

ST APPLICATIONS

Price: £2.50

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

Issue No. 40, April 1994

THIS MONTH

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- * Gemulator 3
- * AtariWorks
- * ChemKit
- * MiniS Hard Disk
- * Atari Compendium
- * Write On v WordFlair

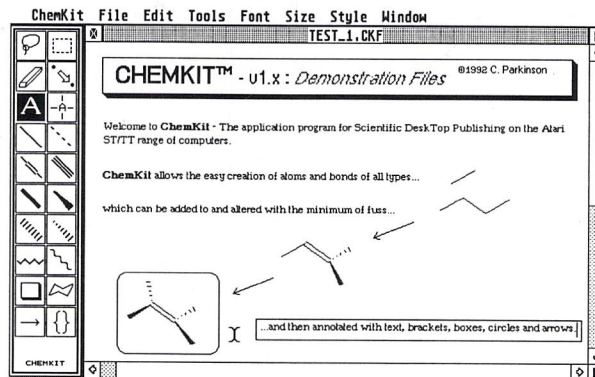
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- * Monitors
- * High Speed Serial Port

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- * Programmers' Forum
- * Beginners' Forum
- * Going On-Line
- * Forum
- * Grafix Arts
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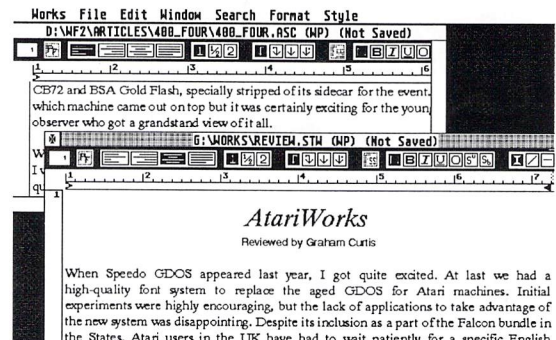
ChemKit



ChemKit is a graphics program that provides the tools for the presentation of chemical structural formulae. These may either be printed directly from the program or else saved in one of three image formats for later incorporation in a WP or DTP application.

AtariWorks

In the first of a two-part review of Atari's new integrated word processor, spreadsheet and database package (*The Complete Office Solution*), Graham Curtis looks at the module he thinks most people will be interested in - the word processor.



Monitors

Paul Rossiter looks at the range of monitors available for the Atari ST, in both its monochrome and colour guises. He gives advice on how to choose a monitor for different setups, looking at the second-hand options as well as the new, and he outlines what he considers to be the pros and cons of some of the most popular choices.

Gemulator 3

Are you thinking of abandoning the Atari platform for a fast Windows PC? If so, there is no longer any need to be bereft of your ST software. The Gemulator is an ST emulator for the PC range of computers, allowing you to buy a PC and continue to use your Atari software on the same machine. Joe Connor has taken this step, and in Part One of a two-part review (more next month!) he considers the viability of such a partnership.

Ed Mak

The ST & TT Desk Accessory and Program that is there when you need to edit anything!



- Text
- Data
- Binary Files
- Disk Sectors
- RAM

- ◆ Colour/Mono in all resolutions.
- ◆ File size not limited by RAM.
- ◆ Easy control by keyboard or mouse.
- ◆ Great for many wordprocessing needs - word wrap, block cut/paste, search and replace, and macros.
- ◆ Great for use as a diary - Autoload, append, date and encrypt commands.
- ◆ Great for use within other applications.
- ◆ Great for hacking - enter, search and replace all 256 characters in decimal or hexadecimal.

£9.95

includes a 60-page printed manual

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Nottingham
NG2 7PP

Easy Text Professional

A fully-featured desktop publishing system for the Atari ST that costs just £34.95.

Easy to use - get started in minutes. Create your own newsletters, brochures, business stationery, notices, handouts, flyers, invitations - you name it! Will produce excellent results with virtually all printers including dot-matrix, ink-jet and laser printers. Supplied complete with a 135 page fully-illustrated manual in an A5 binder for easy reference.



System requirements: double-sided disk drive, 1 Megabyte RAM. EasyText runs in both ST high and medium resolution.

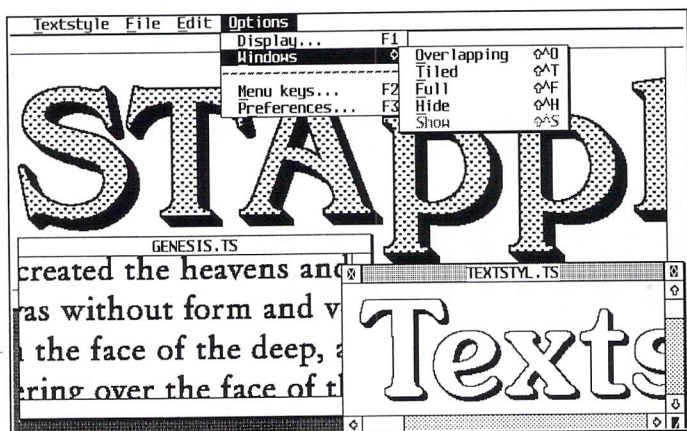
EasyText Pro Vector - £39.95

By using the features of SpeedoGDOS, Easy Text now offers text at any point size which can be rotated through any angle! System requirements: double-sided disc drive, 2 Megabyte of RAM, and a hard drive or 2.5 megs of RAM with a RAM disc. You'll also need a copy of Speedo GDOS.

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Textstyle

Text stycler for Atari ST/TT/Falcon computers



Create headlines and logos from GEM fonts or Calamus fonts.

Import ASCII text containing up to 200 characters, or edit text within Textstyle.

Text size and resolution can be adjusted freely.

Font sizes can be selected in tenths of a point from 1.0 to 999.9 points (13 inches).

Text styles include bold, light, italic, underline, outline, shadow, and pattern.

Text styles can be configured to adjust bold increase, outline width, shadow offset, italic angle, text and shadow patterns etc. The angle of italicized text can be adjusted in 1-degree steps from 1 to 45 degrees (GEM skewing is fixed at 27 degrees). Patterns include 43 predefined patterns and 2 user-configurable halftone screens.

Leading can be adjusted in 1-point sizes. Word and letter spacing can be adjusted in 1-pixel increments.

Text can be left-aligned, centred, right-aligned, and justified.

Styled text can be saved in Textstyle format (for reuse at a later date), or exported in IMG or TIFF format. Exported image files can be loaded into other programs or printed from Imagecopy.

Advanced user interface including hierarchical menus, multi-key and user-configurable single-key shortcuts, pop-up menus, mouse-positioned alerts etc.

Launch price: £14.95
From 1/2/94: RRP £19.95
Written by Jeremy Hughes

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7 Musters Road
West Bridgford
Nottingham
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CREDITS

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Contributors:

Mark Baines	Trevor Burlingham
Joe Connor	Graham Curtis
Jon Ellis	Colin Fisher-McAllum
William Hern	Dave Howell
Paul Keller	Graham McMaster
Paul Rossiter	Graeme Rutt

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.

Genlock From JCA

The *TriLock Genlock* is the latest product to come from Calamus distributors JCA Europe. It claims to break new ground using advanced circuitry to provide a steady picture with good colour rendering. The software features simple push button control and the hardware is housed in a compact unit which can be positioned alongside your computer.

The *TriLock* features S-Video, Hi8 and Composite Video inputs along with S-Video, Hi8, RGB and Composite Video outputs. It incorporates a flicker reduction filter and

supports resolutions of up to 640x480 in 256,000 colours (machine dependent). Overscan, Genlock, Overlay and Mix are all supported and there's a fade control and cross-fade facility. *TriLock* is compatible with all ST, STE, TT and Falcon computers and is supplied with the relevant monitor lead for your machine. It costs £350 and is available now from:

JCA Europe, 30a School Road, Tilehurst, Reading, Berkshire RG3 5AN; Tel: 0734 452416; Fax: 0734 451239.

Jaguar Hype Continues

Following the Jaguar's runaway success at the Las Vegas CES (ST Applications issue 39), Atari's ground-breaking games console continues to dominate the news. Having sold over 27,000 units by the end of last year, the Jaguar has already outsold the Falcon and it is reported that it is outselling the 3DO, its main competitor, by a factor of anything up to 10 to 1! Sam Tramiel, president of Atari Corporation, said recently, "We are committed to making the Jaguar the world's number one game platform and this is a powerful start."

Electronic Gaming Monthly (America's leading consumer games magazine with over 1.2 million readers) carried out a recent survey into the gaming market and reported that most of those who replied said that they intended buying a Jaguar rather than any other games console. Over here the news is not so cheerful. The Jaguar remains in short supply with the three official distributors still unable to meet demand.

The official European launch planned for March has been put on the back burners until at least June, although I'd hazard a guess that September or October seems

more likely. Atari are more concerned with satisfying the needs of the US market, a market they have never enjoyed success in, before channelling stocks towards Europe. They are working on target sales of between 500,000 and 750,000 units in the States by the end of this year and about 400,000 units for Europe. The only thing likely to prevent these figures being achieved is an inability to meet demand, a common problem experienced by Atari over the years.

It is widely expected that at least eight titles will be available by the time of the official launch. These are *Alien v Predator*, *Checkered Flag*, *Tempest 2000*, *Kasumi Ninja*, *Brutal Sports Football*, *Euro Soccer Challenge*, *Double Dragon* and *Club Drive*.

When the Jaguar finally does become available in decent numbers in the UK, the price is set to rise. It is to increase from £199 to £229 and Thornley Distribution are to be joined by SDL (the trade distribution arm of Silica Systems) in supplying independent retailers. The involvement of SDL looks set to ensure the wider availability of the console throughout the country.

Fatar Keyboard - More Desk Space!

The *Fatar Computer Music Station CMS61* is a MIDI keyboard designed specifically with the computer user in mind. It has spaces moulded into its design for your computer and mouse mat so that they can sit on top of the keyboard, behind the keys.

The *Fatar CMS61* is a 5-octave 61-note keyboard with touch sensitive keys which give a positive and responsive action, making it highly suitable for programming

drums from the keyboard. The key transpose facility allows you to play in any key and the 5-octave compass allows unrestricted playing with both hands. The unit has two MIDI Out ports and an assignable control wheel and control pedal. For further details, contact:

Arbiter Pro Midi, Wilberforce Road, London NW9 6AX; Tel: 081 202 7076; Fax: 081 202 7076.

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 **STA40**, 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.

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Editor: Paul Glover
 Sub-Editor: Nicky Wilson
 Layout: David Smith
 News Editor: Steve Delaney

Published by: The ST Club
 7 Musters Road
 West Bridgford
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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 0602-455250 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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12-issues plus 6 Disk Mags : £36.00

Air Mail to Europe World

12 issues : £27.00 £37.00

12 issues + 6 D/Mags : £40.00 £48.00

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.40, will be dispatched a week or so after this issue is sent out.

Rising STar Falls To Earth

Those of you with long memories will remember *Star UK*, one of the first user groups for the Atari ST. Its proprietor Gary Marshall moved on to bigger and better things when he and his father Bill set up Star UK Ltd, opening up retail premises and selling computer hardware and software both directly to the public and through mail order advertisements. They went on to launch what they claimed was Europe's largest computer store in Aberdeen's city centre.

The firm collapsed early last year with debts in excess of £300,000 and the directors were recently subjects of a civil action taken against them by the Department of Trade and Industry. Sheriff

Alexander Jessop said that Gary Marshall had "delusions of grandeur and a blatant disregard for financial reality". His extravagance included paying £1,400 in hotel bills and bouncing the cheques, taking deposits of £13,000 for machines which he never supplied (including over £1,000 from a local charity) and buying a Mercedes, Lotus and Peugeot 205Gti when his firm was deeply in debt. The result of the case was that Gary Marshall has been banned from being a company director for eight years. A previous hearing banned his father from being a director for seven and a half years. Little comfort for the customers who lost money!

Marpet Break The 4 Meg Barrier!

Thanks to *Marpet Developments* you are no longer restricted to four megabytes of memory on a Mega ST or an STE. The long awaited *Xtra-RAM+8* has arrived. It allows a four megabyte Mega ST (please note, NOT a Mega STE!) to be expanded to eight or twelve megabytes and an ordinary four megabyte STE to be expanded to six or twelve megabytes. The upgrade board installs under the shielding and is solder-free on most machines. Fitting can be arranged if necessary.

The extra memory is addressed as extended memory in much the same fashion as TT Fast RAM, and most professional applications will be able to make full use of it as if it were main memory. An Auto booting program configures the memory appropriately on boot up. It must be noted that the upgrade requires TOS

2.06 ROMs to be fitted. These are available from Compo Software, Tel: (0487) 3582.

The Xtra-RAM +8 upgrade boards are available either populated or unpopulated and use industry standard 30-pin SIMMs. The unpopulated boards cost £60 + £5 P&P. The populated boards for the STE cost £120 for 2 megabytes or £349 for 8 megabytes. The Mega ST boards come populated to 4 megabytes for £195 or 8 megabytes for £310. Each unit carries a twelve-month guarantee, and a ten-day money back offer is available through participating dealers.

Please note that Marpet have recently moved to No.'s 57 & 58, Top Floor, Glasshouses Mill, nr. Pateley Bridge, Harrogate, North Yorkshire HG3 5QH; Tel: 0423 712600; Fax: 0423 712601.

SMS2 News

Following on from the news item on *SMS2* in issue 38, I now have a few more details on the system. *SMS2* is one of the latest in a long line of multi-tasking operating systems for the ST. It is supplied in the form of a ROM cartridge which plugs into your ST's cartridge port and installs within seconds of powering up. *SMS2* uses its own integrated graphic environment which replaces TOS and GEM and provides you with simultaneous access to all your system's resources.

SMS2 is based upon radically new ideas on how software and hardware should interact with each other, providing high levels of concurrent access to dynamic computing resources. The system costs £135 for the single user version and can be seen demonstrated at the Atari Shows currently running throughout the country. For further details, contact *Furst Limited*, Delta House, Garfield Road, Bishop's Waltham, Hampshire SO3 1AT; Tel: 0489 894674; Fax: 0489 895765.

Fontpac Plus Newsletter Setter

A set of GEM bit-map fonts for 300dpi printers and hi-res screens, designed for use in reports, CV's, adverts, newsletters and magazines.

There are five typefaces comprising nearly sixty fonts in all, with point sizes ranging from seven to twenty-eight. Included are:

- three 'classic-style' typefaces (Century, Castleton Roman and Souvenir), each with its own 'true italic' version and two of them with a 'Gothic' (sans serif) variation
- an elegant 'calligraphic' typeface (Derwent, based on the 'Foundational' hand) that will add a touch of distinction to subheads, headings and boxouts
- an 8-point monospaced font useful for listings and tables
- five alternative Swiss fonts
- an alternative 12-point Bullets font

The smaller point sizes of Castleton, Souvenir and Derwent have all the European accented characters implemented as well as 'f ligatures', M-dash, N-dash and Maths symbols.

All the fonts have been used in the ST Club magazine 'ST Applications'. Used in conjunction with a DTP package such as Timeworks Publisher or Easy Text Pro and a text manipulation package such as Textstyle, they will help you produce documents with a distinctly professional look for a very modest outlay.

Price: £14.95 from the ST Club

Subscriber Specials

3D Calc+

Innovative and comprehensive, 3D Calc+ is easy for beginners to get to grips with, yet boasts many powerful features usually found only in packages costing much more. Subscriber Special price: £14.95 (needs 1MB RAM). See ad on page 16.

Save
£10.00

Mastering Calligrapher

Buy this invaluable aid for Calligrapher for just £24.95 and save £5. Covers all aspects of getting the best from this famous document processor - see our advert below.

Save
£5.00

4 Slimpack disk boxes for 12 disks - just £3.95

All three offers must expire on 26th April 1994
Look out for the next set of Subscriber Specials in issue 41

Subscriber Benefits include:

- * Exclusive opportunities to make huge savings on software, accessories and hardware
- * PD and Shareware disks at 20% discount, from just £1 per disk
- * 12 copies of ST Applications, the best Atari magazine anywhere
- * Guaranteed delivery to your door every month
- * PLUS, you save £6.00 on the cover price of ST Applications

ST Applications: more to read than any other ST magazine!

