronaut picture that comes with TruePaint for comparison. The TV aerial picture is excellent, as good as that with the RGB lead my ST uses.

SpeedoGDOS

What's this - accessories from Atari that don't look like unfinished beta-tests? This is not the delightful bunch of amateurs we've come to know and love...

It seems Atari have put some effort into creating a system that will let old programs use the new outline fonts, as veterans such as Hyperdraw and Degas display them happily. Publisher 2 is perplexed however, and will need an update. I guess GST were expecting the cancelled system and are consequently a trifle unhappy about this!

Hartley Patterson

Q Are there Multiprint and Mouse Tricks upgrades due for the Falcon? I particularly miss BigST; Big Falcon, Big030 or Big Bird would be most welcome.

By the way, PageStream 2.2, MegaPaint Pro V4, HyperPaint 2, Jimmy White's Whirlwind Snooker, Scrabble Deluxe, Backgammon (Atari), and PD titles including: 4-7-11, Panic, Poker Squares, Push Box, Worm and dear old Megadroids, all seem to work perfectly well on the Falcon.

Colin Fisher-McAllum

● As so many of our commercial titles are written by freelance authors there is inevitably going to be a delay while these authors save up for a Falcon or wait for a loan Falcon from us

to pass their way. At the latest, we expect to get all actively supported applications upgraded to support the Falcon by the end of this year. The PD and Shareware disks are unlikely to be thoroughly checked for Falcon compatibility until the TOS 4 bug fixes stop trickling out of Slough: probably with the launch of the re-cased (and, we hope, re-priced) Falcon.

Falcon Feedback

I Thank you for your reply to my letter regarding the problems I have experienced with printing from Imagecopy 2 on the Falcon.

I have successfully managed to print some images by selecting the "BIOS" option from the print menu of Imagecopy 2. Choosing "Printer Direct" only results in the print-head moving slightly and printing a few ASCII characters.

Michael Ahmed

Q How do you format a High Density Disc for 1.4 Mbyte on a TT/Falcon, rather than 720K?

How do you get at the LAN Port? Obviously some drivers would need to be written. How is it mapped? I would like to try writing a simple LAN for my own machines, but currently I lack the data.

S D Morris

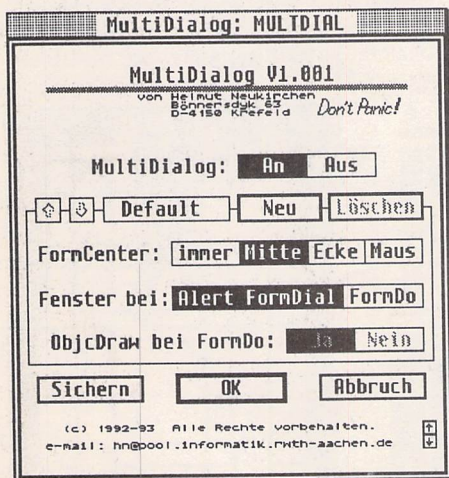
● Floppy format options are offered in the Copy/Format dialog box: I can't see any room for confusion here. Details on the LAN port are available in the official Falcon documentation: DocSupport VI, £49 from Atari UK on 0753-533344.

Falcon Scanner

Q Does anyone know of any scanners that work with a Falcon? Apart from SCSI Flat beds?

S Bartrick

● Touch Up and the Naksha scanner reportedly work fine on the Falcon.



△ UTI.321: Multi Dialog

Falcon PD and Shareware

Games

GAM.224: OXYD: Falcon version of this brilliant game - guide your black marble through mazes and dodge the obstacles. This version has access to the first ten levels, and the codebook supplied to registered users gives access to over 200 new levels. Great graphics and very high quality sound.

Graphics

GRA.182: JPEG Picture collection plus Baby slideshow program. JPEG files are: Astrona1; Baby; Birds; Blade; Blume; Butrfish; Clowns; Conan; Dragon; Dragonr; Egyptian.

GRA.183: FALCON GRAPHICS UTILITIES: BIT CAMERA - demo version of an image utility from SKWare One. Will load, view scale and convert, monochrome, 4 colour, 16 colour, 256 colour and True Colour images. Loads in GEM, IMG, ST/TT IMG, XIMG and XGA images. Save facility is disabled. DML - collection of simple utilities for loading and displaying IFF, RAW and Targa picture files. IFF2XIMG - converts Amiga IFF images to 256 colour eXtended IMG pictures. IFF HAM8 - loads and displays Amiga IFF/HAM/8 pictures files - also works on the TT. PARAGON - Paragon Computers and Moving Pixels Falcon 030 vector graphics demo from Australia that will use your own sound samples at 50KHz. PMAS-TER - demo version of the CYREL PALETTE MASTER. Features smooth shading, cut and paste colour clips, swap, copy, rainbow, save and load functions, colour and greyscale conversion, palette or profile operation, multiple UNDO functions, gamma correction and colour level adjustment. SPEED of LIGHT v2.1 -

very fast GIF file displayer which can display up to 16 Million colours on the Falcon. BLADE - JPEG picture file.

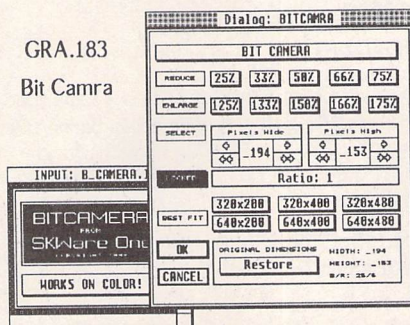
Music

MUS.98: FALCON MUSIC Utilities and Demo's: 525 - converts sound samples to/from: DVSM (Falcon), AVR (Atari), - SND, AU (Sun, Mac, NeXT), WAV (PC), and raw data. DIGI TAPE - working demo of this direct-to-disk recording package from Trade It - supports stereo 16 bit A/D and D/A converters and real-time DSP generated effects such as reverb, flanger, and vibrato. German program with English docs. Recording time limited to 20 seconds sample time. WINREC - complete direct-to-disk recording package that supports DSP real time effects.

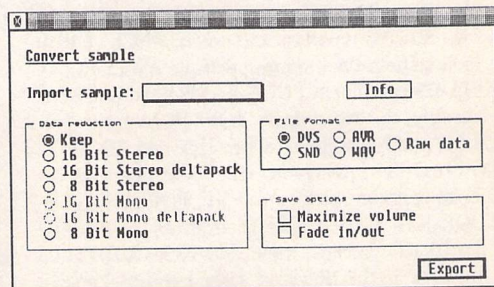
Utilities

UTI.321: FALCON UTILITIES: BOOTCONF - 'configure at boot up' utility in German. FBOOT - installs a floppy disk bootsector that toggles the 68030's cache and the Falcon inbuilt speaker, and allows bypassing of the hard drive. MULTI DIALOG v1.00 - puts most GEM-dialog boxes into a GEM-Window so that you can access the menu-bar or other applications while a dialog is running. Very useful with MultiTOS. MEGA DP2 - Falcon version of this packed program depacker. PRIORITY - German utility to control priorities of applications running under MultiTOS. PROC LIST - display a list of MultiTOS processes that are running. TT GAMES - gets some ST games to run on the TT and Falcon.

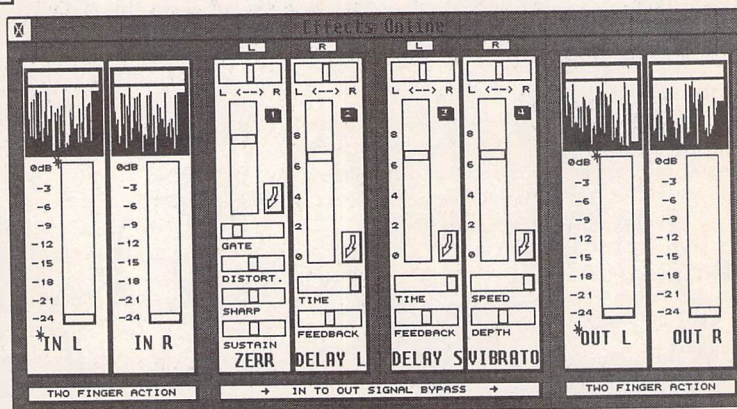
GRA.183
Bit Camra



MUS.98: ▷



△ MUS.98: 525



UPDATE

Atari Portfolio

APF.02: PORTFOLIO UTILITIES: GRAPHIC FILE COMPRESSOR v1.10 - Converts PGF files into PGC compressed format that can be viewed with PGSHOW v1.10+ and read by PBASIC 3.1+; PGEDIT v1.1 - Graphics Editor to create, edit, and modify PGC graphic files; PGSHOW v1.10 - view Portfolio Graphic Files; PGLIB v1.0 - Library of C graphics routines; SNATCH: TSR to create Portfolio pictures using your favourite paint program; PORTFOLIO BASIC v4.1 - A simple batch oriented BASIC interpreter; PF CLOCK - TSR clock.

APF.03: COMMUNICATIONS UTILITIES: PRN-LPT2 - redirects data sent to PRN or LPT1 to LPT2; XTERM1 - XModem and Text File Transfer package; SIMPLE TALK - small and simple terminal program for straight ASCII upload from a PC; ST FOLIO and ST TALK - transfer files between ST and Portfolio; OTHERS > 8088 OTHELLO and TETRIS; RPNALC - Emulates a Reverse Polish Notation scientific calculator.

APF.04: PORTFOLIO TOOLS: ARCE v4.0c - extracts files from ARCs; FIXOD and TESTOD v1.0 - fix and test graphics reading; 80 COLS v2.0 - 80-column software screen; BACK UP - tools to help backing up portfolio data to an MS DOS machine; CLOCK and PORTCLOCK - display the time/date; PORTFOLIO FILE DUMP v1.0 - displays files in Hex and ASCII; PORTFOLIO PARTNER - file transfer utility for transferring files to the ST; PORTFOLIO TOOL KIT v2.0 - suite of utilities to make using the Portfolio simple and easy; VIDEO DISPLAY EDITOR v1.52 - very comprehen-

sive and fast text editor; WS EDIT: file editor.

APF.05: ANARKEY v3.0: command-line editor for efficient entry of DOS commands; CALC - turn YUR Portfolio into a pocket calculator; DOSEDIT - ANOTHER EDITOR; PORTFOLIO CHESS v1.0 - small chess program; PORTFOLIO FILER v1.0 - file manager to replace the one supplied with the Portfolio. (\$PAS)

Applications

UTI.319 and UTI.320: HYPERLINK: a Hypertext cum Multimedia database demo that can combine graphics and text with standard database storage. This run-only version will run any standard HyperLink application allowing database queries, searches, data entry, and report printing. Sample Hyperlink applications supplied on this disk include: a database for coin collectors, an inventory control system, a menu management application for restaurants, stocks and shares control, a notebook and address book and a guide to designing bicycle wheels! Also included is a demo of the Application and Report builders to give a taste of how easy it is to make new databases.

Clip Art

SSM.114: ClipIt Clip Art Disk 1 - IMG files are: Artist01; Baby01; Banner01; Banner02; Banner03; Bike01; Bike02; Bike03; Burglar; Bus01; Bus02; Bus03; Bustop01; Bustop02; Bustop03.

SSM.115: ClipIt Clip Art Disk 2 - IMG files are: Camera01; Canoe01; Car01; Car02;

Car03; Chess01; Church01; Church02; Church03; Church04; Cleftblk; Clown01; Clown03; Clown04; Clowno2.

SSM.116: ClipIt Clip Art Disk 3 - IMG files are: Comitte1; Comitte2; Comitte3; Comitte4; Comitte5; Comput01; Comput02; Comput03; Comput04; Copier; Cycle.

SSM.117: ClipIt Clip Art Disk 4 - IMG files are: Decor01; Decor02; Dog01; Dog02; Dog03; Donkey; Door; Eating; Fax01; Feet; Fence ad; Filmstrp; Flower01; Flower02; Flower03.

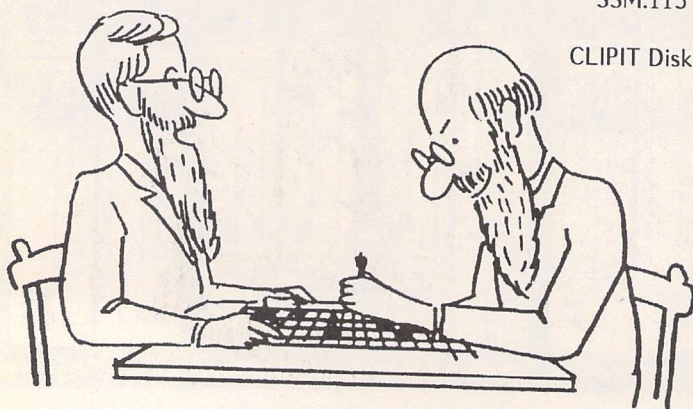
SSM.118: ClipIt Clip Art Disk 5 - IMG files are: Garden01; Garden02; Garden03; Garden04; Garden05; Head02; Head03; Head01; Heart01; Help; Help01; Holid01; Holid02; Holid03; Hosp01; House01; Jail; Kids01.

SSM.119: ClipIt Clip Art Disk 6 - IMG files are: Leisure; Man01; Man02; Man03; Man04; Man05; Money; Moon01; Mum01; Notice; Office; Plane01; Pound; Rabbit; Read01; Read02; Read03; Rock01; Roller; Running.

SSM.120: ClipIt Clip Art Disk 7 - IMG files are: Scooter; Screen; Signpost; Spacesat; Sun01; Taxi01; Taxi02; Tennis01; Thinker; Toast01; Treasure; Tree01; Tree02; Van01; Whbarrow; Wheelch; Xroads.

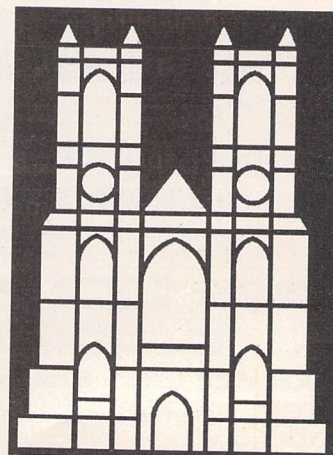
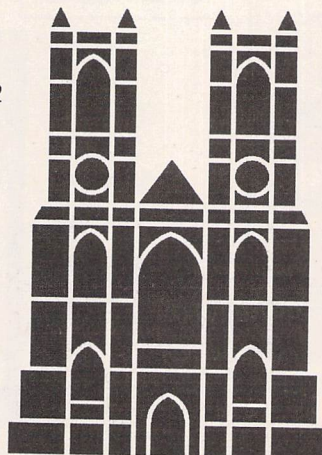
SSM.121: Sport Clip Art - IMG files are: Boxing; Fencing; Horse; Jesus; Muscle01; Muscle02; Muscle03; Start; Stoneage; Waterski; Weights1; Weights2; Weights3.

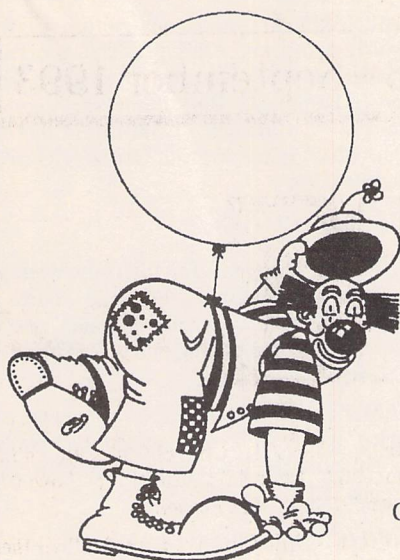
SSM.122 and SSM.123: Two disks of EPS (Encapsulated Post Script) format clip art. Files are: 1st sub; 757estrn; A86917aa; A86917ab; A86917ac; A86a16aa; A86a16ab;



SSM.115

CLIPIT Disk 2





SSM.115

CLIPIT Disk 2



A86a16ac; A88323aa; A88323ab; A88323ac; A88423aa; A88423ab; A88423ac; Anchor1; Armyseal; Autum; Banner4; Bbamboo; Begypt; Bnbridge; Bunson; Christm; Cityscape; Coffsign; Dining; Dive; Drinsign; Educat; F16climb; F16upblk; F4; F stylsh; Feertif3; Fglassc; Filecab; Flyace; Fnouvflw; Foodcoll; Foodsign; Globe1; Golf; Hand; Horn; Ibrmps2; Jet; Judo; Lamps; Ldiamond; Man; Mandesk; Mandollr; Manphone; Manrun; Manwoman; Mardy; Mk46; Mob Inch; Moneybag; Mumsday; N86224aa; N86224ab; N86224ac; N87b28aa; N87b28ab; N87b28ac; Nasp; Occupat3; OfLOURsh; Oscar; Palmtree; Panda; Parrot; Party; Pc; Pencil; Pepdesk; Phantom; Piano; Plant; Pliers; Porsche; Powline; Que; Sail boat; Saintday; Sanimals; Season; Shell; Slide; Stfsgt; Stopwtch; Tape; Thndrbrd; Till; Tower; Trawarev; Trophbar; Trophbox; Troptile; Tropvbar; Trout; Useg 200; Useg man; Ussrsht; Wash mon; Wave; Womdesk.

Colour Pictures:

SSC.126: PHOTOCHROME SLIDESHOW 1: Viewer plus good collection of PCS Files: Ball; Bowl; Candle; Columns; Folly; Hardwood; Mirror; Piano; Plus; Room; Table; Wall_sph.

Demo's

XXX.249: IMAGINA: Soundtracker style music, with some decent graphics.(C)

XXX.250: TEA PARTY DEMO - 15 Demos written in Omikron Basic. Quite impressive for compiled basic, on a par with GFA 3 programs.(C)

XXX.251: CHEETY GOES TO THE BANK - Comic style picture slideshow.(C)

XXX.252: FISH N' CHIPS - By Sewer Software. A collection of 13 demo's, including 3D graphics (Red/Green specs needed), large screen scrollers, big sprites, parallax scrollers.(C)

XXX.253: THE NEW YEAR DEMO - A collection of sound & graphics demos.(C)

XXX.254: STE DEMO - by Atari France. AXEL-F dma music with scroller and flying

balls!(C:STE only)

XXX.255: STE DELERIOUS DEMO 3 - collection of graphics and sound demos for the STE, featuring the full STE palette and DMA sound.(C:STE only)

XXX.256: OUCH - Songs of the Unexpected. An excellent STE music demo. Plays sound-tracker style music. Very good quality sound samples.(C:STE only)

Educational

EDU.47: THE WOLF AND THE SEVEN KIDS - Talespin adventure game based on the fairy tale. Colourful and very good for children aged 5 - 9(C). **ABCD 3.0 -** Alphabet game - arrange letters, letter sequences, and letter matching. **CAPITAL FUN! -** reinforce fundamental capitalization rules - Capital Fun was designed according to Bloom's Taxonomy of Higher Order Thinking Skills and Madeline Hunter's Steps of the Teaching Process... **DOT TO DOT v 1.9 -** collection of join-the-dots puzzles. Covers numbers, capital letters and small letters; plus an editor for creating new puzzles and option to colour in completed pictures (C). **MATHDRILL -** tests basic arithmetic - addition and subtraction with numbers less than 10 (\$PAS); **MATH QUIZ -** maths trainer (C); **NUMBERMAZE -** maths game; **RG MATH VI**

- maths program to test all aspects of arithmetic(C:Not STE).