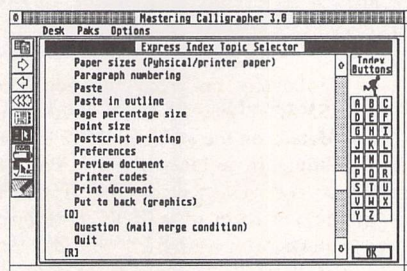
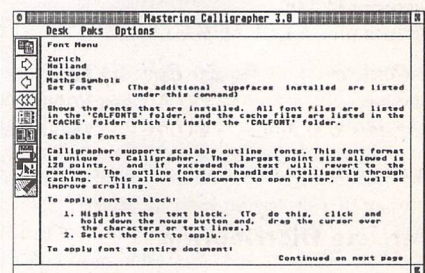
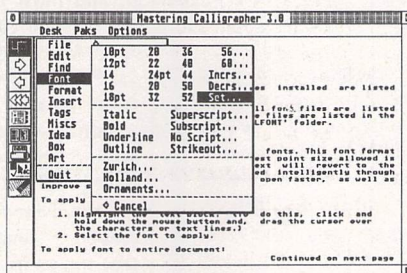
Mastering Calligrapher

The Hypertext Personal Guide for Calligrapher that offers quick referencing to all commands with concise screen summaries and tutorials, including tips and tricks.

Mastering Calligrapher is ideal for both novice and advanced users alike. Novice users will find the simple step-by-step approach an easy way to lessen the learning curve, while advanced users will benefit from the referencing feature.

Each command is explained in detail with all of the necessary information given on how to use it correctly. Tips and tricks are offered throughout the guide to give you ideas on how to exploit each command to its fullest.

Just a few of the topics covered by Mastering Calligrapher are quick print, header, footer, define several clipboard buffers, page numbering, text alignment, drop capitals, and more.



Features:

- Send online summary to printer for hardcopy reference.
- Runs alongside Calligrapher.
- Resolution independent, supports ST, TT and Falcon resolutions, and third party video cards.
- requires just 145K of RAM.
- Over 20 example Calligrapher documents.
- 52 page printed manual.

£29.95

Subscriber Special
Launch Price:
£24.95



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News In Brief

Good News For CD ROM Owners

The Corel Professional Photo CD ROM collection is now available. Each CD contains 100 razor sharp 24-bit True Colour 'photographs' saved in Kodak Photo CD format. There are 50 topics to choose from, ranging from Africa to World War II planes. The pictures are royalty free and may be used as you see fit. The Corel Professional Photo CD ROM works with all ISO 9660 CD ROM drives and costs £39 + VAT. For details call 0800 581 028 xU20.

FES Axed

After the disappointing turnout at last year's Future Entertainment Show, Future Publishing have decided to axe the event. It is to be replaced by a yet unnamed show which will take place at Earl's Court 2 during the week 26th to 30th October, which coincidentally happens to be the schools' half term holiday. More details as we get them.

Falcon 040 Clone

I hear on the grapevine that a Fal-

con 040 clone is being developed by a third party developer. I was unable to follow up the lead as we went to press but suffice it to say, Atari are lukewarm to the idea to say the least, especially since their Falcon 040 has yet to be released. It is perfectly possible that it could come out at a very attractive price as Motorola have a glut of 68040 chips at present owing to the reduced demand from Apple now that they are concentrating on the Power Mac (their version of the Power PC). More news as we get it.

TT Returns

Atari Corporation's Bob Brodie has gone on record as saying that the TT is back in production and has repeated this several times over the past three or four months. However, there is still no evidence of any units going on sale as yet. If the TT is genuinely to return, it is likely to be as the basis of a development system for the Jaguar.

Citizen's ABC Of Printing!

The new Citizen ABC is a colour dot-matrix printer with a difference. It is designed as an entry level printer for first time buyers and is intended to be as 'idiot proof' as possible! It is described as a 'plug in and play printer that a non-expert user can install and use within minutes of opening the box'. The Citizen ABC is available now at a cost of £222.

More From All Formats

The organisers of the *All Formats Fairs* are to increase their busy schedule throughout 1994 and have just announced the remainder of their dates for the first half of the year. From now on, there will be monthly events held at The National Motorcycle Museum, Haydock Park Racecourse and Washington Leisure Centres with a smaller number of fairs being held in Bristol, Glasgow and the South East. Cardiff and Belfast will continue to host two fairs per year. All events run from 10am to 4pm and admission costs £4 for adults (£3 if you have one of their many discount vouchers), £2 for children and £2 for everyone after 2pm. Wheelchair users are admitted free of charge. Here's the line up:-

23rd April	Washington Leisure Centre (at the end of the A1(M))
24th April	National Motorcycle, Birmingham (J6, M42)
15th May	Brunel Centre, Templemeads, Bristol (M32)
21st May	Haydock Park Racecourse (J32, M6)
22nd May	National Motorcycle, Birmingham (J6, M42)
28th May	Northumbria Centre, Washington (12, A194M)
11th June	Haydock Park Racecourse (J32, M6)
25th June	Northumbria Centre, Washington (12, A194M)
16th July	Haydock Park Racecourse (J32, M6)
17th July	National Motorcycle, Birmingham (J6, M42)

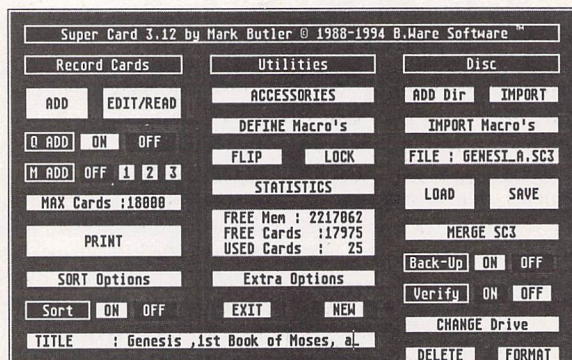
B.(ible) Ware!

B.Ware have just launched the *Super Card 3 Bible Collection*. It is supplied on three double-sided disks and includes the complete texts of the Old and New Testaments as well as the latest unregistered version of Super Card 3, their popular Shareware database program. Unlike most of the Public Domain Bible texts, this one has had every book, chapter and verse checked for accuracy and completeness.

The collection is supplied as self-extracting archives and decompresses to around 4.5 megabytes of data. Although it can run from floppy, a hard drive is recommended for speed.

Assuming you have enough memory, the entire Old or New Testaments (not both!) may be loaded into memory to enable a search throughout the whole text in a single operation.

The latest version of Super Card is very fast, taking just 24 seconds to find a 'no match' by searching every character in the Old Testament. A more typical search seldom takes more than a few seconds. The program CON-VERT5 is also included so that users can convert the Super Card files to ASCII or 1st Word formats if required. The Super Card 3 Bible Collection is available at the usual price from The ST Club.



Classification Plans Under Pressure

The European Leisure Software Producers Association (ELSPA) are coming under increasing pressure over the viability of their plans to introduce a classification system for computer games from 1st May this year (see ST Applications issue 37). Each game from a member company will carry a sticker on the back with four boxes marked 0-10, 11-14, 15-17 and 18+. A tick will be displayed against each age group that the game is classed as being suitable for. This means that unlike videos, a game which is universally acceptable will have all four boxes ticked, rather than just the 0-10 box, while games suitable for over 18's will have a single box ticked. This seems much more likely to cause confusion than the system used on videos where only one symbol (U, 12, 15 or 18) is displayed.

Further criticism stems from the fact that the publishers themselves will have to choose the ratings for their games, rather

than an independent body overseeing the process. The packaging will also state that games are exempt from classification under present legislation. This in effect means that retailers cannot be made to enforce the age classification when selling the games, making the whole process worthless!

The last fly in the ointment comes from Nintendo and Acclaim who, despite being ELSPA members, have decided not to comply with the new ratings scheme. Both prefer to follow a worldwide standard and are hedging their bets on a proposed American standard coming out on top. Others like Electronic Arts and Ocean have agreed to comply with ELSPA's initiative but are not convinced that it offers a sensible approach to the problem. It just needs a few more big names to cause the whole classification idea to collapse at the starting gate.

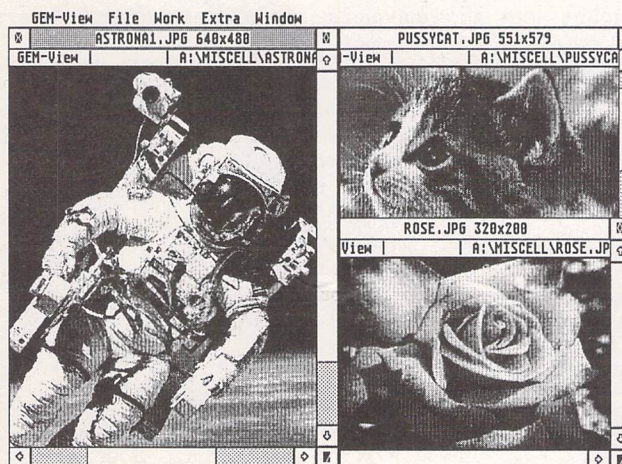
Floppyshop Gets GemView 3

After lengthy correspondence with Dieter Fiebelkorn, author of *GEM-View*, Floppyshop have been appointed UK distributors for the unregistered version of the new modular *GEM-View 3*. Any PD library supplying versions of *GEM-View* above v2.24 are currently doing so in contravention of the author's distribution terms and conditions.

As ST Applications readers know, *GEM-View* is the most comprehensive picture conversion utility available. The current version (3.02 as we go to print) reads over 40 different file formats from the ST, Amiga, PC, Mac, Sun and others. These include Degas, NEO, Spectrum 512, GEM, IMG (including colour X-IMG), GIF, IFF (including HAM and HAM8), PCX, TGA, TIFF, JPEG and Windows Bitmap. It even handles many 'non-standard' GIF and TIFF (as produced by several professional ST and PC packages) and re-saves them in their 'legal' format. *GEM-View 3* saves files in IMG (including colour X-IMG), ESM, GIF, IFF, BMP, TGA and TIFF formats and is compatible with all fully GEM compatible graphics cards on the

ST and TT and screen expanding software and hardware on the Falcon. Needless to say, all ST, TT and Falcon resolutions are supported and *GEM-View* takes full advantage of the DSP on the Falcon, loading and displaying a typical JPEG picture in seconds rather than minutes. This is speeded up even further if Brainstorm's JPEG decoder is installed. The program runs as a PRG, ACC or GTP, is fully Multi-TOS compatible and includes a 46-page English manual on disk.

The unregistered version of *GEM-View 3* is available for £2.00 from Floppyshop, PO Box 273, Aberdeen AB9 8SJ; Tel: 0224 312756. Unlike the version on the ST Review cover disk, this version has no restriction on the number of loading and saving modules which can be used. However, it does have a 30-day restriction on use and becomes less functional after this time. Simply send off your £18 registration fee (to Graeme Rutt, 4 River Terrace, Washbank Road, Eynesbury, St Neotts, Cambridgeshire PE19 2ET) to receive your key code which will allow unlimited use.



Help With Calamus

Sumner Type in London are currently investigating the possibility of running several half-day Calamus Workshop sessions. These would be a way for Calamus users to pool information in small groups along with other Calamus users in their studio. A questionnaire is being sent to interested parties in order to gauge interest and categorise the areas of knowledge which are most lacking and need to be addressed by the workshops. Each workshop will consist of a maximum of five participants and they are expected to cost £20 + VAT. If you are interested in participating, contact *Sumner Type*, The Desktop Centre, 17-19 Blackwater Street, East Dulwich, London SE22 8RS; Tel: 081 693 3364; Fax: 081 693 6936.

Ladbroke's Latest

Ladbroke have announced the availability of the *Legend Trackball* for the Atari range of computers. What makes it different from other track balls is its new design which allows the ball to be controlled by the thumb, leaving the fingers free to operate the microswitched buttons. The ball can be removed for cleaning and is easily replaced. The *Legend Trackball* has a resolution of 320dpi (about the same as the best replacement mice) and costs £29.99.

Also available from Lad-

broke is their own mono monitor at £129.99. It comes with a tilt and swivel stand and is fully compatible with all applications which run in ST high resolution. The ST adaptor supplied includes a small speaker and a 2.5mm jack to enable connection to an amplifier if a higher quality of sound reproduction is required. Contact:

Ladbroke Computing Ltd, 33 Ormskirk Road, Preston, Lancs. PR1 2QP; Tel: 0772 203166; Fax: 0772 561071.

Greyscale Scanner From Golden Image

Golden Image have recently launched the *AlphaScan T* 105mm hand scanner which allows you to scan images and save them in up to 256 grey levels. The package includes *Migraph's Touch-Up* software and *Merge-It*. By using *Merge-It* or *AlphaScale* (also included), you can scan an image in two halves and patch them together to make an A4 scan.

Touch-Up, as well as allowing you to edit your scans, lets you save them in a number of

graphic formats, making them directly compatible with Desktop Publishing packages on the ST, PC and Macintosh. *Junior OCR* is also included with the package but requires at least two megabytes of memory and a hard drive. The *AlphaScan T + OCR* bundle costs £135 and is available from:

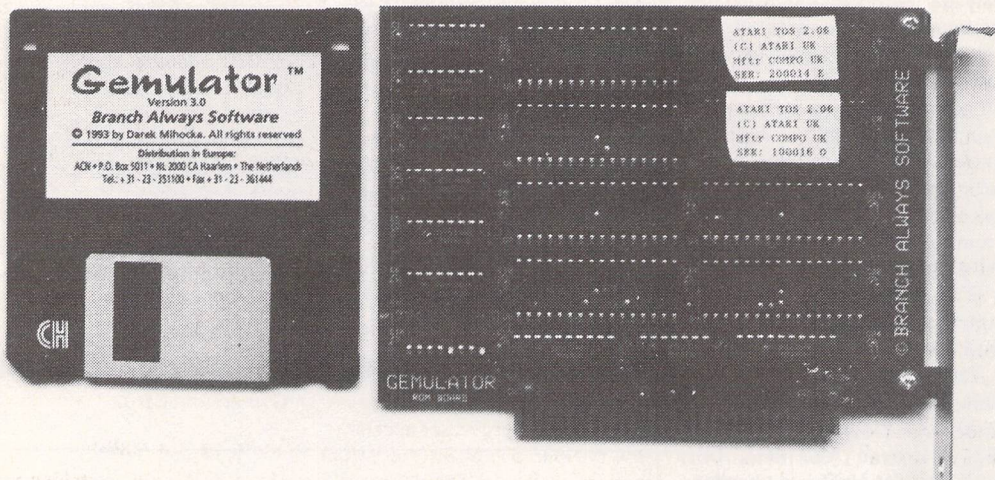
Golden Image UK Ltd, Unit 12a, Millmead Business Centre, Millmead Road, London N17 9QU; Tel: 081 365 1102; Fax: 081 801 8356.

Don't Throw Out Your SLM!

A German manufacturer has just come up with an interface which plugs into the SCSI II port on the Falcon and allows you to connect an Atari SLM804 or SLM605 laser printer. It directly replaces the SLMC controller and comes with the required software to drive your laser. The software is the original licenced Atari software supplied with the SLM, modified for the new hardware, making it compatible with applications which address the SLM. The package also in-

cludes a Diablo emulator, 1st Word Plus drivers, additional custom written software and either FontGDOS or Speedo GDOS. The device is known as The Heatseeker and can only be purchased from the manufacturers in Germany. It costs 199DM with FontGDOS or 249DM with Speedo GDOS and is available from R.O.M. Berlin, Raschdorfstrasse 99, 13409 Berlin, Germany; Tel/Fax: +49 30 4924127.

Gemulator 3



△ Gemulator is packaged in a neat VHS-style case containing the hardware, single HD disk, TOS 2.06 UK ROMs and manuals.

If you've considered abandoning the Atari platform altogether the Gemulator, an Atari ST emulator for the PC, offers an alternative. Buy a PC and continue to use your Atari software. In Part One of a two-part review Joe Connor considers the issues and introduces the Gemulator...

The Gemulator alternative has arrived in the Atari marketplace at a crossroads in the history of the Atari platform. Some of us couldn't wait to get our hands on a Falcon (and my fellow CIX enthusiasts who have taken the plunge seem very pleased with the machine), some of us are playing a waiting game to see what happens, and far too many have already abandoned or are considering abandoning the Atari for a different platform.

I still use my Atari computers for most things, except my professional CAD activities. This decision was bought about after I suffered a major sense of humour breakdown after explaining to a prospective client for the umpteenth time, "It's an Atari, and really jolly good for CAD." I smashed my Falcon piggy bank and went out and bought a fast 486 PC, which is the machine I'm using to review the Gemulator.

Why not upgrade an ST?

If you've considered upgrading

your ST instead of buying a PC try adding up the cost of a hard drive, separate keyboard, TOS upgrade, graphics card, HD drive upgrade, processor accelerator and a nice tower case to house it all and you'd probably be better off buying a Falcon or a PC fitted with a Gemulator!

After a brief honeymoon period with my PC I found myself returning to my Atari software in preference to the Windows alternatives. Did I really prefer my desk littered with assorted boxes connected by a rat's nest of cables? Or maybe I preferred staring at my monochrome SM125 to my Sony 17" colour monitor? Eventually (well, after about five seconds) it became clear I preferred the Atari operating system and friendly software but could happily live without the hardware. I suspect most of you still reading ST Applications have a soft spot for your Atari software and the Gemulator enables me to continue to use it - my clients need never know!

Does Gemulator work?

You're probably wondering right now whether the Gemulator really works, and so to summarize I'll simply say the latest version works very well! Now let's take a look at how the Atari emulation is implemented in more detail.

Gemulator accesses genuine TOS ROMs plugged into the hardware ROM reader for all

system calls. These are accessed by Gemulator through the PC System bus as required.

Atari ST models have always used the 68000 Motorola Central Processing Unit (CPU) whereas the PC has always used the rival Intel 80x86 CPU Family. Gemulator achieves its Atari ST emulation by converting each 68000 instruction into an equivalent sequence of 386/486 instructions.

A 386-based PC takes 5 clock cycles to emulate each 68000 instruction but a 486 model cuts this down to only 3 cycles. Using this simple rule of thumb it's easy to get a rough idea of the performance any particular PC will give under ST emulation.

Examples

50Mhz 486 (50/3) gives roughly 16Mhz performance
 33Mhz 486 (33/3) gives roughly 12Mhz performance
 40Mhz 386 (40/5) gives roughly 8Mhz performance

Bear in mind your Video card will also have a marked influence on the overall performance.

As a minimum, Gemulator needs a fast 386 or 486 PC with at least 4Mb RAM and a VGA graphics card to run successfully. A hard disk, mouse and sound card are also desirable but not essential.

Gemulator can be run under either MS-DOS or DR-DOS and Gemulator will also run under Windows 3.1 or OS/2 2.1 (more

details next month).

If you read the early reviews of Gemulator published in PC Home and Atari ST Review I would ask you to ignore them! I've been using Gemulator since before those reviews were published and continuously for over six months. During this period the emulation software has evolved beyond recognition so please read on.

Features

Let's look at each area of ST Hardware in turn and see how the Gemulator measures up to a standard ST.

Video: In addition to supporting all three Atari resolutions:

640x400 monochrome: ST High
 640x200x4 colours: ST Medium
 320x200x16 colours: ST Low
 Gemulator also offers an additional four resolutions which can be accessed by placing VGA.PRG in your Auto folder. The additional resolutions are:
 640x480 monochrome: all VGA cards
 640x480x16 colours: all VGA cards

800x600 monochrome: most SVGA cards
 800x600x16 colours: most SVGA cards

At 800x600 resolution there is over 88% more screen real estate than ST high! This is the ideal screen resolution for running the increasingly popular multitasking applications such as Geneva; see Fig 1.

Memory: Gemulator supports up to 8Mb RAM which is double the normal ST limit. The maximum size ST you'll be able to emulate depends on the amount of memory in your PC. Using the RAMSIZE parameter it's possible to emulate any ST model from 512k ST all the way up to 8Mb. If you specify more memory than is available Gemulator automatically assigns the maximum amount possible to itself.

Printer support: the PC Home review stated the Gemulator has 'no printer support', and this is completely untrue! Since the very first release Parallel printer support has worked perfectly. You simply plug your printer into the PC parallel port and it behaves exactly as if you were using a real ST. No patches or special utilities are needed.

Hard disk: the install software can set up to 4 32Mb real or virtual partitions. Drive letters can be freely re-mapped so, for example, you could set up an autobooting Atari 'C' partition on your PC

'D' drive or partition. This flexibility makes it easy for PC and Atari software to co-exist peacefully.

Virtual drive partitions: these behave like normal Atari hard disk partitions (up to 32Mb maximum) but are seen by DOS as a single file which expands and contracts automatically depending on its contents. Using this technique minimises the hard disk space needed.

Floppy disks: Gemulator can read and write any Atari floppy disk format, except copy protected disks. Gemulator also reads TOS 1.0 and TOS 1.02 formatted disks, which often cause problems on a normal PC.

Serial/Modem support: has recently been added and like the parallel port emulation is completely transparent to the user. Gemulator can address either COM1 or COM2. Because TOS itself has buggy serial port routines and Gemulator uses TOS you'll still need to continue using whatever serial patch utility works for you. I've used Stalker and Cixcomm and soon had both up and running.

Sound support: if your PC sports a SoundBlaster or Ad-lib compatible sound card you'll hear the standard ST squeaks from your PC running Gemulator. I asked Darek why STe sound compatibility hadn't been added to Gemulator:

"Gemulator doesn't support STE stereo sound because that would be fairly difficult to emulate in real time considering the STE and SoundBlaster use different sampling rates and memory models, so some sort of real time resampling or conversion would have to be done. Besides, there's very little software (other than cheap games) that uses STE sound, so I decided not to implement it. We're aiming at the serious users running PageStream, Calamus and other major ST software that isn't available on the PC and would be difficult or expensive to replace."

Keyboard: generally speaking, everything is where you'd expect to find it but there are a few extras and changes in Atari mode which are handled as follows:
 [Page Up] Help key
 [Page Down] Undo key
 [F11] Generates quick left mouse click
 [F12] Generates quick right mouse click
 [Control]+[F11] Re-enters Gemulator command mode
 [Control]+[F12] Reboots ST mode

[Shift]+[F12] Reboots ST and changes resolution

Every major aspect of the ST emulation is configured from an editable ASCII format INI (initialisation) file. Gemulator reads the default INI file at run time but you can easily create custom INI files and specify one at run time. Using this method you can set up INI files to boot into either monochrome or colour mode as desired.

Once in Atari mode you can drop back to DOS at any time and change the current configuration/resolution then return to Atari mode without rebooting the PC.

The good news got better

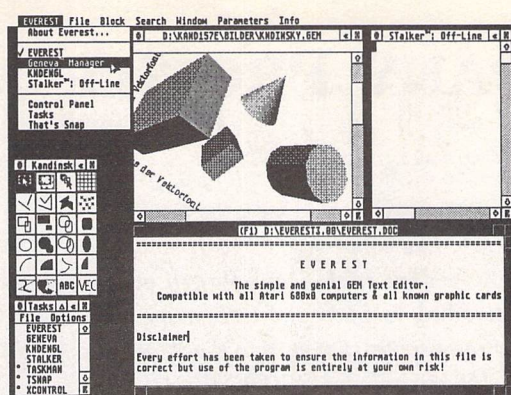
The very latest software release (V3.2) includes a major breakthrough! The emulation software has been reduced by over 1Mb which has several beneficial knock-on effects:

- * The extra 1Mb memory is available for use making it feasible to run Gemulator under Windows with 4Mb RAM for the first time.
- * The ST Desktop comes up even quicker
- * Gemulator can now run entirely from floppy; a hard disk is no longer a requirement but remains a desirable option.

The Reckoning

On the face of it the Gemulator does seem expensive. With secondhand STs fetching less than £100 it seems daft to pay almost double for ST emulation and that was my initial reaction when I started the Gemulator review.

However, comparing a typical Atari ST with a GEMulated PC is equally daft! Consider a STFM running at 8MHz, fitted with 1Mb RAM, TOS 1.04, 720Kb floppy drive running a SM124 (or a TV) against a GEMulated PC:



◀ Fig. 1: Gemulator supports extended resolutions up to 800x600, ideal for a spot of multi-tasking. This example shows Geneva running Everest, Kandinsky and STalker all at the same time.

Gemulator includes TOS 2.06, support for up to 8Mb, 1.44Mb HD floppy drives and resolutions up to 800x600 in 16 colours (dependent upon your monitor/graphics card combination). With a fast 486 PC you're also going to get improved performance, similar to fitting a processor accelerator to your ST; again the actual improvement is dependent on your PC.

For the record (and those that understand and are interested in such things) my review system comprises: A 486DX33 PC fitted with 8Mb RAM, Spea Mirage V7 graphics card, Galaxy 16-bit stereo sound card and a Gemulator. The system turned in a creditable performance using Ofir Gal's excellent GEMBench utility, which includes built-in Gemulator benchmarks - refer to fig 2.

Open the box

The Gemulator package consists of the Gemulator hardware card, optionally fitted with TOS 2.06 UK, a manual and 1.44Mb floppy disk containing the Gemulator software.

The hardware card looks like many other standard PC expansion cards and plugs into any free slot available in your PC. Eight ROM sockets are provided into

which it's possible to install a maximum of four 2 chip TOS sets. All TOS versions up to 2.06 can be plugged into the card but 2-chip TOS 1.02 or TOS 1.04 sets require a minor modification before they can be used with the Gemulator board.

Icing on the cake

If you're used to switching monitors to use all three ST resolutions the Gemulator offers some welcome relief. It's possible to change between all supported resolutions without powering down.

If you've always fancied a Stacy it's now possible to build a Gemulator into a laptop PC. Any portable with at least one single 8-bit expansion slot should be suitable, and so Atari computing on the move is at last a reality!

Face the music

Gemulator isn't really much use for Music and Midi - there's nowhere to plug the dongles in for a start, and currently no Midi port support, although Darek says these may be added in a later version.

Next month Joe Connor looks at the hardware, the software and compatibility in more detail.

GEMBench		
Test	Time	Ratio
GEM Dialog Box:	7.820	108%
VDI Text:	11.810	113%
VDI Text Effects:	20.840	112%
VDI Small Text:	9.510	104%
VDI Graphics:	23.800	108%
GEM Window:	3.705	105%
Integer Division:	3.045	590%
Float Math:	10.240	110%
RAM Access:	2.695	234%
ROM Access:	5.770	109%
Blitting:	10.820	108%
VDI Scroll:	11.800	111%
Justified Text:	12.480	110%
VDI Enquire:	2.165	122%
New Dialogs:	8.305	112%

Statistics	
Display:	110%
CPU:	260%
Average:	150%

Reference	
<input type="checkbox"/> Blitter	
<input type="checkbox"/> FPU	
<input checked="" type="radio"/> ST High	
<input type="radio"/> ST Medium	

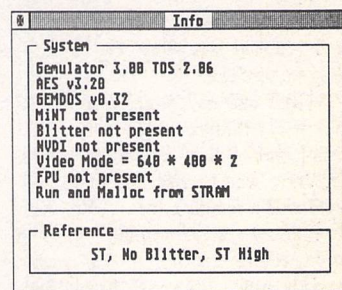


Fig. 2: The speed of Gemulator is dependent on your PC hardware. Using Ofir Gal's excellent GEMBench utility it's easy to compare different Gemulator options. My mid-spec PC runs 50% faster than a standard ST in a straight head-to-head.

COMPANY PROFILE

JCA are the new kids on the block in many ways as they have only recently been associated with the applications side of the Atari market. The company is a merger between the JCA Group and Riverdene PDL. Dave Howell visited them at their base in Reading to find out a little more about them and how they see themselves fitting into the Atari market as they are now the UK distributor of Calamus.

Alastair Craig began writing educational software for the BBC Micro in 1982 on his school machines. These programmes were pushed into other schools as his sister was a teacher. From there *Riverdene Software* began producing educational games for the BBC and the Spectrum, and also the Amstrad PCW.

The Atari ST then came onto the market in the mid '80's. Alastair was one of the first owners of those machines and began to programme it with *Fast Basic*. Among the first programmes he did were *Maths Made Easy* and *Spelling Made Easy*.

This turned into the PD library which in turn became a full time business in 1987/88. Various pieces of software were published with Alastair also working for other companies until he gained the UK rights to Calamus, which brings the story up to date.

As the history of Calamus in the UK is somewhat confusing to say the least I asked Alastair if he could throw some light on the programme's history and how it came to him and JCA.

"When Signa first had the package my dad was very involved with the printing industry and was very interested in the software. Back in '86/'87 it was all Mac's and £12,500 minimum pay out to get any decent kit, whereas on the ST you could have all of the kit including a laser printer for less than £2,000. For budget print shops and people who wanted to do club magazines this was ideal.

"We knew that Calamus S and SL were about to be released. Also the programme had then moved to Halco when Signa went under. We were in contact with Halco as we had an interest in selling Calamus on a retail basis. Then in September '92 they contacted me about a future job offer. I was out of the country at

the time, but in the November I started work for them as their technical guy.

"That lasted until the beginning of June '93 when I was made redundant. This was because of a lack of commitment by Halco in the product itself. I believed in the product but I don't think anyone else did.

"Halco originally sold repro cameras. I think they tried to branch out into the electronic publishing market. I don't think they had the knowledge of the Atari market place to push that product in the right direction."

Calamus has now settled with JCA. I asked Alastair if he had a plan for the software. In the past the companies that have handled the programme didn't seem to have much in the way of direction.

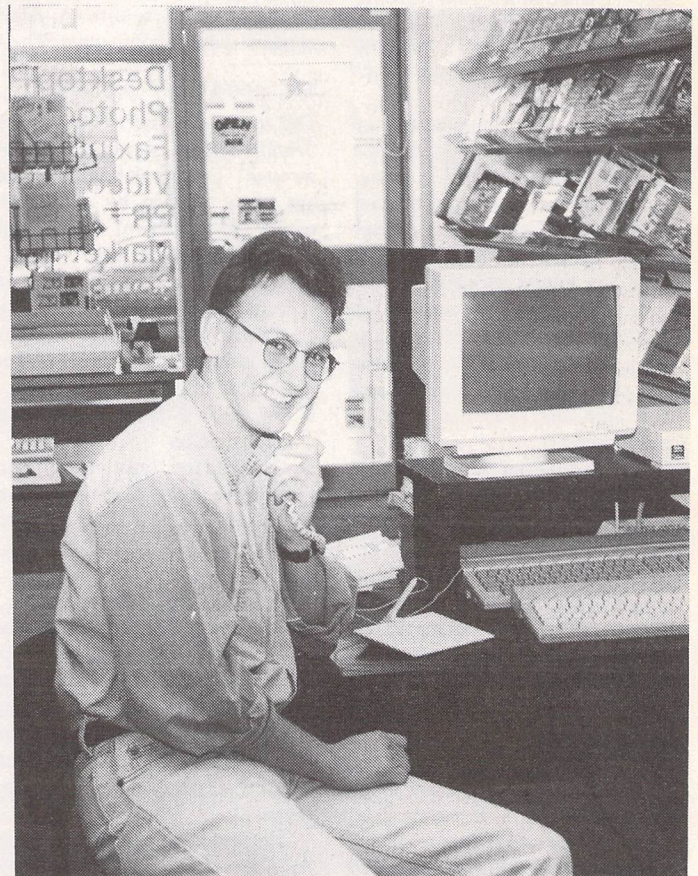
"Basically we are concentrating on the core packages themselves. We have 1.09n which is the low-end version. This is the market place programme as it is cheap (£99) but is also very powerful for the price.

"We have competition in the shape of the Timeworks and Page-Stream users. What Timeworks users say to us is what are the advantages of Calamus. We simply say that it doesn't use GDOS. They say they will have a copy because they are fed up with the fonts for GDOS."

I asked Alastair how he saw himself in the market place up against his major competition in the form of Didot Professional. I said that in many ways this is shaping up like the battle that is going on across on the Mac platform with PageMaker and Quark Express.

"The software will run on the same hardware. On the Mac and the PC this isn't the case as the hardware is different. In our case we are trying to push the software to the same customers who have an existing hardware base.

"There are pros and cons for each package so at the end of the day it is what the user wants. I'm not



Alastair Craig

going to sell a package to someone who wants a certain item that I cannot supply. I would rather offer a competitor's package than risk a bad reputation by selling them software they don't need."

I wondered if he had seen a great increase in interest in the package since Halco had left the scene.

"When S was released at the beginning of '93, those were the first copies to come into the country. Halco had a backlog of about thirty or forty orders, as we had advertised it back in October of '92. But the initial run of pre-orders had dropped off by the end of January. We were probably selling one copy of 1.09n a week, whereas since we have had the product we have probably sold more copies than Halco ever did.

"I have a lot of people who I have kept in contact with who I knew through my Halco days. They have found out that I now have the licence and have said to me that they are glad that I have the programme as being with Halco at the time put them off dealing with me. A lot of people held off because of the Halco reputation."