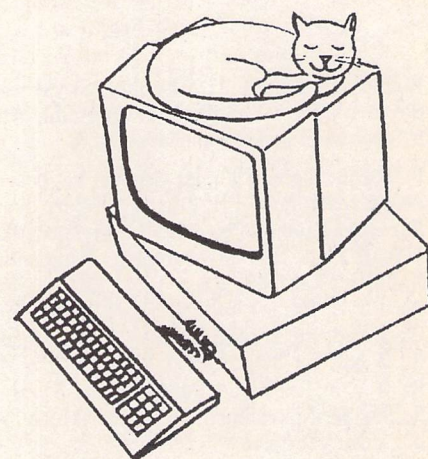
EDU.48: EASTER EGG HUNT - child-friendly adventure for 7-12 year olds - no violence, monsters or anything else which could be disturbing to children (C); **MASTER TIME -** excellent time telling package for kids - was an £18 commercial title and now shareware (C).

EDU.49: FROM PICTS TO PARLIAMENT - entertaining slideshow detailing British history; **FRANGLAIS 5 -** fifth in this series of fun French teaching packages; **ZOO MAKER - ZOO MAKER v2.1 -** question and answer database where the computer tries to guess what animal the user is thinking of, based upon yes/no questions. More animals can be included when the computer fails to guess the correct animal.(C)

EDU.50: GERMAN - shareware German tuition package; **THE SEARCH ADVENTURE -** You must search the village of Bidden for information about the Griggs family who are the oldest family in the village. The aim is to introduce youngsters to the methods of the historian detective.(\$STAC)

Fonts

FON.155: Calamus Fonts: Bitblock; Bitboxes; Brs; Bud; Bullet15; Bullet25; Cupertin; Hbvl; Hbvl co; Hbvl ic; Hbvl it; Hebrew; Hermes; Meadow; Meadowco; Meadowic; Meadowit; Pelik co; Pelik ic; Pelik it; Pelikan; Persönl2; Pittsbrg; Pyramid; Round; Round co;



SSM.116

CLIPIT Disk 3



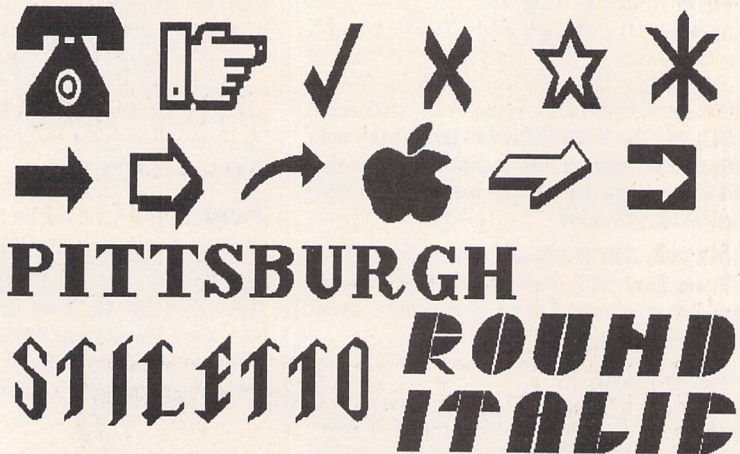
Brushstyle Script

Buckman Demi

CUPERTINO TT

PYRAMID

PELIKAN ITALIC



Round ic; Round it; Skyline; Skyscrap; Steela z; Steela z; Stilleto; Triline; Zibi; Zibi it. Some fonts not fully implemented.

FON.156: Signum Fonts: German keyboard 24-pin fonts: Euro grl; Euro grm; Euro nor; Euro pin; Kuenstl; Pcourfe; Pcourlt; Phonetik; Plakat; Plop; Pris 11; Pumpbig; Pumpbold; Rahmen; Rahmen; Ra 1 q d; Ra 1 q m; Ra 1 r d; Ra 1 r m; Ra 2 qaf; Ra 2 q m; Ra 2 rad; Ra 2 ram; Ra 2 v d; Ra 3 qad; Ra 3 qaf; Ra 3 q f; Ra 3 q m; Ra 4 v d; Ra 4 v m; Ra 5 vad; Ra 5 vaf; Ra 5 vam; Scriba; Serifmkr; Small; Stencil; Strike; Symbol; Viza; Western.

FON.157: Universe Signum Fonts at 11-point, 14-point, headline, small and micro for both 24-pin and 300-dpi printers. Plus a selection of German keyboard fonts: Altgrie; Anti-

△ Calamus Fonts: FON.155

This is BRITAIN as you know it today.

Around 500,000 years ago it was joined to the Continent & the CHUNNEL was't needed to nip over for the old duty free. Not only that there were inhabitants who were clever enough to make tools from flint and bronze. Soon they could make fires and weapons, lived in caves, had barbecues and even managed to cut their beards now and again. Have a look at the situation before we move to 600 BC -> 50 BC.

kro1; Antimikr; Anti cap; Antrol 7; Art-dec24; Astronom; Atari pr; Bauhaus; Bauhaus2; Bauhaus5; Bauhaus7; Bauhausb; Bauhausl; Bauhauso; Big; Bignegro; Bigvoll; Boecklin; Carrera; Chantal; Church; Churchbo; Churchwa; Gill; Gothik; Hebrfett; Hebrhell.

Games

GAM.222: The Quest for the Holy Vest: innovative and amusing graphic adventure in which you have to trundle grandad around house and garden helping him to find his vest. (C:IMeg)

GAM.223: HOT WHEELS: fast action car racing game with split screen two-player option and a track editor to make your own circuits. (C)

Graphics

GRA.181: LINE UP: takes three vertically misaligned R.G and B PI1 files to produce from them three perfectly aligned files which can then be combined to get the correct multicoloured image. Essential for correcting misaligned RGB grabs from video recorders. (C)

GRA.182: TT GRAPHIC UTILITIES: DIAG Demo from Atari Corp - excellent TT demo that uses NEO format files; MAGICPEN - simple paint package; M_BROT - mandelbrot generator; PNT VIEW - viewer for Prism Paint PNT picture files; ZEIG NEO.

Information

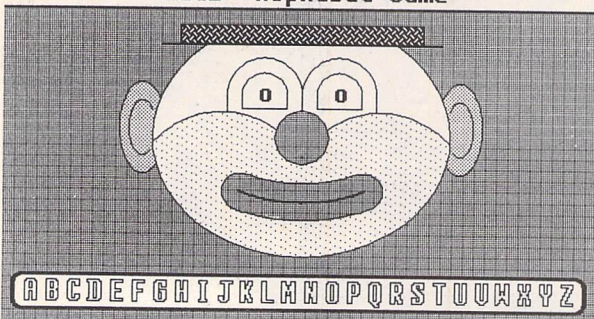
INI.65: Inside Information issue 65: Jam-packed quality disk magazine from Australia. Files include: ACC Help; Actstory; Arcs; Atr-futur; BBS Help; Callfix; Computer News; Datalite; Disasmble; Echornail; Falcon News; Files; Jaguar; Llam_add; Mbrows; Memform; Meminfo; Midi Help; Midi Spy; PD Update; STOS TIPS; Supprod; What is PD; plus Z NET Issue 93-18.

INF.65: LAST WILL - how to write your own will; SCIENTIFIC AMERICAN - Superbase database of Scientific American articles - needs Superbase; TAX NOTES - how to fill in your income tax form; WATER GARDEN - interactive package that details how to make a water garden.

INF.66: Ancient History: collection of ST reviews and disk magazines from 1985 and 1986, Digital

Desk File Play Help Misc

'ABCD' Alphabet Game



△
◀ EDUCATION ▶

EDU.47, 49, 50.



KEY

All disks should run on an Atari ST, STM, STF, STFM, STE, Mega ST, Mega STE, TT, Stacy or ST Book with at least half a megabyte of RAM, a double-sided disk drive and a mono or colour display - unless the disk description advises otherwise. We no longer support single-sided disk formats. Disks have not yet been tested for Falcon030 compatibility - details on this will be reported in future Updates.

(M) - Runs in High Resolution Mono.

(C) - Runs in Medium or Low Resolution Colour.

(1Meg) - Needs one megabyte of RAM.

(Not TOS1.6) - Will not run under TOS 1.6 (STe) or TOS 1.4.

(\$) - source code included.

(\$C) - C language.

(\$ASM) Assembler.

(F) - Falcon required.

Copyright: To the best of our knowledge everything on the disks in this catalogue may be freely distributed. If you know otherwise please let us know and the offending software will be immediately withdrawn.

This catalogue is originated and copyright the ST Club.

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Ordering Details

Please note that we do not accept orders by credit card. Orders accompanied with a cheque or postal order are dispatched by 1st Class post on the day we receive them.

All PD disks are copied onto high quality disks from known manufacturers. The price you pay us for PD disks covers only the costs of acquisition, duplication, cataloguing and distribution.

PD and Shareware Disk Prices

up to 6	£1.45 each
7 to 9	£1.25 each
10 to 24	£1.00 each
25 plus	£0.85 each

Licenceware disks cost £2.95 or £3.95.

All prices include VAT, packing and 1st Class post.

The Order Form for these disks is on Page 57

Research programmers guidelines - including a highly amusing text detailing the improvements that GEM 2 offered after the out of court settlement with Apple. Vast amount of LZH'd nostalgia.

INF.67 and INF.68: Ancient History part 2: Digests 1 to 4 cover a wide range of Atari related BBS downloads from 1990. All LZH'd.

INF.69: The Treasure of the Sierra Madre by that most mysterious of authors, B. Traven. The full, out of copyright, book typed in both ASCII and Write ON formats by B Traven.

MIDI

MID.74: Updated disk - A880 editor for Roland A880 MIDI Patchbay is now at version v2.8.(M)

MID.81: SNDC - Random sound creators for the Korg DW-8000, Yamaha TG33, and VFX synthesizers (M); **WAVE LIB** - transfer a bank of data derived from any Wavestation (except the SR) between the Wavestation and ST disc. Two banks of data can be held in ST memory; **WAVE ST** - System exclusive dump utility for Korg Wavestation; **GS ALPHA** - Alphabetic list of GS patches.

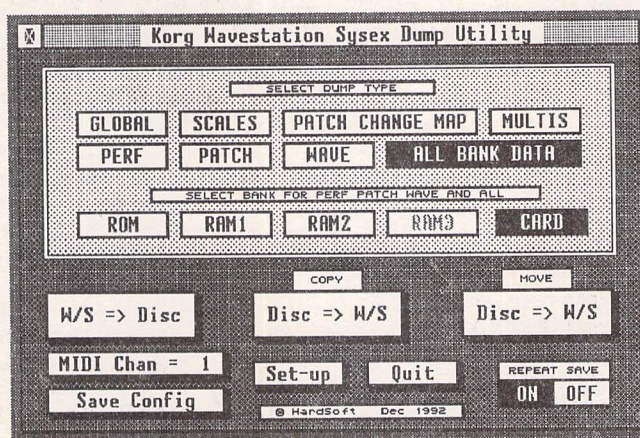
MID.82: DW8000 v3 - Korg DW8000 Mixer Map for Cubase Midi Manager; **DX 21 OVER** - 21 OR OVER - A simple patch

librarian/editor for the Yamaha DX21, DX27, or DX100 synths; **E SQUIZIT** - Librarian and patch editor for the Ensoniq ESQ-1 synth; **MidiFOXX v2.12** - Receive, Send, and Save SysEx data, Choose bulk dump requests from a menu - and observe and edit SysEx data; **GEN DUMP v2.1c** - Generic MIDI bulk dump utility. Allows the contents of most synthesizers to be saved to disk and sent back to the synth; **KORG** - Poly 800 and EX800 voice editor and librarian; **MIDI DUMP - ACC** to upload voice banks to a synth; **MIDISEND** - Desk accessory for sending data to a Midi synth; **RANDOM PLAY** - Random tune generator, generates random notes through MIDI; **SCHOENBURG** - Algorithmic Compositional Program.

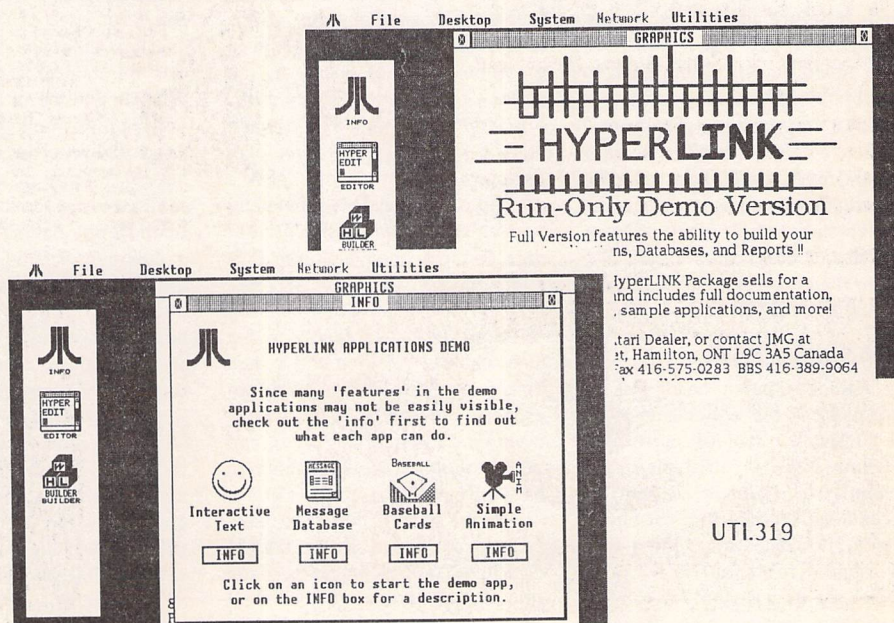
MID.83: 590 DUMP v2.1c - saves the contents of a Yamaha PSS590 to disk and upload the files back; **D110 VPK** - MOSTER PATCH voices for Roland D-110 By Sorcerer Sound Productions; **D5 SNDS** - Roland D5 Keyboard Performance Patches and Tone data; **K1 MT 32** - 64 voices for the Kawai K1, K1M and K1R and Roland MT32 Synthesizers.

WP and DTP

WPR.118: PAGESREAM SUPPORT: This disk now includes the PageStream 2.1 to 2.2 update files for updating your version of PageStream from v2.1 to the latest version.



MIDI.81



UTI.319

Beginners' Forum

Hard Disks (Part 1)

This month, inspired by a couple of letters from Val Gutzg of Oldham, Mark Baines continues his thread on disks.

Up until recently, most computer users wouldn't or couldn't contemplate buying a hard disk - they were very expensive and had a reputation for fragility which put off most prospective buyers. Hard disks are so commonplace in PC computers nowadays that it's almost impossible to buy a computer without one. The enormous sales of PCs and the heavy competition has resulted in falling prices which Atari users have benefited from, for, apart from some interfacing problems, most hard disks used on PCs can be used on the Atari range. My first hard disk was a Supra 20Mb which cost me £523 (ouch!) in March 1988. Today, I could buy one nearly ten times that big.

I'm not going to spend any time justifying the purchase and use of a hard disk as others have done it before within these pages. Suffice it to say that if you have ever relied on one, going back to a floppy disk-based system is almost impossible. The convenience of having all your programs and data together, the speed and versatility are not to be underestimated. It also releases the size of program and data files from the constraints of the capacity of a floppy disk.

Winchester drives

A microcomputer hard disk is normally of the Winchester type. It consists of one or more aluminium disks - called platters - mounted one above another on a rotating spindle, thus forming a stack. The disks are coated with a magnetizable surface on to which the data is stored much like a floppy disk or tape. Because

these disks are rigid they can be rotated at high speeds, typically around 3,500 rpm, and the read/write heads can be placed extremely close to the surface without the disk flexing and hitting them. On floppy disks and tape systems these heads touch the recording surface, but in hard disks they fly above the surface on a cushion of air called the air boundary layer. They only touch the surface when no data transfer or track seeking is taking place where they come to rest on a special landing zone. The thickness of the air boundary layer is less than a particle of smoke or dust which is why they have to exist in hermetically sealed cases. Contact with such a particle at these speeds would irreparably damage the heads and the surface. This speed and closeness to the surface enables smaller track widths (see Issue 29) and therefore a greater density of them on the surface compared to floppy disks. My 90Mb hard disk has a track density of 1,681 tracks per inch compared to a floppy disk's density of 135tpi. This principally accounts for a hard disk's greater data capacity over a floppy disk even though their overall size may be the same. Common disk diameters are 5.25 inch and 3.5 inch whereas 2.5 inch and 2 inch disks are becoming common especially in notebook-style portable computers. The Falcon can be fitted internally with a 2.5 inch hard disk unit.

A typical hard disk may have 2, 3, 4 or more disks or platters depending on its capacity. Each side of each platter is recorded on and so there has to be a read/write

head for each surface. These travel together in the gaps between the platters moved by a stepper motor or voice coil that allows precise, accurate movements of the arms holding the heads. Each head is an electromagnet or transducer in which the direction of an electric current can be reversed. This current produces a small magnetic field and changes in its direction change the orientation of the magnetizable particles on the recording surface in a pattern representing the bit-patterns of the data to be stored. It is the spacing in between these changes or flux transitions that is significant not the direction of the particles. The line along which these tiny magnetic fields occur is called the track. When reading, these flux transitions cause temporary currents to flow in the coil of the head which are then translated into bit patterns which represent the data. This data is usually coded and compressed to achieve a greater storage capacity and faster transfer rates. The hard disk controller translates it before sending it on to the computer. There are two main data encoding methods for disks, Modified Frequency Modulation (MFM) typically used on floppies as well as hard disks, and the more common Run Length Limited (RLL) which has a better storage density but is slightly more expensive.