Windows NT

I asked Alastair for his thoughts about the market as a whole and how much it has changed since he entered it and since Calamus was originally released. At the present time we have seen DMC looking at another platform altogether in the shape of Windows NT. I wanted to know if Alastair had any information about this and how he saw this

move effecting his market.

"DMC are still developing S and SL for the Atari market, in tandem with the PC Windows NT market. To be honest with you I don't think the NT market will have that many users to begin with anyway. Windows NT needs a powerful PC and you need a powerful pocket to go with it, so I don't think that it will take off straightaway."

I had seen some of the information that was coming out of Germany about the new NT version of Calamus, and that it would run on a RISC machine as well as standard Intel based machines. I wanted to know if Alastair thought that Calamus would make any kind of impact in a market that is dominated by Quark and PageMaker.

"As Calamus is for NT you have full 32-bit structure, whereas Quark Express and PageMaker on the PC still only have a 16-bit architecture because of Windows 3.1, which is also only 16-bit. This is where Calamus could overtake these packages because of the 32-bit structure."

I asked if he thought that the programme would be taken up by many users. He had already said that he thought that NT would not explode in the number of users as Windows 3.1 has. But did he think he would have a large enough user base quickly enough to build on that particular part of his market?

"Talking to Microsoft they think they will have a user base of about 30,000 by the end of the year. So if 30,000 users are serious about their machine, and serious about DTP, we would have a small percentage of that user base which for us is quite large for such a professional product. The people who are buying NT are buying high end hardware and software. They didn't buy their PC to play games on, they are going to want to do high-end applications."

Atari

We moved on to his thoughts about Atari. All the interviewees have had an opinion on how Atari could improve their performance and win a better standing in the marketplace. I asked Alastair where he thought he was being let down by the people in Slough.

"The problem we are faced with nowadays is that Atari and various other distributors really don't want to know about their own hardware. If you have a PC nearly every company can offer three to four hours' down time for on-site repairs, at no extra charge. But when Atari have a Falcon of mine and a customer's Falcon for six and three months, then this is no good. If they could turn that around to three days that would be a

much better response time. But I cannot see it. So it is the hardware that is letting down the marketplace.

"As a developer, I have written educational software in the past. I do not for instance like to have to pay a couple of hundred pounds to Atari for their developers' technical reference manuals. If they want stuff written for their machines they should supply them free of charge upon request to serious users. If you go to Commodore for instance they will give you technical spec on anything."

I asked Alastair what his advice would be to Atari to put them back on the map as a serious hardware developer and give themselves a higher market profile.

"They need an independent user group of professional dealers, companies who have dealt with their products from day one and who know how to support the product. This would then create the publicity. All that this group would need would be for Atari to inject cash. They could then leave all the publicity and everything else up to that group."

The Falcon

We moved on to talk about the Falcon in a little more detail. I asked if he thought that the machine was as revolutionary as it seems, in that Atari have moved the goalpost some distance with this machine by giving it a great deal of high technical specification. I asked if Alastair thought they had got it right with this machine as it is today.

"I really did think that the machine was revolutionary but when it came out they made no fuss over it at all. You have to hype the product to sell it. With other companies such as Sega or Nintendo they do television advertising, they do magazine advertising, they do every kind of advertising.

"To take as an example the Lynx which is on the same level as the Gameboy and the Game Gear, the first one out in colour, a better based colour system than the Game Gear for instance. It has a nice Atari name behind it but Atari haven't got a clue about how to push the product."

Did he think the machine was a leap forward technically and offered the user something extra that was unattainable elsewhere? Did he agree with the point Compo had made, that we were still waiting for a package that unlocks the machine and its magical DSP and really makes the market sit up and take notice?

"DSP is an innovation in that it is being used within the machine. Otherwise it would just be an add-

on. If they had made it at the right price and made it a faster clock speed we would have had a dream machine."

The Future

I asked Alastair about the future of JCA. He now has Calamus which will be moving to the PC and therefore opening up a new market for him. I was also aware that he has other areas that he is interested in. I wondered if he would be developing them any further.

"We are heavily involved in the graphics area, we always have been. The way it is going, the PC market is there for that niche. We are also involved in video production work. We will be running exhibitions and seminars, things like that for the graphic industry."

The Jaguar

We moved on to the Jaguar. Would this machine bring benefits to the computer section of Atari? Would the Jaguar's success heighten public awareness of Atari itself, and also have a knock-on effect for the computer division in the shape of more funds for promotion for instance, and also help with creating a better market presence?

"This will not make a difference as they haven't got a chance with the Jaguar. Sega and Nintendo are already out there. They are too well established. If for instance Atari brought out a machine and it was badged Sega or Nintendo it would sell and there would also be software development. But if the machine has an Atari badge on it then everyone knows that they have been a slack company for marketing. Lynx came out for instance with a blaze of glory and they just left it."

The Market

One of the major criticisms of Calamus since it was first released has been DMC's decision not to make the package PostScript compatible. I asked Alastair about this and how he would answer the critics who have pointed to this as one of the major faults of the package.

"This all depends on how professional people want to go. A lot of people are happy with output from a laser printer. I would say that a good 90% of our customer base are like that. Even with the Laserjet 4 people are getting good results with 600dpi. And with Resolution Enhancement technology they have rated the image at just under 1,200dpi. Therefore, in the vast majority of cases, there is no need to go to an imagesetter. But this is still using only A4 pages.

"The people who do use it professionally for output can get bromides as we now have a few bureaux that can output the files without any problems. The thing with PostScript was that DMC wanted to get away from it if they could. I think this was because of the RIP (Raster Image Processor). They designed this new way of transferring the image without an RIP.

"It's also because Calamus 1.09n is very much a home-based product because of the price point. But it may well not be seen as this because of its power and its background, as it was originally sold at over £400."

I then asked if he had a hard time now convincing a new user that the Atari could do the job they are looking for from a computer. Does he for instance find it hard to convince users that the machines and software are a viable alternative?

"If they want to do more serious applications at a budget price, then the ST is perfect, as it has a great deal of serious software and the quality is so much better than other machines at the same price. For desktop publishing it is still there."

With that we ended the interview. Calamus has had somewhat of a chequered history in the UK since its arrival a few years ago. It would seem that it has now found a home with a company that believe in it as a product and more importantly know the market that it is aimed at. This should help put any fears to rest that the Calamus user base has had about its support and future development.

With the package moving over to the PC in the near future, this should herald a new era for the programme and if it is successful and carves a niche in the PC market, this should ensure the future development for the Atari based package.

Alastair is very enthusiastic about the packages that he handles. This has been evident throughout all the interviews in this series, and it is this enthusiasm as well as a good market knowledge that are the ingredients for a successful company. JCA have the right mix it would seem, and I look forward to seeing how the Calamus market develops when Calamus NT arrives next year.

JCA Europe Ltd. are:

Alastair and John Craig
30a School Road, Tilehurst,
Reading, Berks. RG3 5AN

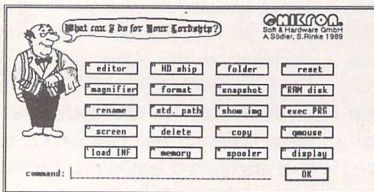
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- Screen: built in screen saver and 50/60Hz frequency toggler.
- RAM disk: flexible RAM disk that expands to the size required.
- Programs: TOS programs can be run from within Mortimer.
- Calculator: convenient pocket calculator with lots of functions.
- Spooler: allows you to work with the computer while your printer is working.
- Mouse: dynamic mouse accelerator with lots of configuration options.
- Ascii: shows ASCII table of all characters.
- Memory: gives an overview of the current memory allocation.
- Display: displays time and date.
- Keyboard macros: you can assign any text(s), sentences and function keys to keys or key combinations. For instance, [Alternate]-[S] might produce "Dear Sir,".
- Virus guard: Mortimer will protect your disks from boot sector viruses, and will detect link viruses when they try and spread to your files.
- Mortimer is memory resident and available at all times from within all programs. When installed, Mortimer reserves just 64K of RAM - all Mortimer functions are linked to a sophisticated memory manager.
- Mortimer version 1 is compatible with all TOS versions up to 1.62. The MegaSTE, TT and Falcon version - Mortimer DeLuxe - will be available December.
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Picture file formats supported include: IFF, TIF, Degas, ESM, PCX, PIX, IMG, NEO, TGA, BIG (DRAW), PIC, and LBM.

Direct scanner support via GDPS driver system, and graphic tablet support via the Crazy Bits driver system. These drivers are provided with many kinds of scanner/tablet, or they can be ordered independently if necessary.

Comes with printer drivers for 9-pin and 24-pin dot-matrix, Atari SLM, HP LaserJet, and DeskJet 500C/550C (colour).

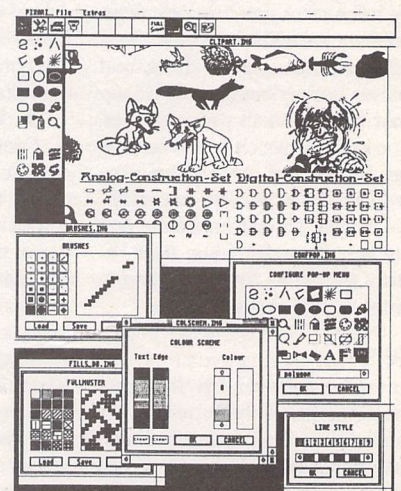
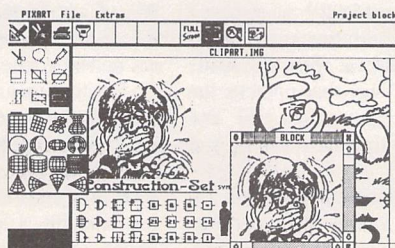
PixArt works with all known graphic cards, including True Colour cards that allow you to work with photo-quality pictures.

Compatible with TOS versions 1.2 through to MultiTOS. Fully Falcon compatible. 1MB RAM required. Large pictures need more memory. PixArt also uses TT-RAM.

Price: £34.95, Available: Now

PixArt IC: For compatibility with colour dot-matrix printers PixArt is available bundled with Imagecopy 2. Price: £49.95.

PixArt T: Bundled with Textstyle, which allows PixArt to incorporate text generated from Calamus fonts. Price: £44.95



PixArt is ideal for creating invitations, greetings cards, awards and certificates, report covers, labels, tickets, tokens, menus, posters, brochures, price tickets, letter-headings, logos, door signs, and more. The possibilities are only limited by your imagination!

FaST Club
7 Musters Road
West Bridgford
Nottingham
NG2 7PP

File	Edit	Window	Search	Format	Style
New... Open...	Undo [Undo] Cut Copy Paste Delete	Full/Small Window Preferences...	Find... Replace... Go to page...	Line Spacing... Left Right Centered Justified	Macro... Normal Bold Italic Underline Outline Superscript Subscript
Close Save Save As...	Select All Select Picture Draw Pattern... Hide Picture... Import Picture... Correct Aspect Ratio	Activate Document... Hide Ruler Hide Tools	Thesaurus... Check Spelling...	Copy Format... Paste Format... Delete Format...	Fonts...
Import File... Export File...	Begin Merge... Show Data			Title Page Set Page #...	
Load Format/Style... Save Format/Style...					
Header/Footer... Page Setup... Print... Print Merge...					
Quit					

AtariWorks

The first of a two-part review by Graham Curtis

AtariWorks is available from HiSoft (0525 718181) for £100
(£125 if Speedo GDOS is ordered as well).

When Speedo GDOS appeared last year, I got quite excited. At last we had an official high-quality font system to replace the aged GDOS for Atari machines. Initial experiments were highly encouraging, but the lack of applications to take advantage of the new system was disappointing. Despite the inclusion of SpeedoGDOS and AtariWorks as a part of the Falcon bundle in the States, Atari users in the UK have had to wait patiently for a specific English version of 'Works. Not only that but we have to pay for the package whether we have bought a Falcon or not.

AtariWorks finally became a reality this morning as my review copy dropped onto the doormat. Will it live up to expectations? I'll let you know. First let's get the box open. HiSoft have packaged AtariWorks in their usual professional way. The colourful box contains the manual (not spiral bound as mentioned on the box), a registration card, and the natty little disk wallet containing three double-sided disks.

Running the installation program on disk 1 produces the first pleasant surprise. While the computer gets on with the chore of installing the files, you are invited to make use of a facility for viewing the readme files. This is a rather nice touch and helps you to get quickly acquainted with the package. The installation is quick and painless.

For those who do not know, AtariWorks is an integrated word processor, spreadsheet and database, or 'the Complete Office Solution' to borrow a phrase from the packaging! An application of this scope requires a fair bit of digesting, and so I intend to deal with it in two parts. First will come the word processor, which, I think, users will spend most of their time with. Word processors are terribly subjective pieces of software and we all have our personal likes and hates. Next month we will look at the spreadsheet and database and how these can be integrated with the word processor.

Word Processing the AtariWorks Way

To try and adopt an objective approach to AtariWorks, I will work across the menu bar at the top of the program and deal with noteworthy elements as they crop up. I am actually using the package to write the review, and so these words are generated as I learn about each feature.

Working from the blank page, the ruler and icon bar are enabled for each new document. Both elements can be disabled separately or together, giving the option of instant control, or a little extra typing area. Multiple documents can be edited, and each document has its own window, ruler and icon bar. The icon bar carries the easily comprehended formatting controls, tab markers and text effect buttons. If a tab is picked up from the bar a dialogue pops up giving the exact position of the tab.

To disable a tab it is pulled down and dropped into the text area, from where it will disappear. The icon bar controls work on a paragraph basis, so that a set of tabs can be set up for a specific purpose, then forgotten for the rest of the document.

Menus

File import options in word processor mode appear to be sparse at first glance. Simple ASCII import is available with either carriage returns at the end of line or end of paragraph. The option to set the type of ASCII import is, however, hidden away in the 'window - preferences' menu. The real pearl in the oyster is the unassumingly named 'RTF import'. Rather than provide a plethora of file import options which are instantly out of date, the authors have provided this near industry-standard text standard. RTF is a super-ASCII inter-

change format invented by Microsoft to allow word processor files to be transferred with limited formatting and style information intact. Heavyweights such as WordPerfect support this file format so it is a safe path to tread. The same two options exist for text export, so interchange of documents with AtariWorks and other modern packages should be relatively painless.

Once a particular style has been set for a paragraph, it can be copied for other paragraphs. If a particular tab setup is required for a list or sub-paragraph it can be named and re-used in the current document or saved to disk with the 'Save Format/Style' option. When a paragraph format is available, the little PF icon at the left hand of the icon bar is enabled. Clicking on the icon shows a list of the available paragraph format tags.

After the intuitive nature of the icon bar and other controls the 'Header/Footer' menu comes as a bit of a disappointment, from a control point of view. Text is typed into a single line dialogue using the standard system font. If anything fancy is required then several commands must be memorised. *P inserts a page number, *D the current date and *F for the document name. Format control is provided by the commands *C, *L and *R for centre, left and right justification. The result of all these control codes is quite comprehensive, but bearing in mind the 'ease of use' billing for AtariWorks this really should be a WYSIWYG operation.

Printing is done to the current SpeedoGDOS driver with no preview facility. Speedo GDOS is much less likely to give strange printed results than previous versions and so this is a minor omission. When printing this document 'Works struggled to get my text and footer on the same page despite the fact that I have been

using Speedo for several months without incident. I had to tell the program that my A4 paper was really US Letter.

Moving on to the Edit menu we start off with the UNDO entry. This can retrieve whole paragraphs, so is quite useful for the accident-prone or absent-minded like me. The usual cut and paste options are there, allowing the copying of sections between multiple word processing documents and the other modules of AtariWorks. The 'Select All' feature allows operations to be performed on the whole text as a single block. This is very useful for fettling up imported text.

The picture import, drawing and manipulation menus hardly catch the attention, but really are quite comprehensive. Lines and boxes can be drawn within the document while GEM image and vector pictures can be imported. While the controls for moving and sizing the pictures are quite comprehensive (down to the ability to resize text in imported vector drawings), text flow around the images is not available. It is possible to drop a picture onto a page full of text and both parts cohabit the same page area. If images are imported only a crossed box appears on screen. A useful feature is the ability to preserve aspect ratio on pictures.