So data is stored on tracks. All the tracks that lie in the same corresponding position on each side of each platter is called a cylinder. When the heads write data to the surface they do so to all those tracks forming the cylinder at the same time, so that in a hard disk with two platters, there are four heads for each of the four tracks in every cylinder - see Figure 1. The number of cylinders varies according to the size of the platter but as an example, my 90Mb disk has 1,334 whereas a floppy disk has 80. Floppy disks work in the same way, of course, a double-sided floppy having two tracks to a cylinder. Reading and writing data many tracks at a time cuts down the movements of the heads enormously, and as these are mechanical devices they are the slowest components of a disk mechanism and a major bottleneck of data transfers. One of the ways of measuring a disk's performance is the Seek Rate time - how long it takes to move the read/write heads to a different cylinder. It is usually expressed as an average time, that is, the time required to move to half the num-

ber of tracks on a disk surface. Associated with this is the Access Time which is the time taken for a read command to go from the computer to the disk and for the first bit to be read from it back to the computer. Obviously, the performance of the operating system, interfaces and controllers also come into consideration here. Many manufacturers make a big deal of this figure and although significant it is not the most important performance measurement. What is paramount is the Data Transfer Rate, which is the amount of time between the reading of a bit from the disk and the completion of writing it into the computer's memory (or vice versa) and measured in bits per second. Again, the performance of the controllers and interfaces is significant.

Controllers and interfaces

The floppy disk is controlled by the Floppy Disk Controller chip which is a WD1772, an early standard controller, simple and quite versatile. It receives its signal from the CPU which translates them into signals the floppy disk drive can understand. This principle is not unlike that of printer drivers which I discussed in Issue 27 - one device or interface (hardware or software) translating commands for another. In the same way, a hard disk has to have a translator or controller and in the last few years one standard has become dominant on most micros - the SCSI or Small Computer Systems Interface. This interface standard was originally developed by Shugart Associates in the 1970s as a hard disk controller called SASI or Shugart Associates System Interface. Theoretically, any of up to seven SCSI devices can be connected to a computer with a SCSI port, such as disk drives (floppy, hard disk, CD ROM, removable SyQuest cartridges), tape devices, scanners, typesetting machines etc. Hard disks are usually of the Embedded SCSI type where the SCSI controller circuit is built into the drive making them compact and cheaper.

The SCSI port on the Mega STE and TT is controlled by a NCR5380 SCSI controller which is capable of a data transfer rate of 4 Mbytes a second. Recently, the SCSI standard was updated as SCSI-2 which has a theoretical transfer rate of 40 Mbytes per second. The Falcon's external SCSI port complies with this standard.

So, on the Mega STE and TT you can simply buy a SCSI hard disk and just plug it into the hard drive bay on the right. The Falcon is different as its SCSI port is an external port and any drive plugged into that would have to have a case and power supply as well. The Falcon also has an IDE hard disk interface internally fitted. IDE stands for Intelligent Drive Electronics or Integrated Drive Electronics. It is another standard which has become very popular on PCs although they are not as fast or as versatile as SCSI drives (IDE drives are too slow for direct to disk multichannel sound sampling at high sampling rates and also chaining them together can be a problem). They are, however, cheaper from their association with the PC and because they have their controller circuit included within the drive electronics.

But, hang on - I haven't mentioned the ST or STE. Now things get silly! Originally, for some unknown reason, Atari didn't want to include a proper full implementation of the SCSI interface on the ST. They devised a cut down version, a subset of the SCSI standard, which is called the ACSI or Atari Computer Systems

Interface and which is an extension of the computer's DMA (Direct Memory Access) bus. This allows for fast transfer of blocks of data from one area of memory to another and so is ideal for communicating between the ST and certain peripherals which require fast transfer rates, such as the Atari laser printer and hard disks. The resulting 19-pin ACSI external port is often called the DMA port and Atari refer to it as the Hard Disk port in the manuals. This interface is limited to 24-bit addresses (a proper SCSI port can access the full 32-bit address space) and its limited command set means it cannot directly control SCSI devices. So, what is needed between the ACSI port and a SCSI device? You guessed it - another translator or controller! When Atari released their first hard disks, such as the SH204, they had to insert an additional circuit in between the hard disk and its controller card and the ACSI port - this was called the AHDC or Atari Hard Disk Controller. It translated the signals from the ST's DMA bus into something a SCSI controller card connected to the disk could understand. Nowadays, embed-

ded SCSI drives are used where a separate SCSI controller card isn't required. See Figure 2.

But the DMA and ACSI port don't work on their own. There also has to be software controlling them, translating commands from the user and TOS and keeping tabs on what is on the disk, where the data is, initiating the data transfer commands and how the disk is formatted. This software is the AHDI or Atari Hard Disk Interface and is Atari's hard disk driver.

It wasn't long before third parties started to produce their own controller cards or Host Adapters (i.e. adapting the signals from the 'host', the computer) as they are known. Two companies are particularly successful - ICD and Supra, both from the US. ICD produce a range a host adapters, some with real-time, battery backed clocks on them and some small enough to fit inside a Mega ST. Each manufacturer of Host Adapters also produces hard disk driver software to control the host adapter and drive, and the ICD utilities suite is probably the best there is. I'll look at this software next month.

Send me a letter or EMail with

ideas for future articles. Thank you for the letters received so far. Although I can't promise to respond to all personal queries, I'll do my best. An SAE is welcome. You will also find me on CIX and the NeST, TurboNet and FidoNet BBS networks where this magazine is supported.

Mark S Baines
Beginners' Forum
Linnhe, Shore Street
Inver, by Tain
Ross-shire
IV20 1SF

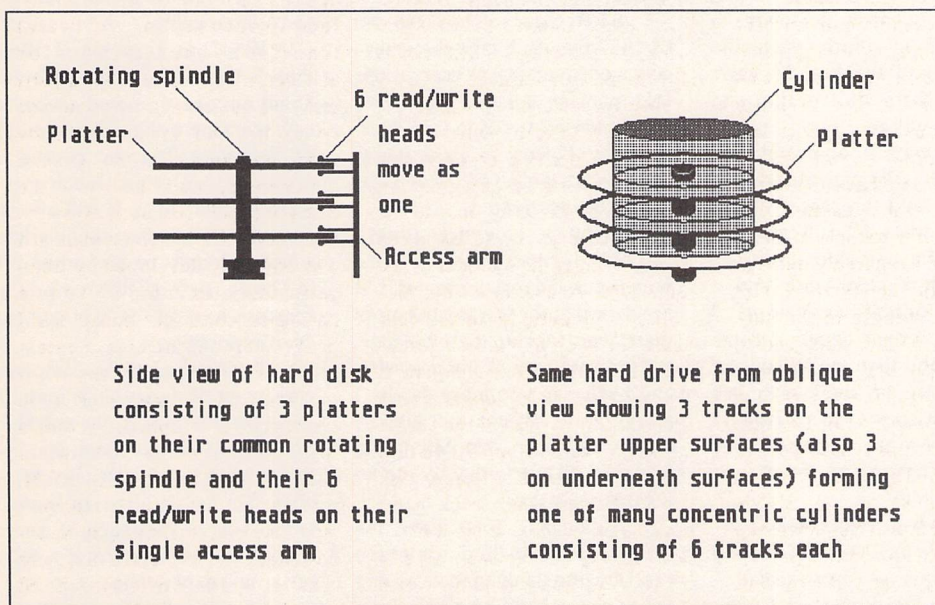
EMail:

Internet:
msbaines@cix.compulink.co.uk

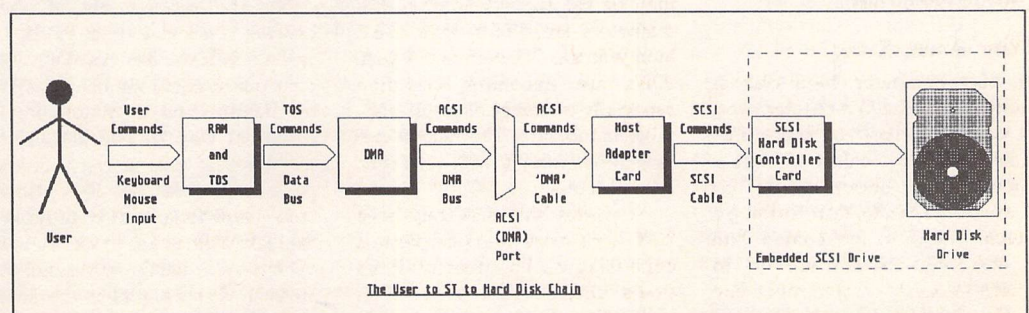
NeST: 90:105/5
STA support in N.ST.MISC echo

FidoNet: 2:259/29.10
STA support in ATARIST echo

TurboNet: 100:106/0.10
STA support in T_ATARIS echo



◁ Figure 1. Diagrams showing the relationship of platters and heads, and the concept of a cylinder.



▷ Figure 2. The chain of commands from user to disk.

DESKTOP DISCUSSIONS

The Loneliness of a New Falcon User

With the number of Falcons in the country still tiny, just who do those few Falcon owners turn to for support and advice? William Hern has a solution.

You, dear reader, may be one of the select few who, by a mixture of skill, luck and probably not a little blackmail, have managed to buy one of the first Falcon computers. If you are, then I congratulate you and wish you many happy hours with your new machine. Just the looks you'll get from envious ST owners will probably on their own be worth the money you paid for it.

Unfortunately I fear that you may run into a problem - where is the support for your Falcon? Developers can take advantage of Atari's own scheme for providing comprehensive documentation and support but not many amateur users can afford the cost of this. They must look elsewhere for information and advice.

But where? Currently there are no magazines, no books and only a couple of user groups specifically for the Falcon. And the bitter truth is that there won't be any until the number of Falcons sold makes such ventures financially viable. Even with the most optimistic of sales predictions, that won't be until at least next year.

So what can Falcon owners

do in the meantime? I have a solution - what we need is a person prepared to maintain a database of the addresses of Falcon users so that owners with similar interests can find each other and swap information about their new machines.

How do I know this would work? Simple - it worked for the ST! I began ST Register, as it was imaginatively named, back in 1986 when the ST was in a very similar position to that now facing the Falcon: little software, a dearth of in-depth magazine coverage and the few ST users that there were scattered far and wide.

The way it operated was very simple. All I required was for users to send me their details (name, address, type of machine and specific computer interests) along with a blank disk and a stamp addressed envelope. I would enter their details into the database and then put a listing of the database on the blank disk and send it back to them. I would also put a couple of choice public domain programs on the disk as well to fill it up.

Users were then free to contact anyone in the database and communicate as they wished - my role in the process was over. Although it was a very simple idea, ST Register worked well and some of the users who met through it remain in touch to this day. I made use of it myself to swap programming tips and adventure game hints.

One of the problems I faced was publicising the register. As the service was free I didn't have any money to advertise it nor were there any large PD libraries through which I could distribute

the disk. Instead I wrote letters to every general computer magazine I could think of, explaining ST Register and how users could join in. The majority of editors kindly printed the letters I wrote, so giving ST Register the publicity it needed. I was also greatly helped by Dale Hughes, the then columnist for Hugh Gollner's ST User/World magazine who gave me plenty of advice at the start and mentioned the register frequently in his columns.

ST Register ran until the end of 1987 by which time the emergence of several large user groups and machine specific magazines had rendered it redundant. Now with the Falcon in its infancy, perhaps it's time for the register idea to be resurrected.

Being a hideously overworked columnist I don't have the time to run the register myself but I'm sure that there's someone out there who fancies the challenge. Write to me care of the magazine and I will give you more details. I also promise to give it full support and coverage in this column to launch it. I'll even volunteer to be the first regrestee.

Although I don't have the time to do it myself, don't let me fool you into thinking that running the register would be particularly time consuming. While there is the initial work of putting the rest of the database disk together, once this has been done the only work left is entering new names into the register and copying the disk for the user.

You may also be surprised by the generosity of people willing to help you. I was indebted to so many users who, between them, sent in enough PD software to fill ten register disks, let alone

one. One user even wrote an excellent database viewer program so that users had an alternative to reading a simple ASCII file.

In any case the enjoyment that you'll get from interacting with Falcon owners is well worth the investment in time and labour. I spent many an enjoyable hour on the phone talking to the ST users, learning of their problems and their views on a wide variety of subjects. I'm quite certain that the first Falcons owners will be just as interesting.

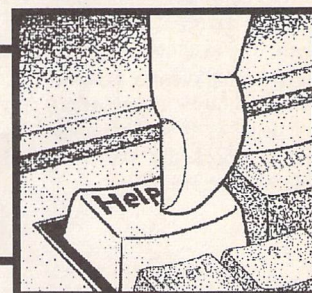
Why am I so sure? Well, there's something a bit different about anyone prepared to buy a new machine within a few months of its release. The new computer probably won't have much software written for it. It will almost certainly have a few rough edges which will only be smoothed off in later production models. Expansion may be difficult or even impossible.

To the pioneering computer user, none of these things matters - it is the potential of the machine that is what excites them, and inspires them to explore its capabilities. To be the first to exploit some facet of the machine, some trick of its architecture, is a truly rewarding experience.

As collator of Falcon Register (I'm sure that you can think up a snappier title) you'll have the chance to work with the pioneers and it'll be a memorable experience I guarantee. Who knows, maybe one day you'll be able to look back and say that you played a part in making the Falcon a success story. Step forward, O Falcon user - your computer needs you.

William Hern

FORUM



STicks and STones

I'm sad that Günter Minnerup is ending STicks and STones. For me, it is this kind of contribution which is most appreciated and most absent from commercial magazines. It is clearly personal, at the same time well informed and thoughtful: by the same token, I guess he's in the best position to know when to finish. (I enjoyed the same sense of critical involvement with Andreas Ramos in Y2M, though on balance I preferred the first version.)

As someone who is a casual user, and not greatly computer literate, I have been very heartened by the range of the user base, and by the sense of common purpose. I wonder whether this is something that the Atari has unwittingly fostered, in that the unreliability of support from the Corporation has obliged and

The Forum pages are a regular feature of ST Applications, enabling readers to exchange ideas and help each other out with problems. Whilst we attempt to briefly answer questions here, if you have additional information or ideas please do submit them for publication. What you consider to be trivial information can often be of considerable use to other readers!

Please send your letters on disk if possible. Disks will be returned with a PD of the writer's choice. Longer submissions may appear as articles, in which case you will receive payment at our standard page-rate.

Key:

The following codes are used for each Forum entry:

J Pringle - Forum STA 20: Author who first raised the subject, and in which issue.

Q Question

A Answer

I General information or 'Input', advice, discussion, hints and tips, etc., with or without reference to previous Forum pieces.

● Editorial reply

encouraged many people who had invested in an essentially good machine to build on its potential. I know nothing of Amigas, little of PCs and wish I could afford an elaborate Macintosh setup. However, this machine has done most of what I'd wished for and I've been able to add bits when I could afford them. It has been easy to learn to use, and I prefer not to buy commercial software - it is a pleasure to support shareware authors and to share in the ingenuity of many PD programs.

It is clear from the shops that the Atari is in trouble: even the magazines are getting harder to find. The plus side is that you occasionally come across some heavily discounted software - it might even be something that you want...

No, I'm certainly trapped economically with this machine. If the Falcon was half its price I could perhaps consider it, but only if it could run the software I currently use. What I hope is that the present user base keeps the ST supported, hence my worry about the departure of Sticks and Stones, as it feels like the retreat of intelligent involvement.

John Henderson

It was upsetting to note that Günter Minnerup is to stop doing his STicks and STones column. It would be totally wrong for me to say that his column was the best thing in STA as it would be impossible to grade articles in the magazine. What I find very good and useful may be of little interest or use to another reader, but I certainly looked forward to reading Günter's comments and accurate portrayal of the Atari and general computer world.

His comments on IBM/Microsoft/Bill Gates certainly made me think about how big businesses carve markets up for themselves. It is us, the little user, that has to pay inflated prices for any type of computer (or other) gear. Luckily, there are many programmers/artists/writers, etc., in the ST world who are only too willing to share their knowledge with us in the form of programs, clip art, interesting magazine articles and the like for little or no reward.

Günter, your column will be missed, and I hope your words will haunt Sunnyvale and Slough for many years to come. Maybe, just maybe, someone within Atari will realise that the actual ST-Falcon user/programmer does

have a right to be listened to and often knows the market better than the so-called 'experts' who sell STs one day and Amigas the next.

Guess that's all for now. Keep up the good work with the magazine - Peter Robbins is right, a weekly edition with about double the articles would be brilliant!

Mike Kerslake

● And double the cover price?

Soaraway Falcon

Douglas Orlowski - Forum STA 32

Apple is quoting a suggested retail price of £850 plus VAT for their LC II 4/80 with a colour display. This is a 16 MHz 68030 machine with 4M bytes of memory and an 80M byte hard disk. For 25p (yes, £0.25) more Silica will sell you a Falcon 030 with the same processor and memory, a 65M byte hard disk and no monitor. The Apple monitor is a 640 by 480 pixel 14 inch Trinitron model. An equivalent monitor is about £300 plus VAT. The Apple system does not provide a DSP chip, parallel and MIDI ports. It does have a second serial port and an expansion slot. Given that Apple is one of the largest personal computer manufacturers in the world and Atari, in comparison, is nowhere, which computer would you choose?

Chris Isbell

Ceefax ST

J Furness - Forum STA 30
Richard Hunt - Forum STA 31

Richard Hunt's letter in Issue 31 sets various bells ringing. I remember thinking years ago how useful it would be to be able to decode Ceefax (Teletext) into a computer for printing out etc. I seem to remember that Philips once marketed a set with a built-in thermal printer, but it died almost immediately.

Richard Hunt mentions something called the "Morley Teletext adaptor": news to me. Where does it go? Is it a stand-alone TV receiver, or does it plug into an existing TV?

My personal problem at present concerns

BBC World TV, which comes to me by satellite. I depend on the WTV Teletext for programme information and I long for a hard copy. The trouble is the Satellite signal arrives coded in D2MAC and scrambled with Euro-crypt. The satellite amplifier/de-crypter has a fairly bog standard Teletext decoder somewhere in it, which enables one to see the Cee-fax pages, but the only way I can think of getting it off the screen would be with a Polaroid camera.

John Durst

● It would be a tiresome process, but you could grab the teletext pages with a Genlock and then print the screens. Or maybe just video the pages?

Professional DTP?