The window menu carries the switches for turning the icon bar and ruler on and off, entries to mimic the function of the right hand full/small GEM window gadget, the window topping feature and the preferences dialogue. The preference entries allow customization of the often forgotten areas of date format and currency symbol. It's nice to know that there is life outside the United States, isn't it? Other preferences are initial typeface and size, and dictionary/thesaurus options.

The search menu has the usual search and replace facilities. When searching is underway, the screen is split horizontally so that the current text window is shown in reduced height. This is quite unnerving at first but makes for an elegant solution interface as the search dialogue remains until you have finished with it. With lesser packages, the whole dialogue has to be retrieved for each subsequent search.

Below the search entries are the thesaurus and dictionary. Both of these items load in their respective dictionaries as required. Despite this, both are speedy in operation. Genuine UK English versions of the dictionary and thesaurus are provided, although any other (if

available) can be selected via the preferences menu. Just to prove the point, I asked the thesaurus my favourite question: find a synonym for 'grass'. This is usually where American packages fall over. AtariWorks came up trumps with meadow, pasture and turf among other equally relevant alternatives. The dictionary has also had its American leanings removed so that we Brits can let the computer help out without causing us embarrassment. The dictionary and thesaurus dialogues do, however, take a slightly different route to letting you see the context of your enquiries. A portion of your text is shown in plain system font within the dialogue. A pity the programmer did not think to re-use the code he invented for the search and replace functions.

The format menu mimics most the functions of the icon bar with the exception of the tools for copying and manipulating paragraph formats. The options 'set page number' and 'set title page' allow overriding of the normal automatic numbering and header/footer schemes. These are rather nice touches as a title page can be created which is different from the following ones, and then page numbering can be started wherever you wish.

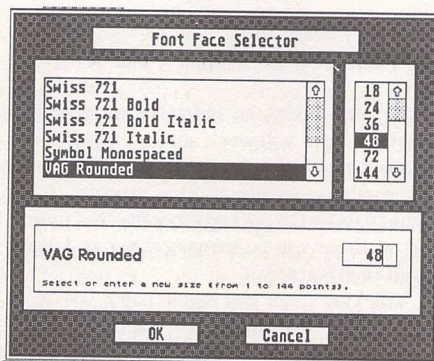
Last (but not least) on our tour across the menu bar is the style menu. Here we find the macro entry which allows a particular style

setup to be stored as a function keypress. If you have several different standard styles that you wish to use such as a heading in 24-point Swiss bold, or subhead in 12pt Swiss, these can be reproduced at the touch of one of twenty possible function key strokes.

The remainder of the style dialogue contains text styling and sizing options for the lovely Speedo font system. There appears to be no practical limit on the number of entries in the font dialogue. A selection window, complete with scroll bar, is used. Font sizes can be selected in one-point increments from 1 point (invisible) to 144 points (two inches high) and all of them come out with nice smooth edges. I see this as a major breakthrough for Atari applications as virtually infinite control is available without the worry of what it will all look like.

Phew! We've now fallen off the edge of the word processor menu bar. I'm afraid I rely heavily on menus as my memory cannot cope with keystroke command combinations. Fortunately, AtariWorks has adopted keyboard short-cuts which are becoming standard throughout many applications on different machines. The obvious ones for cut (^x), paste (^v) and copy (^c) are all there and perhaps many others are recognisable for you keyboard junkies. Me, I'll stick with my friendly little rodent.

One very clever feature is all but hidden if you are not one of those people who reads the manual from cover to cover before you get started. If you press shift and the left mouse button with the pointer over the left margin (how do they think of them?) the Marginalia menu pops up. Either sound samples (.AVR) or text messages can be embedded within your documents, and are marked with a little page or loudspeaker icon for later retrieval.



△ The font selector (from 1pt to 144pt).

▷ A selection of the faces available in a range of sizes.

Dutch 801 Roman 8pt

16pt

32pt

Park Avenue 8pt

16pt

32pt

VAG Rounded 8pt

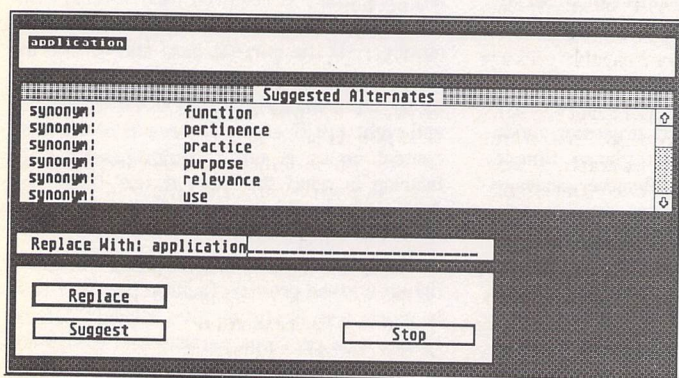
16pt

32pt

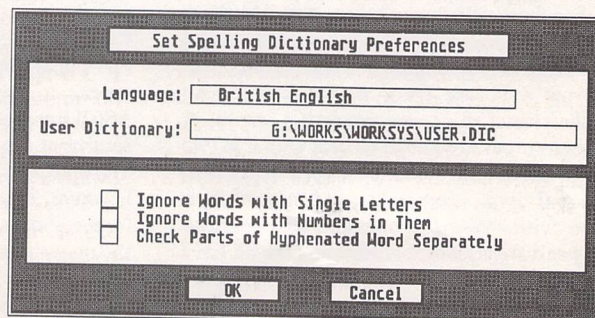
Cooper Black 8pt

16pt

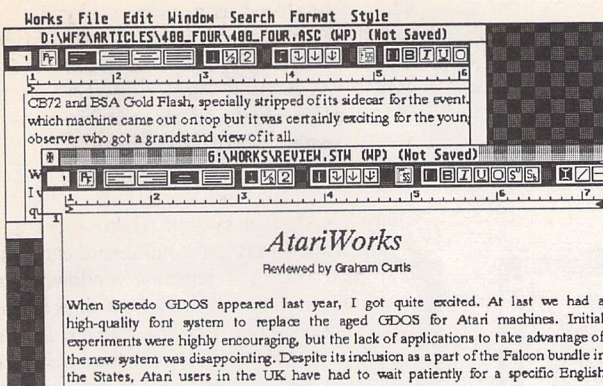
32pt



△ The Thesaurus in action



△ Dictionary Preferences



△ Multiple documents are handled without fuss.

But What Does It All Mean?

Now that we've got all of the hard graft out of the way, I shall have a look back over all the features and pick out a few that I think are important. I will leave the extended features of compound documents until next time, when I've had more chance to investigate.

Document Interchange

Rich Text Format really does simplify things both for the programmer and the user. For both parties it means only one standard to work to. It can never become a word processing document format in its own right as it will always lag behind the capabilities of the latest applications. It does, however, provide a well supported route for swapping text between different word processors and machines. Basic formatting commands survive the transition intact, as do headers and footers, which is rather better than a simple ASCII transfer. Rather than feeling left out on a limb I can now happily produce text on my ST which I know will load into a PC or Mac system with minimum fuss.

Font Handling and Printing

SpeedoGDOS has brought the ST range back into the mainstream. I no longer look enviously at the results which can be obtained on the PC or Mac. With its support for Speedo (or vice versa) AtariWorks can produce highly professional results with very little fuss. Yes, we have finally moved away from the days when all applications were compatible with a single drive 520 ST. Don't forget though, that the two megabyte ST with hard drive is only around £250 away from that humble single-drive 520. Graphics mode printing through Speedo means that you will always have printer fonts perfectly matched to screen fonts, without lots of juggling. Speedo can do it all for you without revealing the entrails of the dreaded ASSIGN.SYS. That 'home computer' look is a thing of the past now, with printers such as HP's DeskJet down in the £250 bracket.

Speed and Feel

For some, there is simply no alternative to the high speed scrolling of Prottext, Redacteur or ST Writer. As a person who thinks very slowly and types a gear lower, I am not overly both-

ered about scrolling my text into a blur. For me, speed is about getting the final result looking the way I want it to look, with pictures if necessary, as painlessly and quickly as possible. I am not a control code or keyboard enthusiast; just show me what it's going to look like, help me fix the typing mistakes and I'll press the print button.

AtariWorks is quite sprightly in the scrolling department, a fraction quicker than Wordflair II or Calligrapher. For a more common yardstick, it's at least as quick as First Word Plus. Paragraph formatting is done as you type, with no embarrassing delays as the screen catches up. A 4000-word article loaded in as an ASCII import caused no degradation in performance. The only annoyance I will admit to is the buffering up of cursor keystrokes. Hit the vertical arrow keys for a fraction too long and the screen shoots off with a mind of its own. You just look on helplessly until it settles down again. Cursoring horizontally is handled perfectly, and so I assume this is just an aberration.

The icon bar is very nice to use. The tab and format commands operate on individual paragraphs without the need to keep inserting new rulers as required by Calligrapher. It is most entertaining to watch the tab stops and indent symbols dance around as text scrolls down the page.

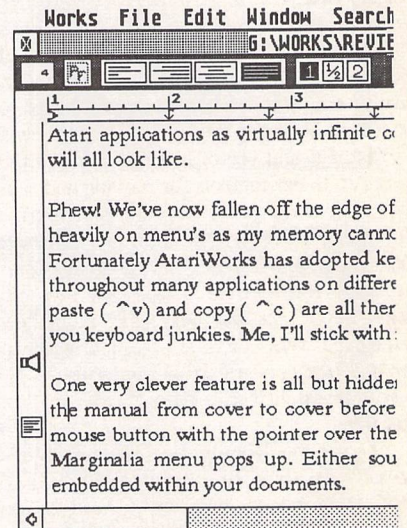
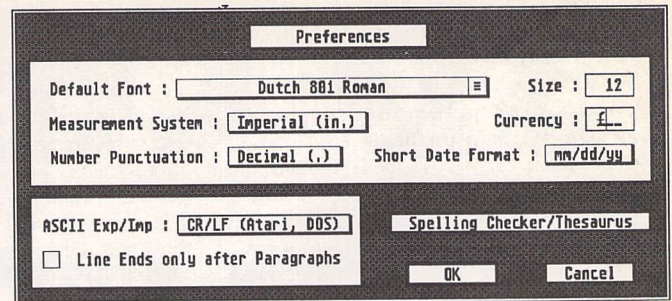
Conclusions - Part 1

The decision is made simple for American Falcon owners as they receive AtariWorks bundled with their new machines. Presumably, UK users must pay for their copy to offset the costs of converting the package. As a word processing package 'Works is a very capable package indeed. It does everything it sets out to do and delivers consistent professional quality results. It is happier as a word processor than a true document processor, despite its graphical tools. I think I would prefer more document processor polish than marginalia party tricks. Perhaps I will find a use for them, in time.

Where it does deliver the goods, with just one exception, is its ability, straight out of the box, to let the user get on with producing quality documents without having to worry about all those fiddly bits so beloved of computer users. You want a 39-point Bitstream Cooper Black headline? Coming right up! That

△ Enter your favourite settings here.

▷ Hide those little notes and sounds in the margins.



exception? Those headers and footers could do with a bit of WYSIWYG assistance.

Next time I will have had some time to put the spreadsheet and database through their paces. We might even get to grips with compound documents.

The Competition

The only other Speedo-compatible word processor is Wordflair II which also includes calculation and database modules. It errs rather more toward the DTP side of document processing, and is more suitable for documents of few pages.

Calligrapher and That's Write are both heavyweight document processors that would give Works the word processor a run for its money. Neither package, however, has the universal nature of Works as a complete office solution.

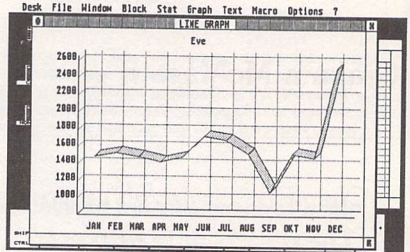
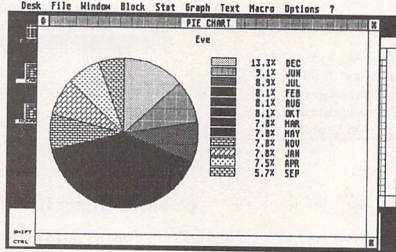
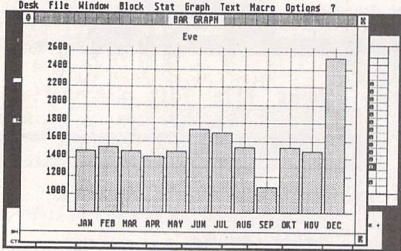
Points For:

- ✓ Scalable fonts
- ✓ UK Dictionary/Thesaurus
- ✓ Icon bar controls
- ✓ RTF File import/export
- ✓ Marginalia
- ✓ Integration with Spreadsheet and Database (and possibly other modules, too)

Points Against:

- ✗ No text runaround for graphics
- ✗ No WYSIWYG Headers/Footers
- ✗ Speedo fonts expensive
- ✗ No multiple columns
- ✗ No word count
- ✗ Poor control over vertical scrolling (this one really makes me want to tear my hair out!)

3D Calc Plus



Desk File Window Block Stat Graph Text Macro Options ?

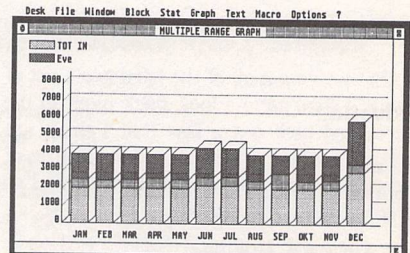
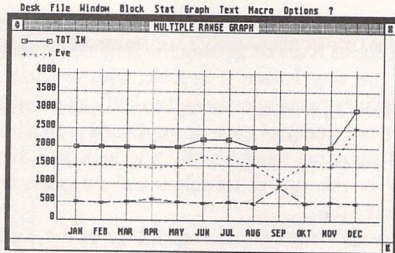
G:\3D-CALC\DATA\BUDGET.3DD

MULTIPLE RANGE GRAPH

GRAPH Graph title : _____ OPTIONS :
 X - AXIS 3D-Graph : YES [MO]
 Label range : B02 to cell : B012 Grid : YES [MO]
 Y - AXIS Auto V-axis : YES [MO]
 Label range : C0 to cell : E8 Number of lines : _____
 Data range : B02 to cell : B012 Increment : _____
 Lowest value : _____

FILE EDIT VIEW HELP

OPEN THRETT DELETE DELETE DELETE DELETE DELETE DELETE DELETE DELETE
 CTRL PC COPY/PT CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM
 CTRL PC COPY/PT CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM



Desk File Window Block Stat Graph Text Macro Options ?

G:\3D-CALC\TEXT\WORK.PM.3DD

```

(© 3D-CALC Programming language.
(© Example program.
(© This program assumes that the 3D-CALC datafile ADDRESS.3D
(© is present in the DATA folder on the active disk.

PROCEDURE GetId;
  ClrScr;
  Getxy(1,5);
  Print("Enter name : ");
  Input(BC0);
  GetB(BC0*10);
  GetPLine(GB,c(1,a,2):c(1,a,high));
RETURN;

PROCEDURE NewRecord;
  ClrScr;
  Line:=high+1;
  AddC1;
  
```

FILE EDIT VIEW HELP

OPEN THRETT DELETE DELETE DELETE DELETE DELETE DELETE DELETE DELETE
 CTRL PC COPY/PT CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM

Desk File Window Block Stat Graph Text Macro Options ?