Q Following the theft of our IBM equipment in December last, our insurance company allowed us to replace the stolen equipment with hardware and software of our choice. As we had always done our best design work on my home Atari 1040 with Calamus 1.09, my partner opted to purchase the 4 meg Falcon 030 (64MB hard drive), Calamus SL and a Hewlett Packard 550C printer. After wading through several hundred sales reps with 10 gallon hats on, we managed to be supplied with all the above by the Silicon Centre in Edinburgh.

Happy ending, you might (erroneously) think. We enclose a copy of a printout using Calamus SL and the Hewlett Packard. It should have a half inch border round all 4 sides and both the border and the text should be black! The off-setting of the printer can be got round by many trial printouts to adjust the margin settings ie: left margin set on Calamus at 0.40 will give a half inch when the printer encounters paper! However we can only obtain black if we use the HP Laser Jet printer drivers and then we can't do colour. We can do colour using the HP 500C driver but then we get green instead of black.

Halco told us that they do not have a printer driver for the HP 550C as yet and then compounded the injury by sending us a photocopy of a German magazine article with codes for the 550C driver to correct the non-black. We presume they thought we could not read the German. Wrong - I am pretty fluent and my best friend is a German! We asked them if they had read the article; they confessed they had not and told us to wait for the 550C driver. Unfortunately they cannot tell us when this will arrive, if ever! Perhaps this is like the copy of MultiTOS, still outstanding for the Falcon, and may not arrive in our lifetimes?

Hewlett Packard are equally unhelpful. They seem to think we have the mentality of a couple of console players as we have not repurchased a PC. The fact that Calamus SL beats the hell out of Pagemaker, Corel Draw and Ventura Gold seems to have escaped them! Having said that, there are at least 550C printer drivers for Pagemaker - they came with the printer. As the Falcon shuns any

attempt to software-emulate a PC this is not an option. The Falcon also shuns the other Atari DTP packages. The motto seems to be anything that cost under 200 quid won't load, so if we can't do full colour with SL we can't do it at all.

I suppose we just bought the wrong stuff, but no-one was able to give us a demonstration of these three not working together when we bought them. We took people at their word and now we're stuck with them. We still think Calamus SL is brilliant and the Hewlett Packard a very good printer: we just wish they'd talk to each other better. Any input welcome: all suggestions will be tried, excluding throwing it all in the bin. My partner has had to be restrained from doing this on several occasions!

Julie Ann Lannon
Frustrated DTP designer

P.S. Abusing Halco and Hewlett Packard doesn't work - we tried that last month!

● Surely DMC in Germany have written a suitable driver? Not that you should have to go to such lengths for support on a £400+ package. Latest news is that there is a new UK distributor for Calamus: JCA, who can be contacted on 0734-452416. Hopefully the level of after sales service improve now.

Testing DMA Chips

Mike Miner - Forum STA 16
Mark Walton - Forum STA 18
David J Lindsay - Forum STA 19
RM Dickson - Forum STA 21
Ian Abbott - Forum STA 22

Q I have an Atari STE 520 and have been considering getting a hard drive. My STE is of the batch which will not "save desktop" in medium resolution and I have been told that some hard drives won't work with this computer. Even worse, that because of this bug it can destroy the hard drive!

Could you please supply some facts on this subject for me and makes of hard drive which are compatible as I am completely lost in this matter.

L Upton

● Not all STEs with the Save Desktop bug have sub-standard DMA chips. Open up your machine and check under the floppy drive for a DMA chip numbered CO25913. If the DMA chip has this number then contact Atari UK. They will usually 'repair' the machine for you or supply a chip for you to fit yourself. A faulty DMA chip can not destroy the hard drive, but it can corrupt the data so that you have no option but to reformat the drive.

LaserJet 4

I Further to Peter Crush's review of the HP Laserjet 4, I had a chance to try this printer with Script 2 using a standard 300dpi laser

driver. I was surprised to find that graphic printing of text with the printer set to 600dpi was inferior to the same with the printer set to 300dpi. Presumably the built-in resolution enhancement cannot cope with the different resolutions.

The standard Script 2 drivers allow the printer resolution to be changed but, alas, setting the driver resolution to 600dpi only crashed the computer.

J I Logan

● Packages that use bit-mapped fonts will only work correctly at 600dpi if the printer fonts are also at 600dpi. With packages that use outline fonts, only the printer driver should need modifying.

Tempus Word

Desktop Discussions - STA 29

Q I was delighted to read William Hern's piece on Tempus Word Junior. As a subscriber to the German magazine TOS, I received the program on their cover disk last December as part of CCD's effort to dump the program on the German market. Although there are a few features missing which are present on the full version (such as macros, etc.) the program is very usable. What I particularly like about the program is that everything can be done via the keyboard: the dialog boxes can all be used without ever leaving the keyboard; also - as in Windows - one can step through the menus with the cursor keys. (Definitely Microsoft's best idea ever. Atari would do well to allow all GEM programs to use this idea by building the necessary routines into the OS rather than concentrating on trivial things such as 3D effects: the Desktop in particular would greatly benefit from this.)

I have used TWJ constantly since I first got it and it has always been a delight to use. It is a program which has been very thoroughly tested and everything is totally optimized for user-comfort. Other features which spring to mind are its excellent file selector and well thought out footnote feature. But words cannot really do justice to a program like this: it really has to be used to be appreciated. The only thing which I do not like about the program is that at the present, unlike CyPress (another WP which probably is unknown to English-speaking readers) for example, TWJ does not yet work with Speedo GDOS.

The UK would greatly benefit if HiSoft (who have distributed CCD's stuff in the past) were to start selling at least Tempus Word Junior and Student. Or even better if Atari were to approach CCD with a view to bundling TWJ with the Falcon. In the meantime, write begging letters to CCD and ask them to translate TWJ (and the full version Tempus Word) into English.

K S Grings

Tempus

Q Please can you tell me how to obtain a fully functional version of Tempus? You put

the demo version on the ST Club A-Z disk catalogue.

A J Waterton

● HiSoft used to distribute Tempus, but it no longer appears in their advertisements. It would be worth checking with them to see if they have any copies left in stock.

Teradesk

Q I can't get Timeworks to work with my copy of Teradesk. It works OK when I quit Teradesk.

The MT-Disk ramdisk and spooler accessory also doesn't work with Teradesk. It installs the ramdisk correctly but it contains undeletable garbage.

Inglenook Computing

Proxima

Salvatore Marigliano - Forum STA 14

A Difficulties with Proxima? Not really. The Search and Replace functions work perfectly in my copy (v5.14 - 1990). But you must remember that commands work differently (or not at all) depending on whether you are in text or object mode.

In text mode, the search and replace will search and replace text just as it is supposed to - though funny things can happen when it hits the end of the text if you ask it to search for a double space and replace it with a single one. If you want to search and replace attributes, then you must switch to object mode. If you don't then to all intents and purposes you click on the menu item and nothing happens. This is lazy programming - at the very least an alert box should come up to tell you that the menu item only works in a certain mode, or the menu item should be greyed out.

My Hawk Colibri scanner created IMG files which are read in OK by Proxima, but the end of an occasional line has a spurious (text) character. This can be deleted easily as it is outside the area of the scanned image.

Final note: the NEC P6 printer driver works fine with the Panasonic 1124 printer in 360 x 360 dot mode. So long as you keep the point size above 10 - say 12pt - then the quality is amazing for a dot-matrix. If you go below this level, then the size of the pins on the print-head starts to become noticeable in the text as a slight loss of resolution.

Now a request. Has anyone a copy of the manual which comes with the Hawk Colibri scanner and software which I could borrow to copy? Or if they could send me a copy of it I'll refund the costs. Thanks.

Chris Korycinski

Superbase

I I was delighted by the appearance of the Superbase Tutorial in your excellent magazine

and the useful databases supplied on the latest Disk Mag. May I add some comments and points of order?

1) *Version number.* Is Mark Baines correct in saying v1.026 is the most widely available version? My Mega was supplied with a "Professional Pack" of software in October 1989 containing Superbase Personal v1.028. This appears to offer several advantages over the program Mark is discussing. If Atari UK are supplying v1.026 in the Introduction to Database Management pack they are once again shooting themselves in the foot!

2) *Relational data input.* Mark says that Superbase can't input values from one file into a field in another. I think he is wrong there as I have frequently used this facility to save repetitive typing in my own files. As an example, in the STAPPS database the Date field could be filled in from a short file STA-DATE with 2 fields of Issue and Date. To use this the Required attribute of the Date field in STAPPS would need to be removed so that the rest of the data could be entered. Once all the records were complete, the Date field could be Updated from the Process menu. Set the update filter so that Issue No(STAPPS) = Issue (STA-DATE) and then update field(s) Date.STAPPS = Date.STA-DATE. Within a few seconds all of the dates will have been updated.

3) *Field Order.* In version 1.028 Form view allows data to be entered into fields in the order in which they are arranged on the screen. In the file I keep of Physics students at the College where I teach. I frequently add fields to the file and then enter the data for all the students. I arrange the new field/s at the top of the form, place the mouse pointer over the Next Record arrow and then it's just a case of Alt E, enter data, Alt S, Alt Insert to update the file fairly quickly. (This process is greatly speeded by copying the SBD, SBF and index files to a MAXIDISC ramdisk using the magnificent UIS III file selector. Don't forget to copy them back afterwards though!)

Alternatively, Record view can be used if "Open Fields" in the Project menu is used. Simply click on the fields in the left hand column to copy them into the right hand column in the desired order. A similar technique is used before "Exporting" fields into a data file for mail merging into 1st Word or Protex documents. (The default data structure works perfectly with either program.)

4) *Saving.* Mark is very insistent that we should not forget to save the record after we have finished entering it. Both my versions of Superbase warn me if I try to move to another record after modifying the first. In fact this reveals the one bug that I have encountered: if I am entering data in all records as mentioned earlier and I forget the Alt-S before the Alt-Insert, Superbase flashes up the warning which requires a mouse response, after which it skips a record!

I would appreciate a future instalment of the Superbase Tutorial on the printed output of "Queries". I frequently need to produce registers for groups of our students. If I try to

do this in one go I can produce a list with a gap of a few lines between groups by using a relational query from two files. However, I cannot get each group to print on a fresh sheet of paper unless I set up a filter and use Query manually for each group. One of the Vice Principals could (given a week or two) produce form lists automatically from Data Manager Professional, a piece of software which seems incredibly complex to me.

Another irritation with Superbase's Query output is that it sometimes seems to finish a query with a few lines to spare and then wastes another sheet of paper by printing an extra heading and list of fields. Can this be prevented?

In Forum STA 27 Peter Leach asks for a recommendation of a reliable database (manager). May I echo your comments about Superbase? I have been using Superbase to keep records of students for over 2 years now and the only time I have lost data (despite some very dubious tactics) was when I accidentally reformatted my disc!

In this time most of my records have been kept on two floppies (alongside the program). Since the reformatting incident there has been a third backup disc which tends to get updated about once a month or after a particularly heavy session. One of Superbase's weaknesses is that it does not change the date on the main file or index files when they have been edited so I have to remember to "Touch" them in UIS III when I have finished.

Unless I am doing something very minor I copy the files I need into a Maxidisc ramdisk before using them. This speeds up data entry and search operations considerably and almost certainly saves my floppies from the hammering mentioned in the editorial reply. On one occasion I copied the amended file back to the floppy but forgot to copy the new index file. Next time I listed the file it told me I had 85 records but would only list 81 surnames. However, the data was soon recovered by creating a new index on first names, removing the old surname index and then creating a new one.

Another potential abuse I subject the program to is using alternative file definitions. Normally I have no decimal places in my exam marks fields, but to analyse the statistics better I have an alternative definition file which I happily rename when it suits me and use in place of the standard one. Again this has caused no problems.

One of my colleagues used to try to teach databases to a group of IT students using K-Data. Hardly a lesson went by without at least one of them losing their data as they would not follow the extremely rigorous procedure needed with that program. Superbase actually opens and closes the file every time a record is edited which probably explains why it is so slow when used from floppies. Thus your records are safe even in the event of power failure. (Unless you are using a ram disc!) Actually Superbase 2 (Superbase Personal v2.03 bought February 1992 from Gasteiner for £40) offers a "Batch" mode which bypasses this safety net.

Dave Burridge

Atari Introduction to Word Processing

I I have this package, but would not describe it as a word processor. Using it for processing will put any newcomer off for life - it goes into hibernation whilst it computes the font and then prints it in graphic mode. This takes at least 3 minutes from pressing the print button.

It is a reasonable desktop publisher for occasional use and I have used it to good effect to make posters, notices and other things which need good quality printing in graphics mode.

Cyril Maskery

Arabic ST

Q I am desperately looking for someone to help me find, or write, an Arabic word processor for the ST. Please introduce my name to any of your members, especially someone who is good at programming, as I'm willing to pay him or her for a suitable Arabic word processor. I have an Apple Macintosh emulator which I use to run the Macintosh program ALKATIB. But what I'm really interested in finding is an ST Arabic Word Processor package. Any volunteers? Payment is negotiable.

Abidin bin Mat, Malaysia

● Gate Seven Computers 071-602-5186 supply fonts, word processors and DTP systems for many languages and should be able to help with this. Probably something based around Signum! would do the job. Anyone willing to help Abidin can contact him via ST Applications.

Signum 3

I The helpful man at the Desktop Centre in Blackwater Street, London, said he had received other enquiries bemoaning the unavailability of Signum 3 in Britain. If enough people expressed an interest, they would import and support it. It would be nice to think there are 'enough' still happy (but yearning) Signum 2 users here who might make their interest known to the Desktop Centre. (Telephone: 081-693-3355)

A J T Smith

DeskJet 510

Q Now that the HP Deskjet 510 is such good value, I have bought one to replace my old 9-pin printer. One feature of interest to me was that Letter Gothic is one of the installed fonts; this is a preferred font at my place of work. So far, however, fonts other than Courier have proved very elusive. I have tried passing commands to the printer with an accessory called 'Printset', but to no avail.

Do I have to write a new printer driver from scratch, or is there a simpler way? Most of my printed output is from First Word or Redacteur.

M J Playle

● If you use the second screen font in Redacteur the DeskJet (500) driver will use Letter Gothic on printout. Similarly, the Times Roman printer font will be used if you use the third screen font. There is a slight glitch with Letter Gothic in that the first line is always slightly outdented, but this can be over-ridden by inserting a blank line before it. With First Word (Plus) you will have to modify your printer drivers in order to access these inbuilt fonts. Most word processors will explicitly select Courier as the default font when they print, and so overwrite any settings you have made with Printset.Acc. Although modifying printer drivers looks intimidating at first, once you have grasped the idea you will find that this skill can greatly increase the flexibility of your word processor. One day all word processors will come with printer drivers for every printer ever built, and a full set of screen fonts to represent the printer's built-in fonts...

Format Reviewed

by Users

Q hehe! Perhaps STA ought to go electronic :-))

I thought about that very idea recently! Since we mostly (I guess) contribute ASCII files and Screen dumps our stuff would be ideal to put together as a parallel on-line magazine à la AEO (Atari Explorer Online - see st.mags/aeo for a copy from Cix). It would certainly improve worldwide awareness of the ST Club and the magazine. So long as we varied the content from the printed article which would be needed anyway to fit the On-line format it could be feasible. There must be a smattering of articles Paul feels unsuitable for the Magazine which would add some extra interest to the On-line mag. What do the rest of you think? Anyone fancy suggesting the idea to Paul? Does he read AEO? Anyway, I for one am interested.

Joe Connor CIX #758

A I would not like to lose the paper mag. It's hard carrying a machine around to read :-)

As a supplement, or a vehicle for things which do not make the mag, then yes, go for it.

Graham Judd CIX #761

I Me neither!! But for the wider audience in Germany or North America, it could be a great awareness raising exercise. It would take nothing away from the real mag and could only benefit the ST Club in potential overseas subscriptions.

Joe Connor CIX #763

I I've never been a fan of these electronic

magazines. Computers are great for producing mags, transferring files, etc., saving all that retyping for typesetting and so on, but for a good read, give me the printed word any day. You just can't curl up on a sofa, bed, bath, boat, deckchair or whatever with an electronic mag or take it down the pub - at least not without either carting all your computer gear with you or printing the thing out anyway on reams of horrid listings paper. And an attractive magazine is a work of art anyway.

I'm surprised a designer could even contemplate such a thing - you CAD. :-)

P Sutherland CIX #764

● With utilities such as IdeaList electronic magazines no longer need to be output as reams of listings. A well presented electronic magazine shell could offer printing routines that would merge text and graphics so that the printed output on an inkjet printer would be as good as the camera readies that we send to the printers!

I Joe, as I'm sure you know, contributors to STA keep hold of their copyright. So all you've got to do is get the writers together, ask them to send their old articles as text files, cobble them together and send the resulting file out.

Sabbath CIX #765

I If this is the case! I'm not sure of the copyright status of my work, since I've never considered doing anything else with it I've never concerned myself with copyright. I'm sure Paul wouldn't be too pleased to find a review of a product (sometimes even lent to me by him) appear in another magazine! I wouldn't even consider doing an on-line mag without the blessing of the ST Club. The other contributors have all gone amazingly quiet over this topic, haven't they? :-)

Joe Connor CIX #766

I Many of my articles in STA were reprinted in America and Paul was quite happy as long as they mentioned the original publication.

Ofir Gal CIX #767

I I wouldn't even consider doing an on-line mag without the blessing of the ST Club.

Well, no - it would be polite to ask [g]. But seriously, it is my understanding that the writers keep the copyright of their work (with STA). Personally, I would be interested in this on-line magazine - even though I've only ever written one article for STA and that hasn't been published yet [g]

Sabbath CIX #770

I I'm not a great fan of on-line mags. I prefer the printed versions, then I can take them to work and read them. I've got to do something while the machine does its stuff.

Peter CIX #772

I Our stuff would be ideal to put together as a parallel on-line magazine à la AEO.

It is certainly possible but I'm not sure if I like the idea. STA is a commercial magazine which is struggling to keep going with the population of subscribers not getting significantly bigger. I would hate to damage any growth there is by allowing its electronic version to be freely available to those who don't want to pay for the printed version.

Also, for me, there is a matter of principle. I write for STA as a freelance journalist and wouldn't dream of doing it for free. On this basis I object to people being able to read my 'works' without paying for it.

Maybe you can see ways around my doubts.

Mark Baines CIX #773

I Maybe you can see ways around my doubts.

I could try, but since the idea went down like a lead balloon I'm off to sulk for a while. I've got plenty of PC orientated toys to play with and organize :-)

Joe Connor CIX #775

● Thanks for the balloon Joe, now let's turn it into a can of worms. We regularly review the possibility of putting part of STA onto disk, and/or making it available for download on BBSs. The main arguments we always come up against run along the line of 'but you can't read that in the bath', etc. The temptation to put the Programmers' Forum listings on disk is sometimes almost irresistible, but every time we get reminded that programmers do actually read these things! ST User moved their Programmers' Clinic onto the cover disk and the consensus of the opinions that reached us was that this was not a wise move.

Getting exposure in overseas markets is not a pressing need: you can buy or order ST Applications from most Atari dealers in the US, Canada, and Australia. Computer enthusiasts have a capital E in these countries and their dealers aren't embarrassed to stock a newsprint magazine with a two colour cover!

Back to the idea of an electronic magazine. We have always found ourselves with a backlog of articles that never quite get into the magazine. Sometimes this is because they need a major editing job to get them into shape, but more often it's because they simply aren't quite topical or general enough; they are often programming articles that will be of interest only to a small minority of readers. It's always been a shame to leave these articles unpublished and if the authors would accept a reduced royalty rate then we could probably economically publish them on disk.

The other aspect to our perspective of this is that the decline in the ST market is starting to put pressure on the profitability of ST Applications. Counting the number of pages, contributors and advertisers in the three glossies it's pretty obvious that we are not the only ones feeling the squeeze brought about by the non-arrival of a sensibly priced Falcon - nine months late and counting. We've given up

counting the number of 'please cancel my subscription as I've bought a PC' letters we get. Distributing part of the publication on disk and via BBSs would have some appeal if the end result would allow us to profitably distribute more information to more people. Maybe something like a 48-page ST Applications plus monthly (software plus articles) disk for £29.50 a year?

Copious comments and feedback on the future of ST Applications will be more than welcome, even though the biggest influence is certain to be Atari and the extent to which they continue to support this end of their market.

Gone Away?

I Following an advert in Issue 30 for Virus Tool 2.0 and File Tool V1.1, I sent off to the publishers, Critical Mass Concepts to receive more information. However my letter has been returned with a message saying that the company has moved away. Do you know where they have moved to?

John Adams

I A point concerning one of your advertisers: 'A Practical Guide to Write On' does not appear to be available. I wrote to Terry Freedman only to be advised that they no longer had any copies of this guide, but for £4 I could have a photocopy.

I don't know whether or not anyone else has had the same problem as I have had. Perhaps you could clarify the situation as to the availability of this publication from The William de Ferrers School.

L W Reynolds

● Authorware adverts are free to most advertisers and it would be greatly appreciated if they would please make the effort to keep the information in their adverts up to date.

Scanner Problems

Q I purchased a Golden Image hand scanner with Touch Up and Deluxe Paint in order to scan and save lots of articles from magazines. But when I save pictures and bring them back to the screen, all I get is a load of dots or a load of computer language. Well that's what it looks like to me, or is this because the Touch Up program needs GDOS to be present? I have never printed it because just dots is no good to me. Or am I doing something else wrong? If possible, some advice on which GDOS disk drivers would be best for a Star XB 24-10.

C Collier

● It's difficult to work out whether there is a problem with your hardware, or your expectations of the hardware are too optimistic. Test the scanner by scanning a simple hand drawn black on white image, your signature for in-

stance. Then check that Touch Up is displaying the whole image: select 'Full' under the 'View' drop down menu. If the image looks roughly like the image you scanned in then it's safe to assume that your hardware and software are working OK.

Next, try loading one of your scanned images of a magazine page. At 'Full' view it will look barely recognisable, but if you select '2x' or '4x' the image should bear some resemblance to part of the page that you have scanned. Remember that a scanned image is made up from a lot of dots: at some viewing scales the image will look like the original document, at others it will look like a collection of random dots. Also remember that you are scanning the images at between 200-dpi and 400-dpi and the ST high res screen is only 72-dpi. The scanned image is only really going to look like the original when printed out. Which brings us to your final point: if a suitable driver was not supplied with Touch Up try the 180dpi GDOS driver on our disk GDOS B.

You could also use Imagecopy 2 to print out the IMG files that Touch Up generates, and as your main application for the scanner is making copies of articles from magazines (remember the copyright!) it would be worth looking at the Migraph OCR package available from Gasteiner.

More Crap Products

I I am writing to you about the Power Scanner from Power Computing. I have seen a number of reviews for it and no one who reviewed it seems to have picked up on the bugs in the software.

The main bug is that it saves IMG file format incorrectly, so no other software can load the files. This is made worse by the fact that it only saves correctly in either Degas or its own (Power) format. Degas will only save 640 x 400 pixels and I do not know of a program that will load the (Power) format file.

The next bug will change some dimensions while scanning. It would not let me use 3 inches x 6 inches and with a 4Mb STE! Also, the scroll bars do not work correctly in magnify mode.

I called the Power Computing technical department who asked me to call back after they had checked the software. After four weeks of calling back and being told "We have not been able to check it yet, call back in three or four days' time" they eventually checked it and told me, "We checked it and you are right. Call us in two months and we may have a fix."

Apparently they do not currently have a programmer to fix these bugs. So let this be a warning: *don't buy the Power Computing scanner.*

H M Sheriff

● Speechless.

FontGDOS

A Paul Cass has written about the FONT-WID program that comes with Timeworks Publisher 2 crashing with FontGDOS. I also

encountered the same problem, and I discovered that the ASSIGN.SYS file created by the FontGDOS accessory contained a line like this:

21R NB15.SYS

The letter R after the number 21 was not present on my old ASSIGN.SYS files, and after I replaced it with a space, FONTWID ran without my having to use the old GDOS. Can anyone tell me what use this letter R has?

Roald Sund

- Indicates that the driver should be loaded and kept Resident in RAM, I think.

K-Spread 4

and SLM Laser

Q I cannot get graphs produced by K-Spread 4 to print out on the Atari SLM laser printer. The printer drivers that come with K-Spread 4 are for Epson and NEC printers and even with an Epson emulation programme they will not print out.

I have tried the Diablo emulator as well the Laserbrain Epson emulator, and here Cambridge Business Software were very helpful, but to no avail. I have also tried using the fonts from Timeworks Publisher and altering the Assign.sys file, again unsuccessfully.

A phone call to HiSoft who have taken over K-Spread 4 from Kuma was of absolutely no help.

I can get graphs to print using the existing drivers on dot matrix printers but details such as divided bars which show up on the screen do not translate into hard copy. To be honest, having spent a lot of money on this package I am disappointed with it and the technical backup. Can anybody help me with this problem?

Ray Lomax

- There are two SLM GDOS drivers we know of: the one supplied by Atari with the laser, and the one(s?) supplied by GST with Timeworks Publisher. With one of these drivers, a set of matching screen and printer fonts, and a correctly configured Assign.Sys file, you should get sensible output from K Spread 4. Start off with the driver and fonts supplied by Atari with the printer. A less comfortable alternative would be to try the 300-dpi IMG file GDOS driver (on our disk DMG.36) to output the K-Spread 4 data to a large IMG file and then try printing this from Timeworks or Imagecopy 2.

PageStream Progress

I I received your letter outlining your concerns for the Atari. I thought that I should outline our plans.

We are not planning on abandoning the Atari market any time soon. We do plan on supporting the Atari market for some time to come.

Right now, our emphasis is on the Commodore Amiga and developing PageStream 3. After PageStream 3 has been released (in September) we plan on evaluating the Atari market and will decide at that time on when to release PageStream 3 for the ST-Falcon.

I don't know if we will be doing any type of maintenance upgrade for the Atari soon.

Ellen Kazmaier
Customer Service
Soft-Logik Publishing

- Making PageStream even more feature rich would appear a gargantuan folly when there are so many bugs left in the current version. Problems with corruption of Compugraphic fonts are still present, and very oddly these are made vastly worse when using the new HP Laserjet 4 driver. Screen redraw speeds with PageStream can be unbelievably slow, and if they can't be speeded up, then at least adding some intelligence to how and when the screen is redrawn would improve PageStream immeasurably.

Q Help! Where can I get an upgrade from PageStream v2.1 to v2.2? The UK supplier (Silica Shop) is not interested: "Go to America," they say!

Charles Stanley

- The PageStream upgrade you need is available on the latest version of our PageStream support disk, WPR.118.

ST Accelerators

Q I already have a Mega 4 and hard drive. All I want is for PageStream 2.2 to go faster. I could sell the Mega and buy a Falcon but a cheaper option might be making the Mega 4 go faster. What is the best accelerator board currently available and have any readers experience of 68030 accelerator boards on Mega 4's?

P N Williamson

- AdSpeed at around £180 is probably the most cost-effective and compatible upgrade for a Mega 4, but it is only a 16MHz upgrade and will only speed up PageStream by roughly 40%. System Solutions supply a range of accelerator upgrades and their top of the range Turbo030 is probably the ultimate in ST accelerator upgrades.

Protex 5.5

Q I use Protex 5.5 to print tickets for charity events. I would like to be able to print a serial number on them and/or count them as I print them. Protex provides a number of SYS-DATE type commands. Is there one which will give the number of items printed "so far"; this information must be in the memory because, for example, I can call for say 10 copies to be done by the command 'PRINT 10'.

Cyril Maskery

Suggestions

I ST Applications is great - how about short reviews circa 200 words on each new PD programme as and when received into the library?

A M Stanga

I Could we please have an article on sound/sample/music programs, and the related sound/sample/music file types (with extensions, such as *.MOD, *.SND etc)? I would like to know what is used for what, and what can be done with such programs and files!

Aljo Wijnands

I I think that the catalogue needs a radical overhaul, not the typography, but the underlying organisation. Files still seem to be scattered all over the place, there isn't enough detail on the discs I'm potentially interested in, and yet too much to make searching through the whole catalogue fun. Frankly, I think you have too many discs, probably partially due to having too many duplicated programs. I also think it looks as if you have enough clip art to split it off into a separate catalogue, and perhaps you'd want to put your fonts and other DTP related programs in with them.

Richard Court

- We are gradually whittling down the number of disks in the catalogue: mainly by removing single sided disks removing duplicated items. I think you are over exaggerating the amount of duplication - the most common occurrences are with DMG and CMP disks, and there is some duplication on UTI disks as a result of utilities having a number of functions. Compilation (CMP) disks are only ever listed in the PD Updates, and from the next catalogue we will only be listing the contents of the last six Disks Mags.

We have looked at the possibility of having a number of different catalogues, one for games, one for DTP and WP, one for programmers, etc. But the cost of doing this is prohibitive: most catalogues are given away free, and most people seem to prefer to have one catalogue with the details on everything that we supply.

I Very impressed with your catalogue!

Do you know of any program that can convert PostScript EPS files to Gem Meta-files? If not, I'll have to write one!

Finally, your catalogue states that your extensive range of Calamus Fonts are "converted from Postscript Type 1 fonts". So why not sell the PostScript fonts as well? More and more ST Programs are using them.

Peter Allen

- Sorry, do not know of anything that will convert from EPS to GEM. PS Type 1 fonts are currently catalogued in the PageStream fonts section. This will be changed with the next catalogue!

I The CAD Column often has very interesting discs described, e.g. Winlupe in this issue. Why not ensure that these can be ordered from your Update pages at the same time? I would have ordered Winlupe had it been given a disk number.

Ian Webster

● WinLupe and Kadinsky (CAD Column, STA 32) are on disk GRA.184. You will find disk codes for the PD and Shareware programs reviewed in this month's CAD column on page 53. My Draw is one of these odd-ball German shareware programs where the author prohibits its distribution by PD and Shareware Libraries.

I One of the most interesting areas of computing is ray tracing. You have only got PEARLE, which is the most limited ray tracing program available. Try getting POV - Persistence Of Vision - it is widely held as being the best. Raytracing is an addictive hobby, so you could have a whole range of disks of various scenes, textures, etc. Bear in mind that there are versions of POV for the TT and Falcon!

Graham Cornelius

● The full suite of POV ray tracers - ST, TT and Falcon versions - are on disks GRA.176 to GRA.179; DKB Trace is on disk GRA.180.

TT Support

Q Has Atari any remaining interest in its TT customers? They are awfully quiet about this machine!

Could you please publish a list of decent software and hardware for the TT? Is there an Overscan facility? I have an Atari PTC 1426 monitor - great in TT medium resolution, but not so good in ST high resolution.

Charles Stanley

● As most ST applications software runs on the TT most publishers do not make any distinction between ST and TT software. There are some applications that will only run on a TT, and some that sprout extra features when run on a TT. For details on Overscan and other hardware for the TT contact System Solutions, 081-693-3355.

Mouse Tricks 2.15

Jonathon Lawrence - STA 28

I Readers who have acquired Mousetricks 2.15 following Jonathon Lawrence's article in ST Applications 28, may be experiencing problems with the "special effect on long clicks" option. As I suggested this option, perhaps I should offer some help.

The Mousetricks right button special effects overlay rather than remove the "normal" right button functions. If the special effect has no meaning in some context the normal use may sometimes still operate: thus

in GFA Draft Plus the "click no delete" mode will delete a line while in edit mode where the right button has no use, without preventing its normal operation in drawing modes where the delete key is not applicable. In other cases both effects may work at once, sometimes usefully, sometimes not.

Clearly, normal right button functions which require the button to be held down are not likely to be compatible with special effects set to operate only on a long click. Some programmes work better with this option set to "no"; set to "yes" the right button may be disabled - ST Writer Elite, Vanterm and FZDT fall into this class.

The options "normal", "hide" and "hold" on Mousetricks' first screen are the key to much of the apparently arbitrary behaviour. Choosing the wrong one may disable the normal right button function, more rarely the special one.

If you are using a programme which depends on the right button and find yourself locked up in this way, you will have to call Mousetricks. from the menu and set "special effect" to "normal". If there is no menu bar, as in Vanterm's online mode, you have to use the keycode - usually alt-control-leftshift "M" - and "N" to restore normal operation.

Perhaps there should be a default programme mode which could be used to switch off special effects in all programmes without their own installed mode. This could also include a default for maximum memory; I find the notorious First Word is not the only programme that hogs the lot leaving no room for a memory-hungry accessory such as UNLZH.

DC_RT_DC

Double Click's DC_RT_DC uses a short right click to emulate a double click; it works happily alongside most normal uses of the right button. It can, suprisingly, work with Mousetricks' special effects though "normal" right button effects are squeezed out between the two. It can be used to open files from the desktop provided "options" is set to "hold". With applications which use the right button you have to choose between disabling Mousetricks special effects or configuring DC_RT_DC to be off in programmes.

Hyperspace

To illustrate the dual use of the right button I shall describe my normal set-up and how has to be tweaked for a selection of applications. I normally use the right button special effect in hyperspace mode to access the menu bar (see screen shot), with the following settings:

Y = 21

This is just below the menu bar; a slight nudge will drop a menu, even if menus are set to pull rather than drop, while a left click will pick an item in the information, status or formula bars which now proliferate just under the menus in many programmes, particularly spreadsheets, or may be used as a quick way to relocate the cursor at the top of the screen.

- Jump return X

returns the mouse to the x position last used

in H-s

Return via X = 0

Without this the menus can get stuck open when the button is released.

Left click

selects a menu item highlighted on release: this only works in menus, not on formula bars etc.

Pause2 = 3 and "only if in menu" = off

This is for the sake of Kspread 3: see below

Jump back X Y

returns the mouse to the original position.

Speed can be set much faster than normal, though the setting will depend on the resolution of the mouse.

In this way I can access and select any menu item with a single depression of the right button and have taken to using the menu bar again instead of keyboard shortcuts. With such ready access to the menu, I have set the normal menu operation to "pull" to stop menus dropping down accidentally.

I have described this at length, not so much for its own interest, but because almost any detail can affect Mousetricks' behaviour. Much of the difficulty arises from the multitude of options which Mousetricks offers, which in turn reflect the variety of ways in which programmes are written to use the mouse. H-s is probably more critical than other special modes.

Applications

The way this works in the applications I have tried is as follows:

Unless noted the "special effect on long clicks" option is set on with "long click" set to 150. "Normal" and hyperspace modes co-exist under the conditions described.

That's Write

The right button is used with shift and alt keys in block selection:

Options: "normal".

The info bar, ruler and the top line of the text on screen are all accessible with a right click. With "special effect on long clicks" set to "no", items in the info bar are selected directly but this only works on one position.

Protex

The right button is used to reveal the menu bar, which is then used in the normal way with the mouse.

By setting "special effect on long clicks" to "no" and options to "normal", the menus can be dropped with one click.

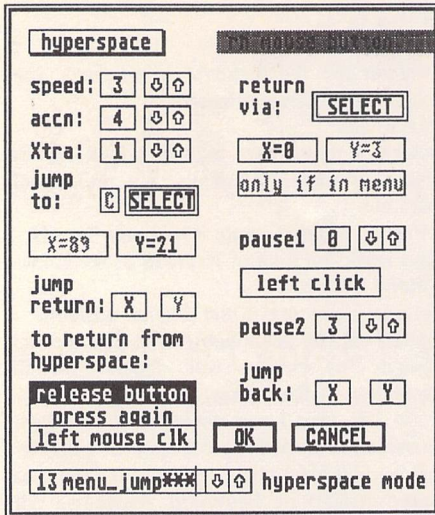
GFA Draft Plus

The right button is used to enter edit mode from the various drawing modes.

Options: "hold"; never use "hide".

K-Spread 3

This spreadsheet uses neither the right button nor double click, but it makes extensive use of the distinction between short and long left clicks. It is indifferent to option settings or to whether DC_RT_DC is enabled. After a left click in the area below the menu bar, a mouse click is simulated on return from hyperspace, opening the drop



menu under the mouse position if they are in use. The hyperspace mode described is very useful for switching between the cells and the formula bar, function menus and various buttons at the top of the page.

Mortimer

The right button is used to cut and paste blocks using the keyboard buffer.

Using hyperspace usually disables this, or, in "hold" mode, causes it to misbehave. In hyperspace mode itself simulated left clicks are ineffective so Mortimer menu items need a click to select them. Unfortunately, Mousetricks can't recognize Mortimer as an installed programme and so it adopts whatever mouse mode is going: if you want to retain the normal right button use, use the keycode to set the right button to normal.

Vanterm

The right button is used to enter and leave online mode.

Mousetricks' special effects disable the normal function altogether unless "special effect on long clicks" is set to "no" and then the set-up is unstable.