G:\3D-CALC\DATA\BUDGET.3DD

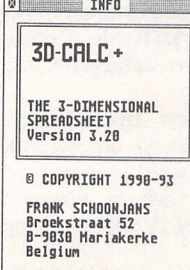
DATE	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
JAN	1	1	1	1	1	1	1	1	1	1	1	1	1
FEB	2	2	2	2	2	2	2	2	2	2	2	2	2
MAR	3	3	3	3	3	3	3	3	3	3	3	3	3
APR	4	4	4	4	4	4	4	4	4	4	4	4	4
MAY	5	5	5	5	5	5	5	5	5	5	5	5	5
JUN	6	6	6	6	6	6	6	6	6	6	6	6	6
JUL	7	7	7	7	7	7	7	7	7	7	7	7	7
AUG	8	8	8	8	8	8	8	8	8	8	8	8	8
SEP	9	9	9	9	9	9	9	9	9	9	9	9	9
OCT	10	10	10	10	10	10	10	10	10	10	10	10	10
NOV	11	11	11	11	11	11	11	11	11	11	11	11	11
DEC	12	12	12	12	12	12	12	12	12	12	12	12	12
TOTAL	29400	29400	29400	29400	29400	29400	29400	29400	29400	29400	29400	29400	29400

FILE EDIT VIEW HELP

OPEN THRETT DELETE DELETE DELETE DELETE DELETE DELETE DELETE DELETE
 CTRL PC COPY/PT CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM CLM

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 Launch Price:
 £14.95
 Requires one Megabyte of RAM
 Upgrade from earlier versions:
 Return master disk + £9.95

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 7 Musters Road
 Nottingham
 NG2 7PP



3D-CALC +
 THE 3-DIMENSIONAL
 SPREADSHEET
 Version 3.20
 © COPYRIGHT 1990-93
 FRANK SCHOONJANS
 Broekstraat 52
 B-9030 Mariakerke
 Belgium

3D-Calc menu bar
 3D-Calc: the 3-dimensional spreadsheet
 Append file - Merge file
 ASCII text option
 Automating 3D-Calc
 Averages and percentiles
 Bar, line and pie graph
 Block menu
 Calculations: manual - automatic
 Cell addresses
 Cell font options
 Clear block
 Clear cell
 Clear data
 Clear text
 Command line
 Copy block
 Copy block to text
 Copy cell
 Correlation coefficient

Open text window
 Operators
 Output window - Output format
 Paths option
 Print data
 Print text
 Program
 Programming language - command overview
 Programming language - Introduction
 Programming language - program loop commands
 Programming language - settings & options
 Programming language - variables and functions
 Quit 3D-Calc
 Read block
 Read spreadsheet file
 Read text
 Reformat text
 Regression and correlation
 Save options
 Save spreadsheet data

Copy block
 Copy block to text
 Copy cell
 Correlation coefficient
 Database functions
 Database statistical functions
 Date and time functions
 Define block
 Define column
 Define graph using the mouse
 Dialog forms
 Edit cell
 Export ASCII file
 Expressions and functions
 Financial functions
 Find
 Function and control keys
 Function graph
 Function keys

Save text
 Scatter diagram - Draw curve
 Set begin block - Set end block
 Set block values
 Settings
 Sort rows
 Spreadsheet 1, 2 and 3
 Statistical functions
 String functions
 Synchronization options
 Table: Distribution of t
 Table: Wilcoxon Rank Sum Test (unpaired)
 Table: Wilcoxon Signed Rank Test (paired)
 Text format
 Text menu
 The 3D-Calc desktop
 The cell pointer
 The spreadsheet windows
 Window grid option
 Write block

Functions overview
 Functions: variables and constants
 Goto cell
 Graph options
 Graph output option
 Hide block
 Histogram - Cumulative distribution
 How a cell KNOWS its own location
 Import ASCII file
 Indirect cell addressing
 Indirect cell addressing functions
 Link pages option
 Logical and other special functions
 Macro recording
 Macros
 Mathematical functions
 Move block
 Multiple range graph
 Multiple windows and titles
 On line help

More than a Spreadsheet

ChemKit

Graham McMaster

A DTP Utility

ChemKit is a graphics program which provides tools for drawing chemical structural formulae. The results may be printed immediately or saved in a variety of image formats to be imported into a word processor or DTP package.

Introduction

There are two main ways of incorporating scientific notation – be it mathematics/logic symbols or chemical structural formulae – into documents. In the first a graphic is created, usually in a separate application program such as ChemKit, and imported into the document; while in the second a font of symbols is designed specifically for the document processor. Each of these methods has areas of particular strength.

For example, the size and shape of chemical structural formulae are such that they are difficult to present in-line with text. Consequently they are usually consigned to a display panel and that arrangement particularly suits the graphic approach. In addition, both developer and user benefit from being able to import the same graphic into a variety of applications.

Installation

ChemKit (v 1.5) is supplied on three floppy discs although, happily, most of that space is taken up by fonts and drivers covering the range of printer types and resolutions (for 24-pin dot matrix printers only 180x180dpi fonts are provided). The fonts are the ubiquitous Swiss and Dutch letterforms in a variety of sizes. A working copy of the package, tailored to a particular user's needs, can be installed on a single, double-sided floppy disc. I say installed because ChemKit uses GDOS which means that an Assign.Sys file and a fonts folder need to

be created. However, an installation program is provided to make the whole operation quite painless.

The installation options are to floppy drive A or to a hard disc. In the latter case the boot partition and the partition for locating ChemKit need to be specified. I have an irrational suspicion of programs that want to write an Assign.Sys file on the boot partition of the hard drive. Consequently the installation was run initially on a 1040 STE with twin floppy drives and a dot matrix printer. Apart from the inevitable disc swapping, everything went smoothly. However, I was disappointed that the possibility of a second floppy drive was not considered. With that configuration all the fonts could be placed on drive B, allowing 360dpi fonts to be provided.

I was curious to know what would happen if I lied to the installation program and said that a laser printer was attached. That would force it to attempt to cram some 600K of laser fonts on to drive A along with ChemKit. I should have known HiSoft would have thought of that. The program only loads as many Dutch and Swiss fonts – starting at the lower point sizes – as can be accommodated on the disc.

Some of you may have suspected that I have been delaying the hard disc installation in the hope of finding an excuse for not doing it. You may be right, because it did occur to me, while working with the floppy drive, that many potential users of ChemKit would,

like me, have GDOS already installed on their hard drive. For their benefit therefore, I decided to test the speculation that it should be possible to drop ChemKit and its resource file into a folder on any partition and run it from there using the existing Assign.Sys file and fonts. Of course it works but I noted two minor effects. First, ChemKit may inform you that it cannot load all the fonts. That is probably because font options are listed on a menu rather than in a scrolling window. Therefore when all the menu slots are filled, it cannot load any more. There are no catastrophic consequences. Second, I found that the widths of my Dutch and Swiss characters were different from those supplied with ChemKit and as a result the heading in Fig 1 (which is from a ChemKit demonstration file) overflowed

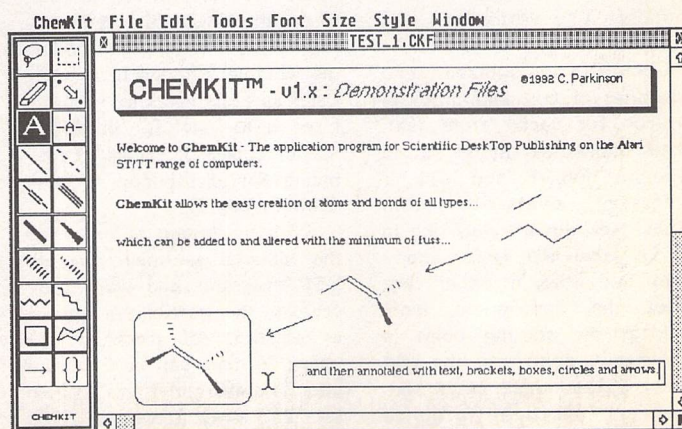
its box. Again there are no catastrophic consequences.

Features

Opening ChemKit reveals what has become a standard layout for GEM graphics applications: a double strip of icons down the left edge of the screen and representing tools; a set of menus containing a mixture of the normal fare and some specific to the application; and a large work area which, in Fig 1, is filled by a GEM window containing part of a ChemKit demonstration file. More than one window can be opened (the relevant menu allows up to four windows) and objects transferred from one to the other via an invisible clipboard. Full details of the menus and icons are to be found in the well written and presented ring-bound ChemKit manual.

However, the main focus of

▽ Fig 1: In addition to normal bonds, ChemKit lets you create three-dimensional effects with advancing and receding bonds.



interest is the tools provided for drawing chemical structures. Some of these are illustrated in Fig 2. The simplest object is a bond (single, double, triple and three dimensional) linking a pair of atoms (black blobs in Fig 2 which can be turned in or off as required). Its length may be fixed (user-defined) or variable. To draw it, click on the appropriate icon and then click and hold the mouse button at the start point, drag the mouse to the end point and release the button. For fixed bonds the mouse movement determines direction only: for variable bonds both length and direction are dependent on mouse movement. Add another bond by clicking near an existing atom centre (it becomes selected) and dragging out a second bond. A bond is erased by clicking on it with the eraser and it is replaced by a different type of bond by drawing over it.

For more complicated structures there are pre-formed rings - hexagon, pentagon, square and triangle - which are selected from a subset of icons activated by clicking and holding on the current ring icon. In addition a linear chain of up to fourteen carbon bonds can be pulled out.

Any object can be selected by one of two tools which enclose it in a dashed box (an irregular path can be traced around the object with one of the tools). These boxes (see the pentagonal ring in Fig 2) have tools attached to their top and bottom right corners. One enlarges or reduces the selected structure and the percentage change is displayed in the panel at the bottom of the icon strip; the other rotates it and the angular displacement is displayed in the panel. While a structure is selected, it can be deleted, moved, flipped horizontally or vertically and copied or cut to the clipboard.

ChemKit recognizes two categories of text and provides an icon for each: 'atom text' labels individual atoms in a structure (Fig 4) and will, if necessary, overwrite atom 'blobs' (see the selected ring in Fig 2); 'label text' is for annotation and titles. In either case select the appropriate icon, click at the starting point (a rubber box containing the text cursor appears) and enter text. Chemical reaction formulae

may also be entered in label text mode (Fig 2). Among the text style options are subscript, superscript and formula. In the latter mode, all numbers are displayed as subscripts. To round off the presentation of text and formulae, a number of graphic elements - boxes and brackets - are provided.

Having drawn a structure or a 'windowful' of structures, the results can be saved in ChemKit's own file format and printed directly. Alternatively, the work can be saved as bit-mapped Degas (*.PI3) or GEM (*.IMG) images or as a GEM (vector graphic) metafile (*.GEM). Most DTP programs will import at least one of these formats. Degas mode is most restricted: the only option is to save a screen of information and while the window can be resized to cover the icon strip, ChemKit's menu bar cannot be covered. In IMG mode either a screen or an area of it marked out with the mouse can be saved. Metafile mode is the most flexible and is the only mode in which the whole window (as well as part of it) can be saved.

In Use

ChemKit is well conceived and executed. It is stable and easy to use. Chemical structural formulae, block diagrams and reaction equations can be created very quickly, with a minimum of effort. It will run on a 1040 ST although you may need to strip out some accessories. Figures 3 and 4 were originally drawn as a single window with the control panel accessory and a few small AUTO programs. loaded. ChemKit reported over 400K of free memory. However, when I first loaded it, together with the accessories that come with it (see below), any attempt to do anything to the demonstration file (Fig 1), e.g. scrolling the window, resulted in a crash. Used as a stand-alone program I see it as ideal for producing master copies of sheets of formulae for distribution to students or pupils.

With the option of exporting the material as image files to DTP programs and word processors, the possibilities appear to expand. All three of the image formats can be imported into Calamus and I was able to set up a database of IMG

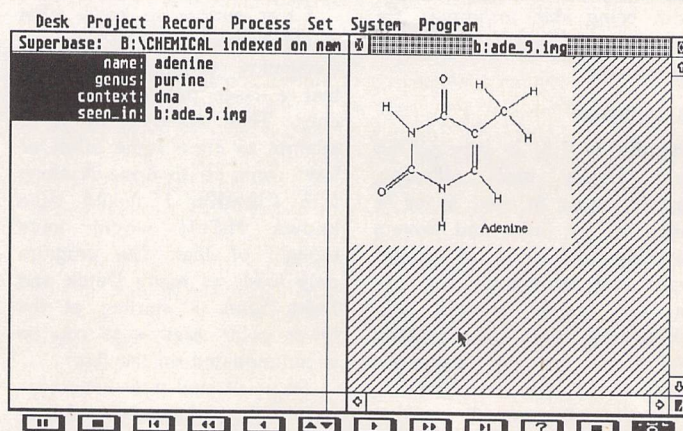
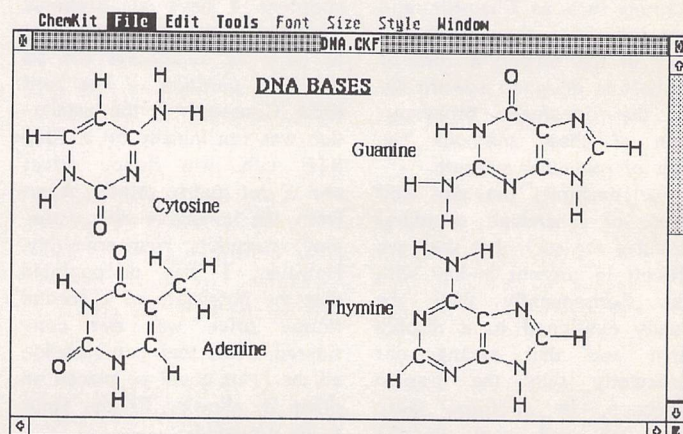
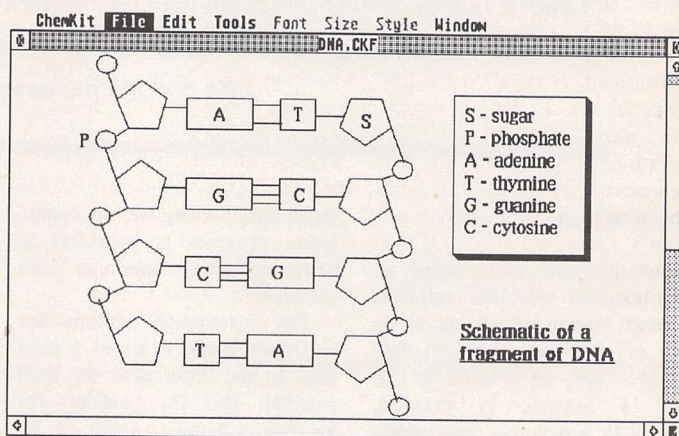
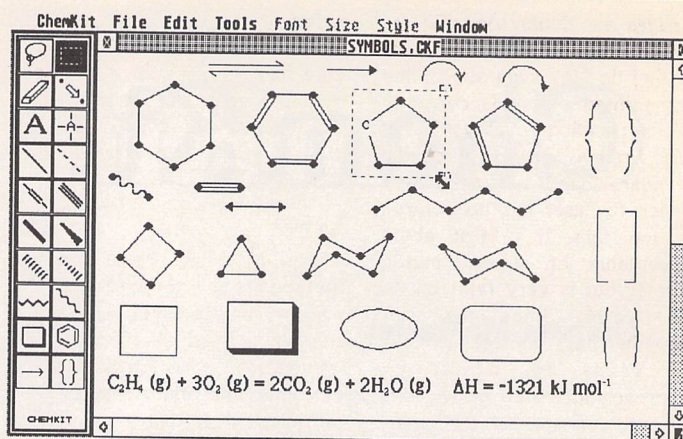


Fig 2 illustrates most of the pre-formed structures provided in Chemkit.

Figs 3 & 4 were originally drawn as a single window and took no more than a few minutes.

Fig 5: In addition to importing formulae into DTP and word processor systems, a database of structures can be set up in Superbase.

images in Superbase (Fig 5). However, I think HiSoft are optimistic in suggesting that the printed output is currently of publication quality. I say that for two reasons. First, the standard bond thickness over which the user has no control, is too thin. It is just about acceptable on a dot matrix printer but is very faint on an SLM 804. Since the user already has control of the thickness to which an approaching bond grows (Fig 1) and can specify the separation of double bonds, it should be possible to allow the width of a standard bond to be defined. Second, the GEM metafile which is potentially the most useful in DTP because it is resolution independent, does not save text characters: only graphic elements are retained. Consequently one is effectively restricted to the IMG and P13 formats which are at the reso-

lution of the screen. It is possible that Speedo-GDOS will cure that problem since it uses outline fonts but it is not distributed with the package which contains standard GDOS(1.1).

Extras

There are three accessories included on the ChemKit discs: one is a clock and the other two relate specifically to chemistry. MASSCALC.ACC calculates the relative molecular mass of formulae entered, for example, in the form C6H14, while PERIODIC.ACC displays a periodic table of the elements. Clicking on any element brings up an information box listing some of the physical and chemical properties of that element. Both are useful additions to ChemKit.

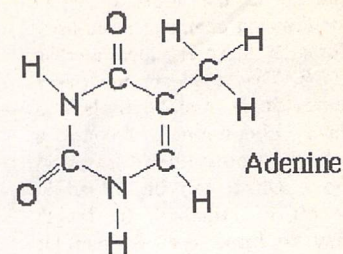
Conclusion

For those with a need to produce chemical structural

formulae, ChemKit is ideal. Once you have become familiar with the tools, and that does not take long, it is amazing just how quickly complicated structures can be drawn.