The Serial Mouse Driver

The new driver for PC/Microsoft mice works well. To use the third button you have to configure it in hardware before starting. In some cases, I am told, this is done with a switch on the mouse: in my case, it is necessary to hold down the left button at boot-up. It took me a long time to find this out!

In GFA Draft Plus I have set up the middle button in hyperspace to access the icons on the left while the right button accesses the menu bar.

Alan Kennedy

Ink Ribbons

I have a Panasonic KX-P1124 printer, which uses KX-P145 ribbon cassettes. They can be easily opened up with a screw driver prising round four slots in the side. This exposes an ink roller. I found that putting

several drops of Swallow brand stamp pad ink on this restores the ribbon sufficiently for it to be used for most purposes, including letters.

Cyril Maskery

STOS Support

We have the Discovery Pack version of STOS which gives a STOS support address as the STOS Public Domain Library, c/o Sandra Sharkey, 78 Merton Road, Highfield, Wigan WN3 6AT. Our mail to that address has been returned. Does anyone know of the current

STOS support address, or of other STOS support contacts?

P N Williamson

Goodman PDL, 0782-335650, took over the STOS PDL activities.

VEK to GEM

Does anyone know of a program that will convert Megapaint Professional vector files (*.VEK) to GEM metafiles, or Calamus vector graphic files (*.CVG) to GEM metafiles?

John Henderson

Latest Versions

Here is a rather rushed list of the version numbers of the latest releases of a number of ST software packages. Additions and amendments will be gratefully received! We shall probably not print the list every month in ST Applications - but if the list can be kept up to date we will maintain it and distribute it on the Disk Mag and ST Club A to Z disks.

Arabesque Pro	Gribnif/Compo	2.15	NeoChrome	Atari	1.0
Avant Vector	CodeHead/System S	1.2	NeoDesk 3	Gribnif/GST	3.03
Calamus SL	DMC/Halco	28.08.92	Notator	EMAGIC	3.01
Calligrapher	Working Title	2.88/44	PageStream	SoftLogic	2.2
CardFile 4	Gribnif	4.03	Phoenix 512	Lexicor	1.0
Chronos	Lexicor	1.3	PopIt	CodeHead/System S	1.1
CodeHead Utilities	CodeHead/System S	4.0	PowerDOS	Dragon Ware	1.03
CodeKeys	CodeHead/System S	1.3	Rosetta	Lexicor	1.0
Convector Pro	Gribnif/Compo	1.00J	Silhouette	Maxwell/Ladbroke C	1.5
Crossword Ctrr.II	Fair Dinkum	1.07	Spectre/GCR	Gadgets by Small	3.0
Cryptographer	Fair Dinkum	1.01	Spelling Sentry	Wintertree Software	1.0
CyberDrome	Fair Dinkum	1.01	STalker 3	Gribnif/Compo	3.02
Devpac 3	HiSoft	3.0	STeno	Gribnif/Compo	2.00
Diamond Edge	Oregon Res./HiSoft	1.0	STraight Fax	NewStar Technology	1.6
Diamond Back II	Oregon Res./HiSoft	2.5	Sudden View	Sudden, Inc.	1.0
DynaCADD	Ditek	2.04	Super Kidgrid	D.A. Brumleve	1.6
First Word Plus	GST	3.2	Superbase Pro	HiSoft	3.0
Flash II	Missionware	2.01	TOS (ST)	Atari	1.4
FTL Modula 2	HiSoft	1.21	TOS (STE)	Atari	1.62
G+Plus	CodeHead/System S	1.5	TOS (Mega STE)	Atari	2.06
Gemulator	Branch Always/STC	2.1	TOS (TT)	Atari	3.06
Genvelope	Synergy Resource	2.9	TOS (Falcon 030)	Atari	4.04?
Genedit	Barefoot	2.0	TouchUp	MiGraph/Gasteiner	1.8
Genus Font Editor	CodeHead/System S	1.85	Tracker/ST	Step Ahead Software	3.04
GFA BASIC	GFA	3.6	UIS III	A&D Software / STC	3.3
Gradebook/ST	Grass Valley	2.01	Ult. Virus Killer	Douglas Comm's/OR	5.5
High Speed Pascal	HiSoft	1.6	Warp 9	CodeHead/STC	3.73
HiSoft Basic 2	HiSoft	2.0	WERCS	HiSoft	1.23
HotWire	CodeHead/System S	3.0	Word Search Ctrr.	Fair Dinkum	1.05
HyperLINK	JMG Software	2.0	XBoot III	Gribnif/HiSoft	3.00
ICD HD Boot	ICD	6.07			
Kidpainter	D.A. Brumleve	2.3A			
Kidpublisher Pro	D.A. Brumleve	6.4EB			
Knife ST	HiSoft	1.23			
Lattice C	HiSoft	5.53			
LDW Power	LDW	2.0			
Lookit	CodeHead/System S	1.2			
MaxFile III	CodeHead/System S	3.0			
MIDI Max	CodeHead/System S	1.3			
Migraph OCR	Migraph/Gasteiner	1.1			
MultiDesk Deluxe	CodeHead/System S	3.4A			
Multiplay	D.A. Brumleve	3.4B			

System S = System Solutions

STC = ST Club

Ladbroke C = Ladbroke Computing

OR = Oregon Research

With thanks to the Melbourne Atari Gazette for the original information this list is based upon.

Going On-Line

Mark Baines

Just over a year ago, a high-speed modem would have set you back more than £600, lock you into a proprietary and non-standard protocol and provide no fax facilities. Last year, Rockwell – the US chip manufacturers – produced some modem chip sets which incorporate all the current standard speeds and fax operations in a small and cheap to manufacture package. Various companies, including TKR, Zoom, Practical, Twincom and Supra, haven't been slow to take up these chips. Of these, Supra is perhaps the most well known and established.

The Package

The Supra V.32bis FAXModem is, incredibly, smaller than an A5 sheet of paper and about 3 cm high. It comes with a fully connected serial cable (not all cables are correctly wired for high-speed modems), external power supply unit, phone cable, manuals, reference card and some notes. The manuals are the best I've ever seen, clear, comprehensive and helpful. First Choice also supply a floppy disk with Freeze Dried Terminal and various utilities to get you started. The price is about £269 depending on the dollar/pound exchange rate.

When everything is connected the first thing that strikes you, besides its compactness, is that the power switch is on the front panel. Now, there's a novelty! Why do manufacturers insist on hiding them at the back under cables? The power supply unit had two round pins which fitted badly into an adaptor and didn't make a proper connection. After one hour it died and Bryan Cobley at First Computer Centre quickly had a replacement on its way. Supra have supplied substandard PSUs for some time and FCC provided heavy duty ones for £10 extra. However, Supra have

recently sorted out this problem and now supply decent PSUs with the modem.

Once switched on, the modem displays only a few of the normal repertoire of LEDs – Terminal Ready (TR), Send Data (SD), Receive Data (RD) and On Hook (OH) – which seems disappointing at first until one notices the little LCD display which, when active, displays the current connect speed, error correction and data compression protocol and CD (Carrier Detect) in sequence every second or so. Other information is also inserted into this series depending on the circumstances –

AA	Auto Answer
CD	Carrier Detect
DC	BTLZ Data Compression
DI	Dialling
FX	Fax Mode
LP	LAPM Error Correction
Mn	MNP Error Correction where n = 2, 3, 4, 10
MNP	MNP 5 Data Compression
OK	Powered up and ready
RE	Receive Error
RI	Ringing
TE	Transmission Error
TM	Test Mode

Those V numbers again

The modem includes all the CCITT standard speeds except V.23 (75/1200 asymmetric) which is no loss. Fax protocols are CCITT V.27, V.29 and V.17 up to 14400bps and are Group 3, Class 1 and 2 compatible. STRaight FAX! works well with the Supra although I had problems with TeleOffice.

The highest data speed is V.32bis which is 14400bps and the slowest is 300bps (V.21 and Bell). Error correction is MNP 2, 3 or 4 (MNP 10 for cellular phones is mentioned in the manuals but doesn't work due to a slip up at Rockwell) or the preferred V.42 LAPM. Data compression is MNP

5 or V.42bis BTLZ, the latter giving a theoretical 4:1 compression on textual or graphical data files. This provides the modem with a maximum throughput of 57600 bps. However, the ST and STE have a maximum serial port speed of 19200bps unless a hardware modification is made where 38400bps is possible. The TT and Falcon have higher speeds on their SCC serial ports if the XBIOS limitations can be got around. In practice, this modem can provide transfers of something like 1600–1700 characters per second on compressed data or 1800–2000cps on uncompressed data where it hits the 19200bps maximum rate bottleneck. However, these speeds are only of any benefit if you mostly transfer files, i.e. for sysops, point systems and off-line reader users. If you do all your comms work on-line (reading and replying to messages, etc.) then a cheaper 2400bps modem is good enough as no one can read or type faster than that anyway.

With v1.2H ROMs, this Supra never obtained those speeds because of my notoriously bad line, 1500cps being the maximum and 1200–1400cps being the norm. The success of my connections depended on the modem at the other end of the line and the setting of the various S registers. The Supra differs from the others in providing an extended range of these registers through which the modem's performance can be manipulated. A TKR modem I tested recently failed dismally to connect at any speed and there was nothing I could do to tune it. Most modems will connect at their mutually highest speed and then negotiate data compression and error correction protocols. If the line

quality isn't good this negotiation often fails and the modem just sits there, confused. The Supra can be told to connect and negotiate at a lower speed and then move up to a higher one after these negotiations have taken place. This worked well giving me regular 12000 bps connects. 14400bps connects were elusive especially with another Supra. The Supra is now fitted with v1.7 ROMs which have fixed these connection problems and v1.8 ROMs (with voice processing) should be available by the time you read this.

If you want a high-speed modem, resent paying over £500 for one and don't always have clear lines, then I recommend this Supra. It isn't BABT approved, by the way.

I must thank Bryan Cobley and the staff at First Choice Computers for their warm, polite and excellent service. I can, regrettably, say this about few companies these days.

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I can be reached at the following addresses:

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29.10@fidonet.org

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TurboNet: 100:106/
0.10@turbonet.ftn

Programmers' Forum

In this month's edition of ST Applications' regular programming column, we look at resources for learning C, and clear up a variety of odds and ends arising from previous columns.

Learning resources

The Programmers' Forum of STA 29 included a call for readers to send in their recommendations for good books for programmers struggling to learn C or other languages. The list of suggested books appears in the Table. Many thanks indeed to all who responded, particularly to **Graham Hinton** of Oldford; **K Wood** of Crawley; **Darren Goodwin** of Rotherham.

Many of these books are somewhat difficult to find, but most bookshops should be able to order them. Those who live near universities may find obtaining books easier – some seem to be set books for computer science courses. Heffers in Cambridge and Blackwells in Oxford are good places to start looking. A final word of caution: none of the C books is Atari-specific, and many assume a PC-based compiler system.

Books that received negative comments included several of the Abacus/Data Becker series (on the grounds of incompleteness and inaccuracy). Many of the early books on programming the ST suffered from the same problems, so it is probably safest to be guided by the Atari DocSupport manuals (see STA 16 for review).

Software and hardware

Although not strictly within the scope of the original request, some recommendations for software and hardware were received. In addition to Lattice C, two other compiler systems were strongly advocated: the freeware GNU C/C++ compiler, and Pure C from Application Systems Heidelberg (ca £160). The latter package comes with German manuals, but has English menus and dialogue boxes. As it is closely related to Turbo C, the 'Turbo C Bible' (see above) can be used as an acceptable substitute for the manuals. **Graham Hinton** offers the following opinion on Pure C:

...it's unconditionally recommended... Quite simply, it's one of the best programming tools I've ever seen on any computer at any price, and I've been around.

Other recommended software included Templus 2 (by CCD, available in the UK from HiSoft) for editing, and the Interface Resource Editor (Shift, Germany, ca £40). In terms of hardware, the favourite add-on for programmers seems to be Overscan, or some other large screen support.

Telling the time

From the theory of programming, we move on to its application, in the form of two letters relating to third party hardware add-ons for the ST. First up, **Mike Graham** from London has a question about ICD hard disk adaptors:

In your column published in ST Applications issue 28, you describe two functions that can be used to communicate directly with the hard disk, DMAread() and DMAwrite(). My question is, can I use these functions or something similar to talk to the battery-backed clock on my ICD SCSI host adaptor?

The short answer to Mike's question is 'yes', but there are complications. Since the only connection between the ST and the clock is the DMA hardware, the clock time must be being read through this port. However, there is nothing to say that the clock need appear as a true SCSI peripheral, as it is up to ICD how they implement this feature.

As a general point, I think it is best to leave low-level access of third-party peripherals to the supplier's software. The programming interface is rarely fully defined in the documentation, and may be subject to change in newer versions of the hardware. Programs that utilise undocumented features of particular add-on hardware seem to be asking for trouble. There is no way of predicting how the software will behave when confronted with unexpected hardware (or

worse, what the hardware might do!).

Having said this, Mike's question aroused my curiosity, and I could not resist having trying a few experiments with an ICD host adaptor. The results are shown in Listings 1 and 2 in the form of a small program that reads the current date and time from the ICD clock. Listing 1 is a small C wrapper that invokes the hardware-specific code, and turns the results into something usable. The core of the program, read_ICD_clock(), is implemented in assembly language [Listing 2]. The read_ICD_clock() function accesses the DMA port in a similar way to the DMAread() function given in the STA 28 column (Listing 3; STA 28). In view of the above comments, this code is presented for interest only.

The only clue in the ICD documentation to the operation of the clock hardware is a statement that SCSI identifier 6 is reserved for the clock. However, it does not say what has to be said to the clock in order to get it to return the date and time.

From experimentation, it appears that the clock is read by sending the SCSI command \$00 (Test unit ready) to device 6, followed by four 'magic' bytes that tell the clock hardware which piece of information is required. Dates and times are read out of the clock one BCD digit at a time. The strings of magic bytes required for each digit are compiled into the table at the end of the listing. From the structure of the table, it is possible to hazard a guess at the way the hardware works – see the comment above the table. Whatever the meaning of these magic bytes, after the last byte is sent, the time data is then returned as the low nibble of the status word.

High-density drives

Following on in this vein, we have a letter concerning a problem with a high-density drive upgrade not functioning properly. **Tim Finch** (the author of the ST Club's Address program) writes from Exmouth:

I have the Atari Workshop eLCo kit and a high-density drive in my 1040STe (TOS 1.62, 4 Meg RAM, 80Mb hard disk). Now, the drive works fine until I print anything, and then it's quite likely not to access any disks, saying 'Data damaged on A....'

What I want to know is, is there any way to check the registers used on the sound chip before and after a 'print' (First Word Plus is the worst offender for this drive problem) to see what is actually being changed. System Solutions say that 'unused registers' on the sound chip are used to supply info to the eLCo card, but that's all the info I have. My idea is that until a software fix emerges from System Solutions, I could write a simple program in Devpac that 'resets' the upset registers, and thus returns my drive to operation.

It is a simple enough matter to examine the state of the registers in the ST's sound chip, the YM-2149, without resorting to assembler. Readers unfamiliar with the function of the sound chip may find the background information in the Box useful. The cleanest way is to use the XBIOS function Giaccess() to read the registers. A program to print out the values appears as Listing 3. It

could be trimmed down for Tim's purposes: the high-density card is probably instructed by the status of one or other of the 8-bit parallel ports, registers 14 and 15. Note that the program will give different values for port A (register 14) depending on whether it is run from a floppy or not. This is due to three bits of the port forming the floppy interface control lines.

Direct access of the register values is possible, but it is complicated by the fact that TOS plays with the sound chip registers in a vertical blank interrupt routine. For this reason, reads and writes to the chip should be done atomically (i.e., as an indivisible operation), so that an interrupt cannot occur in the middle of the code.

I hope this program will enable Tim to diagnose the cause of his problem, and possibly to patch something together until the manufacturer of the hardware comes up with a bug fix.

GNU C filename problems

In the STA 29 edition of Programmers' Forum, we examined a problem posed by Andrew Renton concerning GNU C. Andrew had been having difficulty getting the compiler to work properly, as it seemed to use UNIX-style paths (separating folders with a forward slash, instead of the TOS backslash). As I suspected, there is an easy solution, as two readers have written in to explain. Thanks to K Wood and Dave Wade of Salford for their advice (and apologies to Dave for not replying to his email - the uknet nameserver denied all knowledge of his address).

Dave writes:

I was amused by the comment on GCC in the last [STA 29] Programmers' Forum. GCC already has a /to\ converter built in, and it's called UNIXMODE. The problem that your correspondent described is usually caused because the environment is not correctly set up. Most GCC problems

can be solved by using the -v argument to GCC so you can see which commands it issues.

Picture tiling

In the columns of STA 27 and STA 30, we looked at a program that attempted to display 4 Neochrome pictures at once by shrinking them to one-quarter size and using palette switching to display as many colours as possible. The original picture shrinking routine accomplished its task by directly manipulating the screen pixels - a rather fiddly job. John Phillips has come up with a neat, higher level approach, in which the operating system is made to do the work instead:

I was interested to see your discussion on quartering the screen as I've worked on similar things myself in GFA Basic (but not palette switching). Whilst the same sort of routine for shrinking is possible using integer addition, only the speed of the compiler makes it practicable.

A different approach is to get the VDI to sort it all out, giving reasonable speed even in the interpreter. The method is as follows: blit every other pixel LINE into an intermediate area and then blit every other pixel COLUMN from there into its final GET string. It is important to do the lines first as this cuts down the amount of work needed on the much more time consuming columns. This method also takes advantage of any speed increase if a hardware blitter is fitted, and is very easily adapted for other scaling factors or screen resolutions.

The screen can even be blitted into itself if the original image is not to be preserved, allowing the VDI to do even more of the work for you.

John has provided a GFA BASIC program that demonstrates this technique (Listing 4). Many thanks indeed to John for sharing this with us.

The YM-2149 Sound Chip

Although the YM-2149 is often referred to as the ST's sound chip, it is actually responsible for much more than the bleeps and bangs that decorate games programs. The chip contains two 8-bit parallel ports that are used to control the floppy drives, the Centronics printer port, and part of the RS232 serial interface, in addition to the three-channel sound and noise generator.

The operation of the chip is determined by 16 internal registers. Of these, 13 are used for sound production (see Figure 1); nothing more will be said about them here. The remaining three are used to perform all the other functions. These are register 7, which is a master control register, and registers 14 and 15, which are 8-bit IO ports (called port A and port B, respectively). On the ST, port B is used to form the 8 data lines of the Centronics port, and port A for all the other control functions.

The contents of register 7 influence the operation of the whole chip. Each bit of the 8-bit register has a separate function:

- Bit 0: Channel A tone source disable (1 = off)
- Bit 1: Channel B tone source disable
- Bit 2: Channel C tone source disable
- Bit 3: Channel A noise disable
- Bit 4: Channel B noise disable
- Bit 5: Channel C noise disable
- Bit 6: IO Port A data direction (1 = output)
- Bit 7: IO Port B data direction (1 = output)

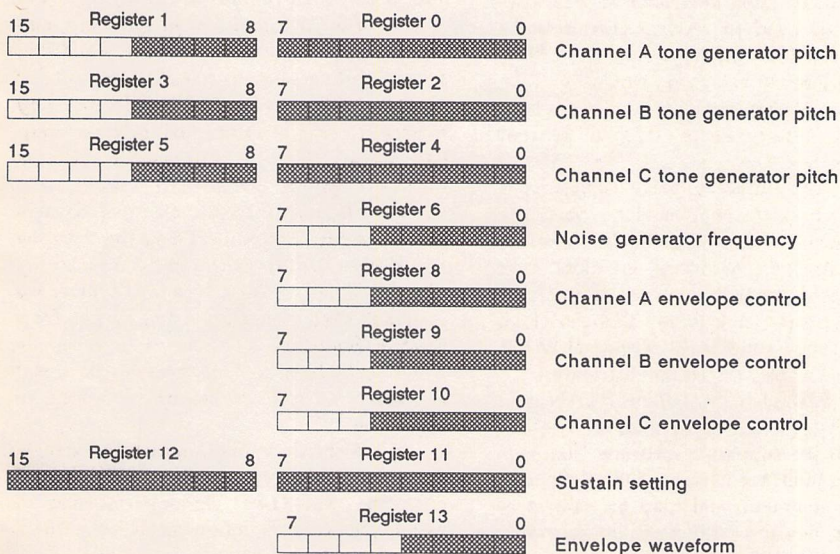
The two data direction bits indicate whether the IO ports are being used for input or output. On the ST, both are normally used in output mode. The connections of Port A (see below) make it unlikely that it will be useful as an input port. Although Port B is normally configured as an output port, for talking to printers, there is no reason why it cannot be used as an input port. Indeed, some ST games have used the port to provide extra joystick ports for multi-user gaming. One point to remember when thinking of wonderful new uses for the parallel port, is that the IO lines of ports A and B are not properly buffered. This has caused problems for some printer owners, hence the suggestions for parallel port buffers that have cropped up occasionally in ST Applications. A comprehensive discussion of such matters can be found in an article in STA 2.

Register 14 controls the eight data lines of IO Port A. These lines are used as general control lines for various hardware subsystems:

- Bit 0: Side select line for double-sided floppies
- Bit 1: Floppy drive select line 0 (1 = disabled)
- Bit 2: Floppy drive select line 1 (1 = disabled)
- Bit 3: RS232 RTS line
- Bit 4: RS232 DTR line
- Bit 5: Strobe line for Centronics interface
- Bit 6: General purpose I/O bit
- Bit 7: Reserved

The line associated with bit 6 of IO Port A is brought out onto the 13-pin DIN socket of the monitor connector. On the TT, this bit is used to control the internal loudspeaker, which is disabled when the bit is cleared. In the original specification, bit 7 is reserved, but on the TT it is used to control the LAN port.

The YM-2149 is controlled from software using two locations in the ST memory map, \$FF8800 (ym_select) and \$FF8802 (ym_data). To select a register for reading or writing, a byte containing the register number (0-15) is written to ym_select. The current status of the register is then available by reading a byte from ym_data. To change the register, a data byte is written to ym_data. Owing to the way the operating system controls the floppy drives, it is better to program the sound chip via the XBIOS call Giaccess(), rather than access it directly using ym_select and ym_data.



△ Figure 1: The layout of the YM-2149 registers associated with sound effect production. A shaded box indicates that a particular bit is used in the register, while empty boxes represent unused bits.

Recommended Books

Reference

The C Programming Language 2nd ed, Kernighan, BW & Ritchie, DM, Prentice-Hall; ISBN 0-87692-596-4 (£26)

C: The Complete Reference, Schildt, H; Osborne/McGraw-Hill ISBN 0-078-81538-X (£26.95).

The Waite Group's Turbo C Bible, Barkakati, N; ISBN 0-672-22631-6 (£29.95)

Introductory

Basic and Pascal in Parallel, Wainwright, SJ; Babini; ISBN 0-85934-101-1 (£1.50)

The Waite Group's C Primer Plus, Waite, M et al; ISBN 0-672-22582-4 (ca £30)

More Advanced

The Waite Group's Advanced C Primer++, Prata, S; ISBN 0-672-22486-0 (ca £30)

Algorithms, Sedgewick, R; Addison-Wesley; ISBN 0-201-06673-4 (£18.95)

ST Programming

The entire *DocSupport* series from Atari, available direct from Atari UK in Slough - see review in STA 16 for more details.

DocSupport I: GEMDOS/BIOS and General Programming £29.95

DocSupport II: New Machine Programming Guides £29.95 (includes software)

DocSupport III: GEM Programmer's Guide - Vol 1: VDI
GEM Programmer's Guide - Vol 2: AES £49.95 for both volumes

DocSupport V: Hardware and Chip Specifications £29.95

DocSupport VI: Falcon030 Programming Guidelines £49.99 (includes software)

Assembly Language

The definitive guides to programming the 680x0 chips are available from Motorola: at Motorola Ltd. European Literature Centre, 88 Tanners Drive, Blakelands, Milton Keynes, MK14 5BP. Tel: (0908) 614614.

M68000PM/AD M68000 Family Programmer's Reference Manual £11.72

M68000UM/AD M68000 8-/16-/32-bit Microprocessors User's Manual £4.90

MC68030UM/AD MC68030 Enhanced 32-bit MPU User's Manual £11.29

MC68040UM/AD MC68040 32-bit Third Generation Microprocessor User's Manual £7.67

DSP56000UM/AD DSP56000/DSP56001 Digital Signal Processor User's Manual £19.17

Next Month

Next month, Programmers' Forum will print more questions and tips from readers' letters. Keep the letters coming in - the more we receive, the better the column gets! Hints on any subjects, or questions about programming problems should be sent to the address below. All contributions, no matter how simple or advanced, are most welcome. Please include your address on the letter, so I can get back to you if anything in your contribution is unclear. Email addresses are useful too.

One last point, about email. Whilst I am very happy to receive contributions by email, please include your real name in the message, as cryptic alphanumeric user identifiers are not terribly useful. Please send a disk (or email) if there are large chunks of text or ASCII source code: I have no time to retype lots of material. Naturally, disks will be returned if an SAE is included.

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jonellis@cix.compulink.co.uk
(everywhere else)

Listing 1
=====

```

/*
** Listing 1.
** Programmers' Forum STA 33 (September 1993)
**
** Outline of program to read the time held
** by the clock chip on the ICD host-adaptor card.
**
** Compiler system: Lattice C v5.52
** Compile options: -cargfku
** Meaning: Enable ANSI mode, disable trigraphs, enable
** non-ANSI keywords, assume unsigned chars
** Link with C.O, LISTING2.O and LC.LIB
** Written on 3rd March 1993
*/

#include <stdio.h>

/*
** Prototype the functions...
*/

extern int read_ICD_clock(unsigned char *);
int main(int,char **,char **);

/*
** Global variables...
*/

char *month_name[] = {"January","February","March","April","May","June","July",
"August","September","October","November","December"};

/*
** The program starts here...
*/

int main(argc,argv,envp)

int argc;

```

```

char **argv, **envp;

{
    char buffer[12];
    char ampm;
    int day, month, year, hour, minute, second;

    printf("\033EReading ICD clock...\n");
    if (read_ICD_clock(buffer) != 0)
        printf("ERROR !\n");
    else
    {
        buffer[6] &= 0x03;
        hour = buffer[6] * 10 + buffer[7];
        ampm = 'a';
        if (hour > 12)
        {
            hour -= 12;
            ampm = 'p';
        }
        minute = buffer[8] * 10 + buffer[9];
        second = buffer[10] * 10 + buffer[11];
        day = buffer[4] * 10 + buffer[5];
        month = buffer[2] * 10 + buffer[3];
        year = buffer[0] * 10 + buffer[1] + 1900;
        printf("ICD clock time is %d:%02d:%02d %cm on %d %s %d\n",
            hour,minute,second,ampm,day,month_name[month-1],year);
    }
    getchar();
    return (0);
}

Listing 2
=====

**
** Listing 2.
** Programmers' Forum STA 33 (September 1993)
**
** Assembly language module containing dedicated
** function to talk to the the clock chip on the
** ICD host-adaptor card.
**

```

```

**
** Assembler system: Lattice asm v5.52
** Assemble options:
** Written on 3rd March 1993
**

**
** Define the symbols that are needed.
**

GEMDOS          equ      $01
Super           equ      $20

flock           equ      $0000043E
fdc_access      equ      $FFFF8604
mfp_par_port    equ      $FFFFFA01

**
** This is the code to squeeze the clock time
** out of the ICD hardware. The function takes
** a single argument, which is a pointer to
** a 12 byte buffer into which the BCD clock
** data will be written. The return value is
** 0 if all went OK, non-zero for an error.
**
** Usage:  error = read_ICD_clock(buffer);
**
**          int error, read_ICD_clock(unsigned char *);
**

TEXT

XDEF          _read_ICD_clock

_read_ICD_clock:

movem.l      dl-d7/a1-a6,-(sp)   Save all the registers.
move.l      56(sp),a3          Get output buffer pointer.
clr.l      -(sp)              Engage supervisor mode for this.
move.w      #Super,-(sp)
trap        #GEMDOS
addq.l      #6,sp
move.l      d0,a6              Save the old SSP.

lea         magic,a4           Point to the magic code table.
lea         fdc_access.w,a5    Point to the ACSI registers.
st          flock.w           Lock out any floppy access.
move.w      #88,$2(a5)         Set HDC: Al low, ready for command.
move.w      (a4)+,(a5)         This is command $00 on device 6.
move.w      #8A,$2(a5)         Set Al high: this is command byte.
clr.l      d7                  Clear the error register.
btst       #5,mfp_par_port.w   See if this has been sent properly.
sne        d7                  Set error flag if not, and exit
bne.s      exit                immediately.
moveq      #11,d6              Twelve lines in the table.
bra.s      2$                  We've already sent word 1 of line 1.
1$         move.w      (a4)+,(a5) Send first word of line,
nop                                     Wait for hardware,
2$         move.w      (a4)+,(a5) Repeat for other four words of line.
nop
move.w      (a4)+,(a5)
nop
move.w      (a4)+,(a5)
nop
move.w      (a4)+,(a5)
nop
move.w      (a5),d0            Fetch the status word.
and.w      #000F,d0           Mask out unwanted stuff,
move.b      d0,(a3)+          Save the BCD digit.
dbra       d6,1$              Loop for all lines.

exit        move.w      #40,(a5) Tidy up the ACSI access now.
move.w      #80,$2(a5)        Return to FDC operating mode.
clr.w      flock.w           Release DMA activity semaphore.
move.l      a6,-(sp)          Return to user mode, restoring
move.w      #Super,-(sp)      the old SSP.
trap        #GEMDOS
addq.l      #6,sp
move.l      d7,d0              Transfer error code to d0 for C

code.
movem.l      (sp)+,dl-d7/a1-a6 Recover all the saved registers,
rts                                     and return to the C code.

**
** The magic table that contains the bytes
** required to provoke the ICD hardware
** into giving us the desired information.
** The exact function of these bytes is not

```

```

** clear, although the low nibble of the
** second and subsequent bytes in each line
** probably represents a clock chip register
** number. Also, the toggling of bit 5 in
** the sequence $Cx,$Ex,$Cx looks like a
** strobe sequence to latch the register number.
**

DATA

magic        dc.w      $C0,$CC,$EC,$CC,$8C Get year:   high digit
             dc.w      $C0,$CB,$EB,$CB,$8B           low digit
             dc.w      $C0,$CA,$EA,$CA,$8A Get month:  high digit
             dc.w      $C0,$C9,$E9,$C9,$89           low digit
             dc.w      $C0,$C8,$E8,$C8,$88 Get day:    high digit
             dc.w      $C0,$C7,$E7,$C7,$87           low digit
             dc.w      $C0,$C5,$E5,$C5,$85 Get hour:   high digit
             dc.w      $C0,$C4,$E4,$C4,$84           low digit
             dc.w      $C0,$C3,$E3,$C3,$83 Get minute: high digit
             dc.w      $C0,$C2,$E2,$C2,$82           low digit
             dc.w      $C0,$C1,$E1,$C1,$81 Get second: high digit
             dc.w      $C0,$C0,$E0,$C0,$80           low digit

END

```

Listing 3

```

*****
/*
** Listing 3.
** Programmers' Forum STA 33 (September 1993)
**
** Program showing how to read the YM-2149 sound
** chip registers using the XBIOS function Giaccess().
**
** Compiler system: Lattice C v5.52
** Compile options: -cargfku
** Meaning: Enable ANSI mode, disable trigraphs, enable
** non-ANSI keywords, assume unsigned chars
** Link with C.O and LC.LIB
** Written on 20th June 1993
**/

#include <osbind.h>
#include <stdio.h>

/*
** Function declarations...
**/

int main(int,char **,char **);

/*
** The program starts here...
**/

int main(int argc, char **argv, char **envp)
{
    char values[16];
    int f;

    for (f=0; f<16; f++)
        values[f] = Giaccess(0,f); /* Read current value from XBIOS */
    printf("\033E\nSound register values\n");
    for (f=0; f<16; f++)
        printf("\tRegister %2d = %#02X\n",f,values[f]);
    printf("\nPress RETURN to exit: ");
    getchar();
    return(0);
}

```

Listing 4

```

*****
CLEAR
ON ERROR GOSUB reset
'
'          *****
'          *                *
'          *          SHR_SCREEN          *
'          *                *
'          *          *****
'          '
'          John Phillips - EasyPill Software
'          Outline program to load and shrink a DEGAS screen
'          Any resolution
'

```

```

GOSUB preset
GOSUB main
GOSUB reset
/
/
=====
PROCEDURES
=====
/
PROCEDURE preset
/
orig_drive%=CHR$(65+GEMDOS(25))+":\"      ! Get drive
curr_path%=orig_drive%
/
CLS
/
DIM orig_pal%(15)
FOR n%=0 TO 15
  orig_pal%(n%)=XBIOS(7,n%,-1) MOD 4096   ! Get palette
NEXT n%
/
DIM image_pal%(15)                       ! Somewhere for new colours
/
DIM s_mfdb%(8),d_mfdb%(8),par%(8)        ! BITBLT arrays
/
res%=XBIOS(4)                             ! Get resolution
/
sw%=WORK_OUT(0)                          ! Get screen width
sh%=WORK_OUT(1)                          ! Get screen height
/
RETURN
> PROCEDURE main
/
REPEAT
/
  GOSUB get_sf
  GOSUB load_image
/
UNTIL finished
/
RETURN
> PROCEDURE reset
/
CHDRIVE orig_drive%
/
CLS
`XBIOS(6,L:V:orig_pal%(0))              ! Tidy up
VSYNC                                    ! Let it sync in
/
END
/
RETURN
/
PROCEDURE get_sf
/
CLS
`XBIOS(6,L:V:orig_pal%(0))              ! Reset palette
/
PRINT AT(3,2);
/
INPUT "Scale (2-20) ",sf%              ! Get scaling factor
/
IF sf%<2 OR sf%>20
  PRINT
  PRINT "  Out of range"
  PRINT "Using default of 2"
  sf%=2
ENDIF
/
PRINT AT(3,2);
PRINT "Load a DEGAS pic or Cancel to exit"
/
RETURN
/
PROCEDURE load_image
/
FILESELECT curr_path%+"*.PI*","",return%
CLS
/
IF return%<>""
/
  curr_path%=LEFT$(return%,RINSTR(return%,"\"))
/
  IF EXIST(return%)
    OPEN "I",#1,return%
    BGET #1,V:ok%,2                      ! Check res
    IF res%=ok%
      BGET #1,V:image_pal%(0),32        ! Get the palette
      `XBIOS(6,L:V:image_pal%(0))      ! Set it
      BGET #1,XBIOS(2),32000           ! Get the screen
    /
  /

```

```

GOSUB shrink_screen                      ! Shrink it
ELSE
  `FORM_ALERT(1,"[1][1 Wrong resolution ][ O.K ]")
ENDIF
CLOSE #1
ELSE
  `FORM_ALERT(1,"[1][1 File not found ][ O.K ]")
ENDIF
/
ELSE
  finished=TRUE
ENDIF
/
RETURN
> PROCEDURE shrink_screen
/
par%(8)=3                                ! Replace mode
/
-----
/
par%(0)=0
par%(2)=sw%
par%(4)=0
par%(6)=sw%
/
FOR n%=0 TO sh% DIV sf%
/
  par%(1)=sf%*n%                          ! BITBLT every other LINE
  par%(3)=sf%*n%                          ! into top half of the screen
  par%(5)=n%
  par%(7)=n%
/
  BITBLT s_mfdb%( ),d_mfdb%( ),par%( )
/
NEXT n%
/
DEFFILL 0
PBOX 0,SUCC(sh% DIV sf%),sw%,sh%
/
PRINT AT(8,15);" Lines compressed"
PRINT AT(8,17);" into top part of screen"
/
PRINT AT(15,22);"Press a key"
`INP(2)
/
-----
/
par%(1)=0
par%(3)=sh% DIV sf%
par%(5)=0
par%(7)=sh% DIV sf%
/
FOR n%=0 TO sw% DIV sf%
/
  par%(0)=sf%*n%                          ! BITBLT every other half
  COLUMN                                  ! into left side of the screen
  par%(2)=sf%*n%
  par%(4)=n%
  par%(6)=n%
/
  BITBLT s_mfdb%( ),d_mfdb%( ),par%( )
/
NEXT n%
/
PBOX SUCC(sw% DIV sf%),0,sw%,sh% DIV sf%
DEFFILL 1
/
PRINT AT(23-(20*(res%>0)),4);" Columns"
PRINT AT(23-(20*(res%>0)),6);" compressed into"
PRINT AT(23-(20*(res%>0)),8);" left hand side"
/
-----
/
`INP(2)
/
RETURN
/

```

CAD Column

Joe Connor rounds up a whole crop of German Shareware and offers to get some of them translated...