The facility to print from within ChemKit provides the option to use it as a self-contained package, while the range of image formats for saving material establishes links with DTP, word processing and database management systems.

There are no direct competitors to ChemKit. I understand that TEX now has a chemistry module but TEX on the Atari has never been a fully commercial product and, like the alternatives of Signum with SciSet fonts (see STA 13) or Calamus with its version of SciSet, is much more general in its application, covering the whole field of scientific documentation.



Product:.....ChemKit
Version:.....1.5
Publisher:.....HiSoft
The Old School
Greenfield
Bedford
MK45 5DE
Phone:.....0525 718181
Manifest:.....3 d/s discs; A5
manual in ring
binder.
Price:.....£39.95

Imagecopy 2

Image utility for Atari ST/TT/Falcon computers

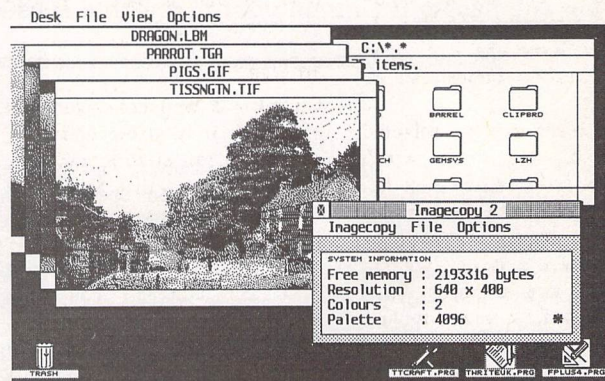
Copy images from screen in any ST/TT/Falcon video mode. Images can be copied by pressing Alt-Help, and a flexible rubberbanding system allows images to be selected with a fine degree of accuracy.

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.

FaST Club

7 Musters Road
West Bridgford
Nottingham
NG2 7PP

The Atari Compendium

Reviewed by Graeme Rutt

You don't get many of them to the pound! – The Atari Compendium is a big book.

Look at the pages on that! – The Atari Compendium runs to over 800 of them.

Yes, but quality is more important than quantity! – The Atari Compendium has both; it oozes the former whilst undeniably having the latter. If you're an Atari programmer then take it from me, you need this book. There's hardly any need to go on further with this review – but I'm paid by the page, so I'm not stopping here. Maybe this will keep you going between ordering and having it land on your mat with a substantial thud.

The book boasts eleven chapters, eight appendices, a bibliography and an index. Each chapter is split into an overview and a reference section, often with choice pieces of programming knowledge in-between. There seem to be no gaps in the areas covered. See boxout 1 for a list of what each chapter has to offer.

Content

Of particular note are the descriptions of the various newer calls available to the programmer – the Falcon video and sound sub-system in the XBIOS chapter, the MiNT and MTOS section under GEMDOS and the SpeedoGDOS description in the VDI chapter. Each is treated to a good going over: a full description of what they do, how they do it and any possible pitfalls, followed by descriptions of all the new function calls.

There is also the incredibly detailed AES chapter – covering all versions of the AES up to and including 4.00 (version 3.40 is the current Falcon AES). The overview is splendid, covering subjects

both old (dialogs, new (popups, sub-menus) and updated (windows and menus) with equal dexterity. The structure of each is explained in depth and includes the best description of dialog and menu structuring that I've ever seen. The extras to be found in later versions of the AES (Falcon and MTOS) are explained intelligently and the information opens up new lands for the GEM programmer to explore.

On a totally different tack we have the hardware chapter and the memory map appendix. These offer a welter of essential information to the low level system programmer. The former covers the chips – including the 680x0 itself, the 68881 floating point co-processor and the keyboard ACIA – along with information on the cartridge port, the DMA sound system and video hardware. The latter contains a list of all the interesting memory locations and hardware registers – on the back of the book it says “the most comprehensive memory map ever assembled”, and who am I to disagree? As with the rest of the book all 16-bit (or greater) Atari

platforms are covered.

Another section which is well worth mentioning is the GEM User Interface Guidelines chapter. At last Atari have released a set of rules which we programmers are meant to follow and finally they've been brought to the ken of non-developers. Now all we have to do is make sure we follow them!

New sub-systems, dialog

structure, hardware registers and the graphics interface code of practice – quite a mixture isn't it? I've purposefully chosen differing topics to write about. I hope I've made the point that The Atari Compendium is a book of vast scope. Although there's no room here to write about each and every chapter let me say that each covers everything that it should – never before has such a wealth of

'Chapter & Verse'

Chapters:

1. Introduction to Atari Programming
2. GEMDOS
3. BIOS
4. XBIOS
5. Hardware
6. AES
7. VDI
8. Line-A
9. The Desktop
10. XCONTROL
11. GEM User Interface Guidelines

Appendices:

- A. Functions by Opcode
- B. Memory Map
- C. Native File Formats
- D. Error Codes
- E. Atari ASCII Table
- F. IKBD Scan Code
- G. Speedo Fonts
- H. The Drag & Drop Protocol

data been gathered together in one book.

Reference

But size, or in this case depth of coverage, isn't everything. A book which covers every aspect of its subject may still be let down by the quality of its coverage. Luckily, The Atari Compendium is not such a book. The overviews are well written, full of useful information and supply most of the pertinent details you will ever require.

The reference sections - which are normally an alphabetical list of all the available function calls - are also exemplary. Whatever they are - from BIOS to VDI - they are shown in the same format; see boxout 2. The alphabetical structuring and standard format make the book a pleasure to use as a reference work.

Although the function call descriptions are slightly slanted towards the C programmer - fair enough, this must be the most common Atari language - there is more than enough generic information to make up bindings for any language. I'm an assembly language coder who uses a lot of GEM code and I don't have any complaints at all with the layout or content of the reference sections.

The caveats, availability reports and version notes are especially useful for those of us writing code which will work on any Atari platform. This is an increasingly difficult job with a whole host of different versions of TOS and the AES to consider - each coming with more and more features and a number of different bugs.

Summary

This book is aimed at the general Atari programmer who needs to know everything there is to know about his or her machine - and any other machines in the same range. From the lowest hardware register to the highest, most complex VDI call imaginable and everything in-between. There is information enough in The Atari Compendium to code ten Protexes, five Calamuses (Calami?) and a brace of Cubase Audios - but what it is not is a tutorial. Don't expect to be able to build a GEM application in LOGO from buying this book alone. For the programmer who already knows how to string a

few commands together, it is an indispensable reference work covering everything he/she will ever need to know.

Problems? Well, aside from a few errors - don't trust either the progdef details or the form_keybd function call - I only have one reservation against this book. Running to something like 800 pages it had to be classic rather than ring-bound. This makes it very difficult to open at a certain page and leave it there, hands free for typing. This leads to some excessive demands on the book's spine which could mean only a limited life-span - at least, without wear and tear.

That aside - and how many programming books have you got in perfect shape anyway? - I can thoroughly recommend this book.

'Function Call Format'

function_call()

WORD function_call(*param1,param2, etc.*) standard C calling conventions

WORD param1,param2;

function_call() performs such and such a task

OPCODE

AES/VDI/TOS opcode

AVAILABILITY

Under which version of AES/TOS/GDOS screen drivers is this call available

PARAMETERS

param1 does this, *param2* does that, a full description of all parameters, both input and output

BINDING

system parameter/register = *param1*;

system parameter/register = *param2*;

system parameter/register = opcode;

return = system parameter/register;

RETURN VALUE

the number's function_call() will return under different circumstances

COMMENTS

information on any pitfalls the programmer should be aware of with this function call

VERSION NOTES

availability of different options/features under different versions of TOS/AES/GDOS drivers

CAVEATS

bugs or quirks in different versions of the firmware, etc.

SEE ALSO

another_function_call(), function_call2(), any other calls which are connected with this one

Product:..... The Atari Compendium

Author:..... Scott Sanders

Price:..... £39.95

Supplier:..... HiSoft

The Old School

Greenfield

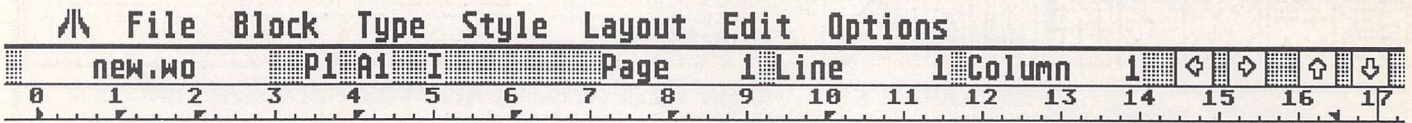
Bedford

MK45 5DE

Tel:..... 0525 718181

Fax:..... 0525 713716

File	Block	Type	Style	Layout	Edit	Options
New... N	Start S	✓ Pica 18cpi Font 11	From Layout L	Paragraph Layout... A	Search... S	✓ Automatic Formatting F
Open... O	End E	Brushstyle14 Font 12		Page Layout... P	Repeat Search ^R	Automatic Pagination A
Insert... I		Elite 6cpi Font 13	Normal N		Replace... ^Q	Overwrite Mode ^Ins
Last Version L	Cut U	Futurist D12 Font 14	Bold B	Format Paragraph G		✓ Show IMGs I
	Paste P	URW Roman10 Font 15	Underlined U	Format Document D	Main Text H	
Save S		Font 6 Font 16	Double Underlined D	Pagination G		Hyphenation... H
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		Font 9 Font 19	Subscript S		Load IMG... L	Load Macro... L
Delete File... D	Copy C	Font 10 Font 20			Delete IMG D	Save Macro... S
Copy File... C	Move M	Load Font... L				
Rename File... R	Delete D	Remove Font... D				
	Save A	Show Fonts S				
Printer Type... T	Hide H					
Print... P						
Mail Merge... M	To Start T					
Quit Q	To End O					



Write On

Write ON
Presented by COMPO

Version 1.0

(c) 1990 by M. Erprath, K. Hinsen, J. Zabell

During the last twelve months, if we have been reading the 'right' magazines, we have been offered at least two full (ish) document processor packages on magazine cover disks. Are they worth bothering with, or are they hopelessly cut-down versions of the real thing? Is it worth upgrading to the proper versions of either? Above all, the choice of a word processing package is all very subjective, but I will try and look at the features of the two I have tried this year in an objective light. Firstly, why use a document processor at all? Why not use a nice speedy real word processor like Redacteur or Pro-text and forget all this typographical control stuff?

Well, I now find that I actually prefer to do my typing on a screen that looks like the printed page. I can knock off the odd letter head or include a scan from a parts list when I order parts for my old motorbike. It is just more convenient to use a document processor all the time.

The Packages

I am going to deal here with WordFlair I and Write On. Both have bigger sisters in the form of WordFlair II and That's Write, but it is surely the first impressions of

Graham Curtis presents an admittedly subjective comparison of two word processing packages that have given away on cover disks: Write On from Compo and WordFlair from HiSoft.

the giveaway versions that will prompt users to part with their money. First impressions can only be subjective, so I make no apologies for the following words describing my first encounters with these two document processors.

Write On

This package has been included on two magazine disks in the last year or so and was, I believe, the first full document processor to be given away on a cover disk. When I first loaded it up I was rather disorientated with the strange screen display. No scroll bars and a spindly font for users with poor eyesight, it seemed. I am very much a GEM purist and as a first impression I was turned off straightaway. Surprisingly, it was the release of Speedo GDOS that brought me back to Write On. I was so impressed with the output that Speedo provided (well

you've got to be after spending £40!) but terribly disappointed that none of my software would do it justice. My beloved Calligrapher (the Computer Concepts version!) wouldn't even run any more, and so I was desperate.

I bought C-Font and a selection of Calamus fonts from The ST Club and enjoyed playing with the program, but was still not satisfied. I did not like the idiosyncratic font usage or the lack of GEM window controls. I used Write On to produce an article for a motorbike magazine but did not become comfortable with it.

WordFlair

After searching through reviews in ST Applications and reading about all the contenders, I tried to buy WordFlair II from Hisoft, only to be told it was no longer available. Then, I noticed that ST Format were giving version 1 away free on their cover disk. I had

given up reading ST Format because of its 'gamesy' feel but decided that £3.95 could be risked in the name of curiosity. Their blurb confirmed that this was an early version and that to get Speedo compatibility you would have to fork out £35 for the 'full' version. I was prewarned by Martin Norfolk's article in STA issue 26 that this was quite a strange package and it is! Martin did, in fact, concentrate on the strange features when WordFlair is almost normal if you just close your eyes and start typing!

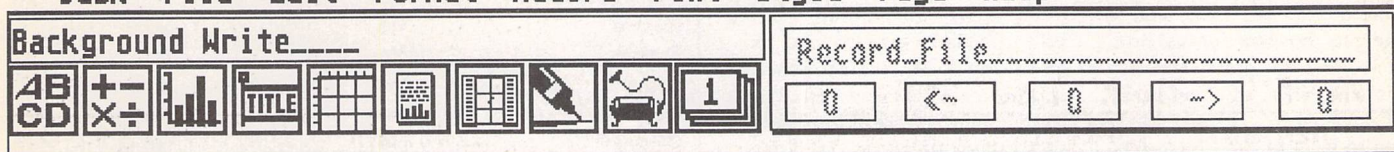
The surprise came when this £3.95 program was quite happy to work with Speedo GDOS. Brownie points were amassing rapidly. Of course, we had no font scaling 'on the fly' and there is that old ten font limit to work around, but this was real Speedo word processing for the first time!

The Objective View

Now I've got my first impressions out of the way I will try and get down to a sensible comparison. Even this is difficult, though, as every individual has their own view of what is slow or fast and what they would sacrifice to get speed. My bias as a GEM purist must be taken into account as you read the comparison, but I will try to keep it in check! My normal

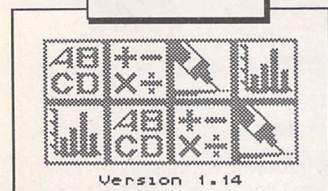
Desk	File	Edit	Format	Record	Font	Style	Page Help	Help
About Wordflair...	New	Undo	Draw Ruler	New File...	Swiss 721	Plain	Next Page	Introducing Help
Imagecopy	Open...	Cut	Draw Boundary	Open File...	Swiss 721 Italic	Bold	Back Page	File Menu
Outline Fonts	Close	Copy	Snap To Grid	Close File	Swiss 721 Bold I	Italics	First Page	Edit Menu
Printer Drivers	Save As...	Paste		Save Selections...	Swiss 881 Roman I	Underline	Final Page	Format Menu
Control Panel	Revert to Saved...	Clear	Align Vertical		Dutch 881 Roman	Outline		Record Menu
GEN-KERMIT			Align Horizontal	New Record	Dutch 881 Italic	Superscript	Page Break	Font Menu
	Page Setup...	Find...	Space Vertical	Change Record	Dutch 881 Bold	Subscript	Insert Page...	Style Menu
	Print...	Replace...	Space Horizontal	Delete Record	Dutch 881 Bold I		Cut Page...	Page Menu
	Import File...	Replace Same...	Setup Pen...	Select Record	Park Avenue		Paste Page...	Icons
	Export ASCII...		Frame...	Sort	Courier 18 Pitch		Units...	Keyboard Commands
	Save Setup...	Show Clipboard	Header/Footer...	File Info...			Grid...	
	Quit		Float Region...					
			Setup Region...					

Desk File Edit Format Record Font Style Page Help



Wordflair

WordFlair I



Version 1.14

system is a Mega 4 STE with 105MB hard drive, so I can afford to be a little liberal with RAM and disk space. I am going to look at several features that I look for in a document processor.

Speed

Write On scores highly here. Scrolling is smooth and quick, but there is no scroll bar to quickly get to a position without scrolling through the whole page. Paragraph formatting is done during periods of no keyboard activity, so the display can look a little untidy and confusing at times.

WordFlair can only be described as ordinary. Strangely, each page is dealt with separately, like a DTP program. Scrolling through the page is done in the normal GEM way with cursor keys and scroll bars. There is however a considerable delay moving from one page to the next. You move from the bottom of page one to the top of page two. If you go back again, then page one has to be reloaded, rather as with Timeworks DTP.

Graphics

This is where WordFlair's strangeness starts to pay dividends. Pictures (IMG or GEM) can be imported into pre-prepared frames as per Timeworks

DTP. They can be moved anywhere on screen and sized but cannot not overlapped. Scaling of images is much quicker than Timeworks but no editing facility is available.