Another month, another new MiniDraft release! V1.25 PD and registered user versions are now available. This time the PD version has been updated to include the new style interface and option to work in pixel or millimetre units. Features in both PD and registered versions include:

Autoscroll, a major new feature. Whenever the screen edge is touched by the mouse pointer, the view automatically scrolls over by about half a screen. Elements larger than the screen size can now be constructed and edited at high resolutions. It works in a similar manner to the Autoscroll feature in tbxCAD (see review in STA 28).

Many elements can now be placed by entering X & Y coordinates in the associated Dialog box, which really speeds up pixel-perfect placement.

Polygon outlines now follow the current Line attributes which makes it easier to see Polygon outlines against a black background. This in no way affects perimeter visibility which depends as before on the perimeter visibility option.

The latest PD version is available from the ST Club; order disk DRG.55.

Registered Users can obtain the latest release from Jim Taylor in the usual way.

Can you help?

REMAP is a national charity set up by a group of engineers to make one-off solutions for disabled people. There are over 100 panels (groups) around the country and in order to avoid 're-inventing the wheel' they need to keep records of the jobs they have undertaken. J Trevor Thompson wrote to me asking for help to print out files using various Atari PD CAD software Applications. I sent him a surplus copy of Master CAD and if anyone else has any CAD, Graphics or Database Applications in need of a good home send them to:

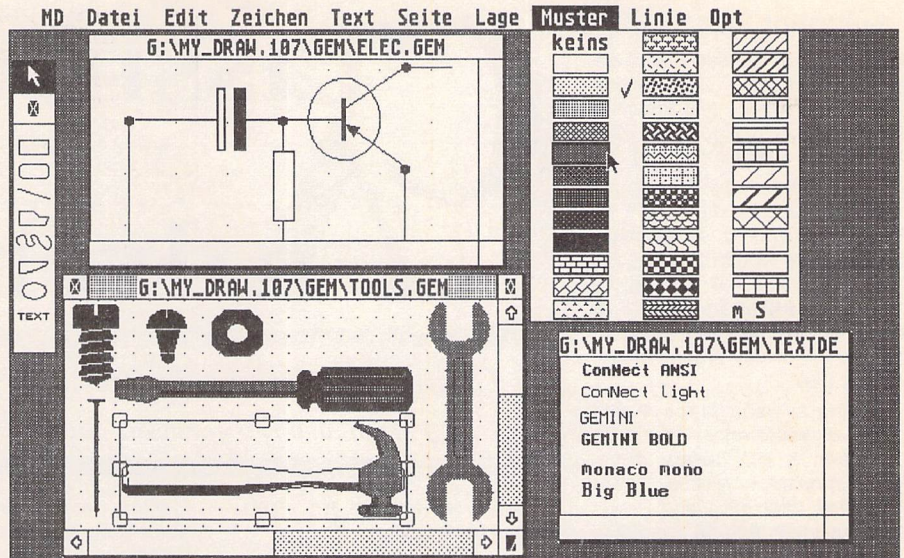
38 Woodpecker Drive, Hailsham, East Sussex, BN27 3ES.

German PD/Shareware

I've featured a lot of German applications in the CAD Column over the last few issues. The reason is straightforward: most of the best new Shareware releases are programmed by German authors. I've helped several German authors produce full English versions of their applications and found them pretty responsive, especially as it's likely to bring them extra Shareware registrations.

If you have a PD or Shareware application you would like converted to English send me a copy of the application together with your reasons and I will endeavour to organise conversion of the most deserving cases - no promises though!

Contact: 65 Mill Road, Colchester, Essex, CO4 5LJ.



My Draw - easier than EasyDraw?

Yet another Shareware vector drawing application called My Draw (54DM, around £22) has crossed my hard disk this month. I'm not complaining as it increases the likelihood that one of them will offer that function I really need. My Draw runs on the ST/TT and needs GDOS or equivalent (NVDI was fine) for font handling and printer drivers.

My Draw V1.09 doesn't look very impressive when you first look at it, but it's very easy to use. Even the German interface shouldn't deter most people having a go. My Draw was originally programmed as a clone of GEM-

DRAW (PC GEM Application) but now includes many other features.

Highlights: up to 4 windows/files open; dragging of objects between windows; UNDO command; Snap tool which recognises special preset hotspots within groups; intelligent Import of Metafiles (skips over problem elements); ASCII text import and auto installation of any GDOS fonts listed in ASSIGN.SYS. My favourite tool is the freehand line object tool, which creates a single vector object from the polyline. Best of all, each node can still be repositioned in edit mode.

Three Little GEMs

Function Plotter

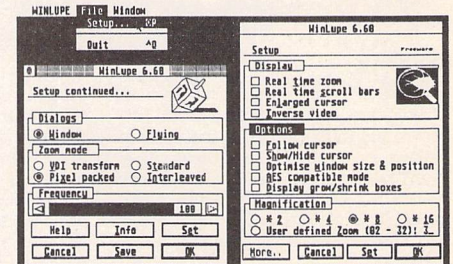
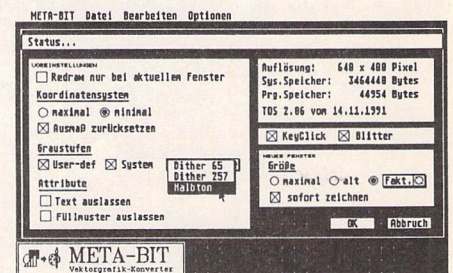
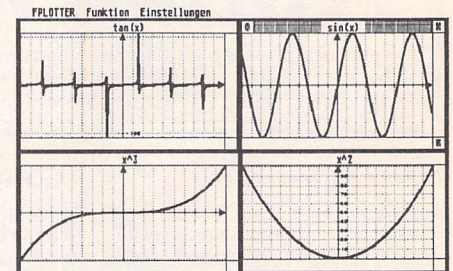
The lack of any specific CAD-related news always leaves me searching the airwaves to find new items for your enjoyment. Fplotter was one that looked promising, but it turned out to be a graph function plotter. A quick couple of schoolboy maths functions later I was out of there! Anyway if you ever need to plot functions Fplotter does the job nicely. The axes and labels are configurable and the output can be saved as an IMG file. ST and TT versions are supplied (the TT version will work on a Falcon but it needs a maths coprocessor). Fplotter was written by Christoph Zwerschke, is PD and available from the ST Club; order Disk GRA.185.

Meta Bit

This utility is more useful to CAD enthusiasts. Meta Bit V1.1a is Shareware (50DM, around £20) and converts GEM Metafiles into various bit image formats. My first reaction was so what, I can grab any Metafile off the screen in IMG format easily. Closer inspection revealed a whole range of options; Metafiles can be sized, mirrored, rotated in 90 degree increments, have the text and/or fill patterns toggled on/off and best of all change or add greyscale patterns in GEM/3 compatible format.

Winlupe

Following my review of Winlupe V6.5 in STA31 I got involved with the author creating a full English V6.6 which is now available for download from CIX or from the ST Club; order disk GRA.184.



For Sale

That's Write 2, Unused £75: Daa-tasound Sampler - STE Version £20: Vortex Atonce 286 Emulator STFM Version, unused £60. Call 0275 375496 after 8.30pm. (34)

Would you like to learn ST Assembler? I have a small supply of 'First Steps in 68000 Assembly Language' by Robert Erskine, 276 pages in brand new condition, cover price £12.50 for only £5.99 inc p and p. Cheque/ P.O. to N. Vandyk, 8 Finchley Way, London, N3 1AG. (34)

Changing system! Mega 4 with Turbo 25 accelerator, TOS 2.06, Overscan & HD floppy drive. SM125 monitor, new series Power 900 40MB hard drive and Power Scanner included. All for £650, near offers considered. Telephone Watford (0923) 266636 evenings. (35)

Lots of games for sale. All in very good condition. For a list write to: Peter Strath, 75 Cavendish Road, Highams Park, London E4 9NQ. (34)

Games in boxes with manuals: Xenomorph, Silkworm, Captain Blood, Robocop, Star Trek - The Rebel Universe, Elite, Millenium. Call me and make an offer. Chris McCarthy - 021 605 2976. (34)

Hyperdraw £10; HyperPaint £10;

Classified Adverts

Classified adverts are free to subscribers.
Please use the form on page 58.

Logistix Spreadsheet £25. Call - 0453 886 832. (33)

Gasteiner 50Mb Hard Drive, Manual, Leads, Boxed 5 months old - £230, Prestel Type Modem with Rubyview software £15; Gajit's Breakthru Sequencer V1.1 £65; Fontkit Plus 3 and Fontpac Fonts £12. Offers on all considered. - Phone John (0323) 500910. (34)

2 x Quick Shot Joysticks, Fighter Bomber, Chambers of Shaolin, Pit Fighter, Tournament Golf and others. The lot for £50 ono or separately. Derek (081) 519 7709. (33)

Feeling Partner sequencer and auto-accompaniment software. Latest version with registration card. Unused, weeks old and in mint condition. £95. Call Graham on 0738 34349. (33)

Signum2 - original, complete, unopened. Includes supplementary fonts and printer drivers. Also includes a copy of SciSet. £150. Phone Graham 0888 62328. (33)

Atari STFM 1040, SM124 monitor, mouse and Forget-Me-Not II clock - £175. Software: First Word Plus £10. Datamanager Professional £10. Timeworks 2 £10. Personal Finance Manager £3. PFM Plus £5. Ultimate Virus Killer £3. PC Ditto £3. Family Roots £5. All items in original packaging with manuals. Buyer to collect or add postage.

Ring 0676 532854 for further details. A.F.Sweatman, Solihull. (34)

Atari SM144, 14" hi-res monochrome monitor. Nearly new. £60 ono. Tel: 0476 66956 (Grantham). (34)

Atari 1040 STFM with Philips CM8833 colour monitor plus some software and manuals. £250 the lot. Dayphone Howard or Ted in Bristol 0272 249546. (34)

Quick ST 3, Universal Item Selector, Pirates!, Blood Money, Chrono Quest, Adv. Prog. Guide, STOS int., Battle Command, Powermonger, Starglider 2, Battle Zone, Fantasy World, Dizzy Spindizzy, 10 ST Formats. Offers to 1A Effra Court, Brixton Hill, London SW2 1RB. (35)

Redacteur 3 full version £45, HP DJ500 FX80 emulation cartridge £30, Mastersound 2 £8, ICD Cleanup ST £15, Scanlite £10, STOS and STOS compiler with manuals £5 each, STOS 3D manual £4, Game Makers' Manual £7. Phone 0256 896879. (34)

4MB STE with lots of software (over £1700), DTP, utils, etc., £400. SM124 hi-res monitor £85. 210MB Quantum SCSI hard drive with ICD ADSCSI+ (clocked), very fast, full of PD programs and BBS software, £460. Cumana external drive £40. Golden Image 400dpi hand scanner with TouchUp 1.8 and Migraph OCR, £85. All immaculate condition, buyer pays p&p. Tel: 0224

Authorware

If you would like to see your software featured in the ST Applications Authorware column please send us a review copy of the software and a rough outline of the advertising copy you would like to be printed.

Morse Master

The complete morse trainer and simulator, with realistic 'on-air' emulator and integral editor, with complete control of your listening equipment. In addition to sending, your Atari can also receive and decode morse from your own key using the supplied interface cable. Send Cheque/PO for £29.99 payable to Boscad Ltd at: 16 Aytoun Grove, Balbridgeburn, Dunfermline, Fife, KY12 9TA. Telephone (0383) 729584 evenings for technical information.

STEN

ST ENthusiasts disk magazine - for your copy send a disk + SAE to: Dave Mooney, 14 School Road, Morning-side, Newmains, Lanarkshire.

SynTax

The ST adventure magazine on disk! Reviews, solutions, hints, special features and much, much more. Runs in colour only. Produced bi-monthly. SynTax costs £3.50 an issue, £20 for a year's subscription. Cheques made payable to S. Medley should be sent to: 9 Warwick Road, Sidcup, DA14 6LJ.

Kitchen Design Program

Create kitchen plans, and elevation views to scale from a wide selection of units and appliances with work-tops, pelmets, etc. High resolution mono only. Lawrence Elliott, 42 Gwaun Coed, Brackla, Bridgend, Mid Glamorgan CF31 2HS.

Clip Art

Clip Art specifically for Christian and Community Magazines. Seven disks of IMG images for DTP programs supplied with a printed picture catalogue of every image. Cost: £3 per disk plus P&P: total of £23 for the set. Cheques payable to: Peter Kempley, KemCom Designs, 21 Chart House Road, Ash Vale, Aldershot, GU12 5LS.

Calamus Manual

This self-tutorial guide incorporating sections on frame drawing, entering text, changing fonts and styles, importing text and images, drawing boxes and lines, loading, saving, printing, text rulers, headers and footers and page numbers. Available at £5 (including postage) from: David Waller, The Sandon School, Molram's lane, Great Baddow, Chelms-

ford, Essex, CM2 7AQ. Cheques should be made out to 'Sandon School'.

Genealogy

Newgen, my genealogy program, runs on any ST(E) or TT and is easy to use; it will print family trees, etc. Send large SAE for details or £17 for program. E G Richards, 2 Peckar-mans Wood, London SE26 6RX.

Educational Adventures

For ages 5-13. 88% in ST Format. £12 each. 50p per disk for demo's. CVS, 18 Nelson Close, Teignmouth, TQ13 9NH. Tel: (0626) 779695.

RAE Morse Test

Selectable letter/number groups, thinking time, note pitch, morse generation from keyboard for CQ; plus save to disk, etc. Instruction manual and disk and SAE for more details. R. L. Tuft, 62 Admirals Court, Thirsk, North Yorks, YO7 1RR. Telephone: 0845-525082.

Sonix Sound Sampling

We will sample your sounds from tape to disk. Ideal for demos, games and your own programs. 3-day turnaround guaranteed. Write for free details to: The Lodge, Dolly End, Hailley, Witney, Oxon, OX8 5XD.

Learning a Language?

ACADEMIC SOFTWARE supply several budget foreign language disks to help you in your studies. Call

0296 82524 any time (stating your address) for a free brochure sent same day.

Or write to 128 Ingram Ave, Aylesbury, Bucks, HP21 9DJ.

For demo, just send 4 x 24p stamps OR s.a.e. + disk.

Circuit Designer

Create good quality circuit diagrams quickly and easily. Comes with laser printed manual. Works with any ST or STe computer with monochrome monitors. Costs only £7.00: Send Orders to:

Darren P. Goodwin, 4 Coniston Drive, Bolton on Dearne, Rotherham, S. Yorkshire S63 8NE.

STTrack

Use up to four light beams with your ST. Measure speed and acceleration. Write data to disk for spreadsheet. Invaluable for science National Curriculum AT4. High resolution only. Software and manual with full details £20. Cheques payable to:

F.J. Wallace, 9 High Elms Road, Hullbridge, Essex SS5 6HB.

Scanner Manager

A specialised database system for all scanner owners, this software has been designed to be very easy and quick to use.

For further details contact: Stuart Coates, 9 Links Road, Kibworth Beauchamp, Leicester LE8 0LD.

642885. (33)

Power Computing Series 48MB hard drive, £150. HiSoft Basic v1, £12. HiSoft DevPac v2, £12. Lattice C v5, £40. All with full manuals. Call Andrew on 0788 811995. (33)

3.5" External Disk Drive (Roctec), Evesham Micros, 13 months old, as new, boxed. £45 ono. Phone 051-648-4926 (Merseyside). (33)

Atari STM 1 Meg NO disk drive, works but fault on upgrade and mouse - so sold for spares, OFFERS around £45.00. Phone 081-767-4761 (London) almost anytime. (33)

19 inch Colour Multiscan Monitor believed to be VGA compatible, will work with Atari ST in Mono Resolution ONLY (NOT in Colour) Free to Callers ONLY, No guarantee. Very large and heavy needs two persons to lift! For info on above please phone 081-767-4761 (London) almost anytime. (33)

Original Atari ST games for sale - Exile, Night Shift, Greg Normans Gold, Monkey Island, Lemmings, Space Ace, Falcon, Xenon 2, Corporation, E-Motion, Magnum 4, Gun Ship, Torvak, Chase HQ and Hard drivin'. The lot for £65, or will sell individually. Phone 0773 821776 for more details. (33)

Easy Draw 2 (four disks) £25, GFA Draft with Manual £17, Degas Elite £10, The Sentinel (game) £5. 071 435 7664. (34)

Alfadata Memory board to upgrade ST/FM to 2/2.5 Mb Ram £85.00. Phone John Hutton on (081) 653 0621. Also available 16 RAM chips to upgrade 520 STFM to 1MB RAM for £25. (33)

65MB SCSI Hard Disk with ICD Host Adaptor, Software, Cables & Internal Battery Backed Clock £250 ono. Ring David on 0242 519011. (34)

Citizen 120D+ 'Lookalike' 9-Pin

Printer, Cables and Manuals included and some spare ribbons. In very good condition. Also included is a Single-Sheet Feeder attachment (usually sold as a £50 extra). The lot for £50, buyer collects (South Manchester) or + £10 if sent by post. Phone Bill on 061-962-6866. (33)

65 Meg Hard Drive. ICD Utilities V6.05 - £265. Cleanup ST - £15. 40 Meg Power Slimline Hard Drive with ICD V6.05 - £175. Tel Derby (0332) 832829. (33)

KSpread 4 £20, Master Cad £15, Touch Up V1.6 £30, Headline with many fonts £25, Font 2 Font Editor £12. Telephone 0923 266636 Evenings. (34)

Rygar for Lynx: Sell for £16 inc P & P or Swap for another Lynx Game. Write to: Pedro Gago, Rua Da Escola, Bidoeira De Cima, 2400 Leiria, Portugal. (34)

Megapaint Pro V.4 (latest) £64; Hyperchart £38; That's Write 2 plus DJ internal fonts £65; Diamond Edge £15; Diamond Back £15; X Boot 3 £15; Harlekin 2 £15; Golden Image Scanner plus software £64; Games at £5 (eg. Nightmare, Wonderland, etc) and many other bargains. All original & boxed. Phone Gavin on 0602 817198. (32)

ST Applications Nos 1-31 plus the last 4 Newsletters plus Disk Mags 20-33. Offers ring 0594 - 844597. (33)

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Wanted: ST Contacts, swap PD etc. Write for a list. All letters answered. Dave Moss, 22 Beverley Close, Chessington, Surrey, KT9 2RL. (33)

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