Write On imports IMG files but they stay resolutely in the centre of the page when loaded. Little control is possible.

Font Handling

As mentioned earlier, WordFlair uses standard GEM fonts and all the usual GEM control is allowed including the odd ten font limit which seems to creep in everywhere. Speedo fonts can be used in their pre-set point sizes. Speedo fonts are very high quality but expensive at present. Printed output at any size is equal to anything you will find on the PC.

Write On uses its own font format. Twenty font slots are provided on the menu, but in this case each font size is counted separately. This is not too much of a limitation as fonts can be loaded and unloaded on the fly. When combined with C-Font and a box of Calamus font outlines, this facility really takes some beating.

Memory Usage

Write On will run on a 512k

machine and it is up to the user to load/unload fonts as required to make the most of memory. The program is only 139 kbytes in size but fonts, particularly 300 dpi ones, will fill up your disk rather rapidly. Generally speaking, the package is happy to run from a floppy.

WordFlair requires 1 Mbyte for the basic package with GDOS. If you are contemplating SpeedoGDOS then you will need a further 1 Meg for the Speedo Font caches and buffers. A hard drive and at least 2 Mbytes of RAM is the sensible minimum option if you need high quality Speedo output.

User Interface

Both programs offer standard GEM menu bars but secondary menus are handled rather differently. Write On squeezes both information and selectable entries in the window title bar. WordFlair wastes, perhaps, 15% of the typing area with large icons for selecting region type, database control and other functions which could be hidden away on the menu bar.

It would have been nice to be able to switch these off to get some more text on the screen, but at least they are easily recognizable and easy to get at.

Write On even squeezes the page movement controls into the title bar area and leaves the whole of the lower page free for typing. WordFlair shows off its GEM purity and uses all standard window gadgets that you would expect. Both programs only allow one document open at once, which makes plagiarizing earlier pieces of work a little difficult!

Extras

Write On's 'extra' comes in the form of a macro facility, while WordFlair contains a database which can be handled from within the document processor itself. Also included in the initially strange 'regions' icons are calculation facilities and graphing capabilities. You can link together different regions so that the results of a calculation region can be graphically displayed as a pie chart, line or bar graph. With these additions, WordFlair offers a rather cut down version of the facilities provided in Atari Works.

Upgrading

Write On has a clear upgrade path to That's Write which is a full bells and whistles document processor at around £100. The package comes with continuing support from Compo software. That's Write has been given extensive

reviews in STA and is regarded as the clear front runner now that Calligrapher has made its 'exit stage left' for the second time in its illustrious history.

WordFlair has an upgrade path to WordFlair II from Hisoft at £35 but the package is rather disappointing compared with the cover disk version. WF II still comes with American dictionary and Thesaurus. This may not sound too bad but it can lead to some real howlers for us Brits. Try looking up 'grass' and you get such things as 'marijuana,' 'pot' and 'weed'. No mention is given to lawn or turf! Most features are little changed from the earlier version, but for my money the compatibility with SpeedoGDOS and the ability to scale fonts 'on the fly' is a considerable bonus.

In Conclusion

Both packages offer a very cost-effective way of getting a usable document processor. Write On is the small brother of a comprehensive and well supported package that has successfully

'gone it alone' in order to offer improved performance and facilities over faithful GEM offerings. It will work on the humblest ST system.

WordFlair is the first word processor to offer Speedo compatibility and as such has been given a second chance in the ST market, having been created to capitalize on the ill-fated (deservedly-so) FSM GDOS. It is initially quite idiosyncratic, but offers facilities way beyond its price level. Its frame based approach gives Timeworks a run for its money, while the spreadsheet and database facilities make it a useful all rounder. The downside of all this is a requirement for 2Megs of RAM and a hard drive.

As I mentioned at the beginning of this review, I am a GEM purist and so the decision is easy for me. Don't take my word for it though: get the back issues of ST Format issue 52 (WordFlair) and ST Review issue 13 (Write On). For £4 or so each you can easily afford to see which suits you best.

Comparison Table

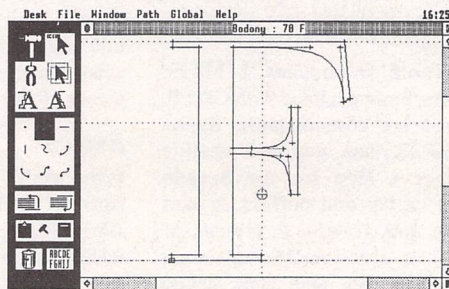
Feature	Write On	WordFlair
WYSIWYG	Yes	Yes
Scroll Speed	High	Medium
Memory	512K	1Meg
GDOS	No	Yes
Speedo GDOS	No	Yes
Number of Fonts	20	10
Macros	Yes	No
Frames	No	Yes
Paragraph Tags	Yes	No
Database	No	Yes
Calculations	No	Yes
Upgrade Path	That's Write 3	WordFlair II
Source	ST Review 13	ST Format 52

Stop Press

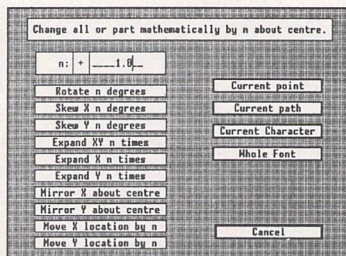
Atari have finally released 'Works' for the ST and Falcon through HiSoft at £99, while HiSoft have quietly released Papyrus themselves at £129. Both of these packages offer Speedo GDOS compatibility and a host of other features. It may be a while before they are promoted on cover disks, so don't hold your breath!

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



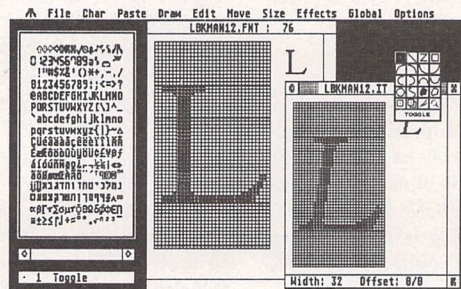
Fonty features include: draw mode icons (Hammer mode, Pliers mode, Move mode, Select path mode, left and right kern mode), Grids and Guide Lines, Manual and Automatic kerning, Backgrounds for tracing (a Degas picture or a complete GEM font), a full feature Calculator to mathematically manipulate fonts,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



£11.95

FaST Club
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West Bridgford
Nottingham
NG2 7PP

Fontkit Plus 4.1



Price: £24.95
Upgrade from version 4.0:
Return master disk No. 1 (only)
plus upgrade fee of £3.95

Supplementary Disk

The Fontkit Plus Supplementary Disk contains text files which were omitted from the printed, along with fonts, drivers, and text files which could not be fitted onto the main program disks. Additional contributions such as new drivers or text files are always welcome.

- appendix.e - Information and source code for using ST screen fonts or GEM fonts in your own programs.
 - cyrillic - Cyrillic fonts and tables.
 - djfonts - 24-point Bookman Deskjet 500 font.
 - gfa - GFA Basic code for displaying fonts.
 - gst - Detailed information on the GST font format
 - drivers - Fontswitch printer drivers
 - protex - Protex drivers and information files
 - twrite - Screen fonts and pseudo-fonts for Deskjet 500 and Epson 24-pin printers
 - gemfonts - GEM fonts
 - info - Information files
- Cost £1.25

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MiniS Hard Disk

Trevor Burlingham

At last, a small, affordable hard disk for the ST and Falcon.

Until quite recently, the external hard drives available for the ST or Falcon were very similar in design. Cases would be made of metal and were often used as a monitor stand, but if you had your monitor on a wall arm, as mine is, the hard drive would take up quite a large area of your already overcrowded desk and they were quite heavy too. Enter the new "MiniS" hard drives from System Solutions.

These units differ from the others in two ways. Firstly the case is made of plastic and comparatively light; secondly, the unit can be placed on its side taking up very little desk space. The unit reviewed is the 85 meg ST version.

Construction

The MiniS look extremely well made. The plastic case is a similar colour to the ST and measures 20.5cm by 15cm by 6cm. Two small plastic slip-on feet are supplied to enable the unit to stand on its side, its normal position during use.

On one end are two indicator LEDs, green to show that the unit is switched on and orange which flickers during reading/writing operations. On the other end, starting at the top, is a small on/off rocker switch next to the outlet from the internal cooling fan. Beneath these are two identical SCSI ports, one of which is used to connect the MiniS to your computer, the other for "daisy chaining" two hard drives together or connecting another unit such as a laser printer to the computer's hard drive port. Beneath the left SCSI port is a device switch, used to allocate a different device number to a second unit, otherwise your computer may not recognise it.

The power supply is built-in,

much more convenient than a separate one. The mains lead is permanently wired to the unit ending in a standard, moulded, 3-pin plug.

Host Adaptor

As the ST uses a non-standard method of sending information to a hard drive, a host adaptor is required to convert the signals to a form that it can recognise (this is not required for the Falcon). System Solutions provide ICD's "The Link", which they tell me they hope to fit inside the MiniS case in the future. This is a very small device measuring 6cm by 4cm by 2cm. It is powered from one of the pins on the SCSI port and contains a chip which converts the signals. The host adaptor plugs into one of the SCSI ports on the MiniS and a 90cm cable with identical plugs on each end connects the adaptor to the ST.

Software

With "The Link" comes a double-sided disk containing some of the best software available together with a 66-page manual, which is just as well as no other documentation is supplied with the MiniS. I will not describe the software in detail as this was done by Mark Baines in "Beginners' Forum" in issue 34; suffice it to say that it will format, partition, autoboot and test your hard disk.

The instruction manual starts off by describing "what is a hard disk" and should be read by the beginner. Chapters follow describing how to build your own hard drive from component parts, how to fit an internal hard disk inside a Mega ST, four chapters about the software and a final chapter on how to use your hard drive.

In Use

I found the connecting lead long

enough to place the MiniS well to the side of my ST. When the hard drive is switched on you immediately become aware of the noise generated by the cooling fan. It is not very loud, but if you have never used a hard disk before this can take some getting used to.

The Minis come ready formatted and partitioned, although most owners will choose to set up the hard drive to their own requirements. I have divided my 85 meg disk into 12 partitions ranging from 2 to 10 meg. Seven partitions contain just the one main program plus auto folder and accessories as the software will allow you to boot from any partition. Using the utility RATEHD, the access time in milliseconds was 22 which is very fast; this was with the read/write caches disabled to save memory.

Even after using the MiniS for a couple of hours, the case was still cool, and so overheating should not be a problem.

Conclusion

This is a very welcome addition to the Atari scene. Small hard drives such as this have been available for the PC for some time. I cannot fault the MiniS in construction or operation, but I wish that more documentation would be supplied. However, telephone support is available. It seems to me that with most computer equipment the manufacturers assume too much knowledge from the user. If more detailed instructions were supplied, written with the beginner in mind, then there would be less need for telephone help lines.

With a competitive price, its small size and light weight, the MiniS are a must for the ST and Falcon!

SPECIFICATION (85 meg ST Version)

Drive Model.....	Quantum ELS85S
Controller.....	SCSI Embedded
Host Adaptor.....	ICD "The Link"
Software.....	ICD
Price (with host adaptor)...	£309.00 including VAT
Other sizes available.....	105 meg, 170 meg, 240 meg, 340 meg, and 1000 meg.
Available from.....	System Solutions Windsor Business Centre Building 2 Vansittart Estate Vansittart Road Windsor Berks. SL4 1SE
Telephone.....	0753 832212.

Grafix Arts

Paul Keller

TECHNIQUE – Advanced Palettes 2

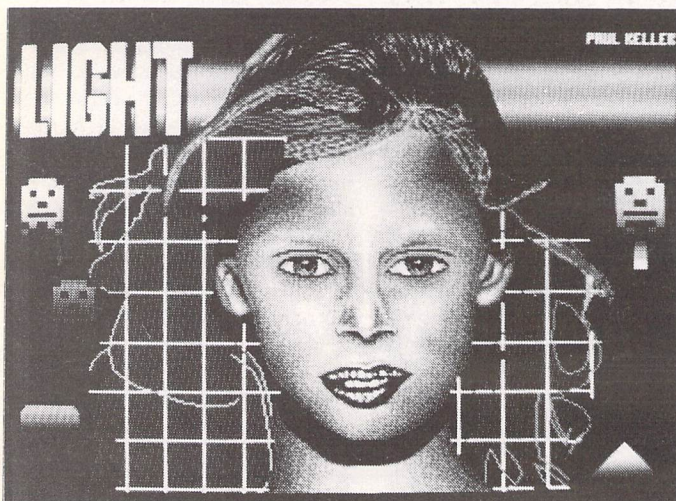
BEFORE CONTINUING our study of Canvas's extra colour mode, it might be well to examine the inspiration which lies behind this impressive programme. The similarity between 'Degas', 'Degas Elite' and 'Canvas' is uncanny, especially the style of layout and execution.

It was the art packages 'Neo-Chrome' and 'Degas' which helped start the computer boom in art production on the ST. The PI1, PI2, PI3 formats became the acceptable standard for both the import and export of ST computer art.

However, neither of these packages pushed the machine to anywhere near its limits. It wasn't until the arrival of 'Degas Elite' that

some level of sophistication was beginning to show itself. It wasn't long before 'Degas Elite' became one of the best all-round ST paint packages available.

Having used 'Degas Elite' for many years I soon began to wonder if anything might surpass this great programme, until, that is, the arrival of 'Canvas'. Canvas is very much like a 'Degas 3' type of programme but with more intricate features and enhancements. One of the best of these features is the 'FUL' colour mode, with the huge range of colours it makes available, and it is in this colour mode that we continue our discussion.

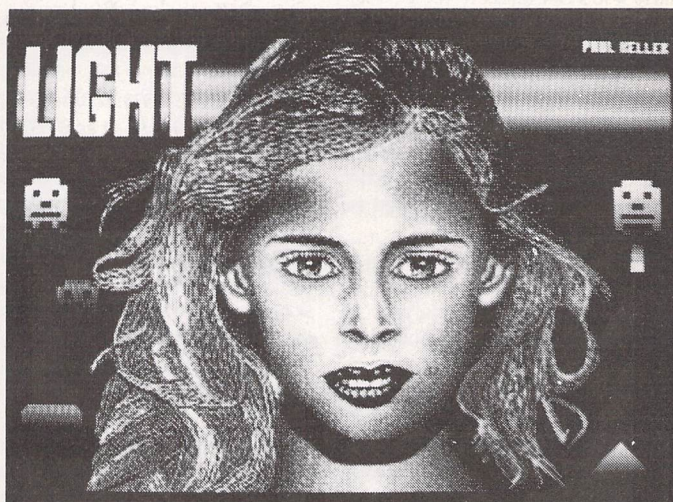


(4) WITH PICTURES OF FACES some features can be mirrored - in this case the effect has been used on the eyes, nose and ears. Mirroring can save on a great amount of time, but when working in HBL mode it might not always be feasible.

If the mirrored image is not placed exactly opposite the copy, thereby positioning it on the same horizontal band lines, its colours may well be different. The solution to this problem is careful forward planning before starting any actual work on your picture construction.

Features like hair can be very difficult to get to grips with, as the many differing contours often found can make its creation slow and tedious - at least that was certainly true with this particular example illustrated.

Use of block copy is normally out of the question, because the hair detail is usually so varied. Utilising extra colours within the HBL mode solely for the purpose of hair creation is also not practical. Hair colours will normally be carried throughout all the palettes as the area they cover passes through many colour bands. Hair creation has been discussed before and the method in particular which I use for HBL work hasn't changed very much from this.



(5) THE SPACE INVADER type pictures were easily drawn up and constructed with just lines. To save on time these lines were first created within Canvas's fill pattern mode, and the space invader shapes were then filled with this pattern. When the 'FUL' mode is switched on the line pattern disappears and the colours can be seen to blend perfectly with each other. Once again careful planning has been used throughout the palette range to construct the smoothness and integration of colours.

It should be noted that smooth integration of lines requires at least two spare colours in each of your palettes, giving a two-pixel high band. If you use only one spare colour for banding effects such as the rainbow or invaders you will not have such a smooth integration and a blocky feel to your work.

The smoothest integration is gained by utilising four colours in your palettes; this helps give a one-pixel high band line of four lines from each palette.

Line banding is a good starting point for using the extra colour mode and construction of something like the rainbow pattern or invaders above is easy and enjoyable to work with.

MONITORS

The question of which monitor to use on an ST is very complex and is full of confusion. In this article Paul Rossiter attempts to throw some light on how to choose a monitor and outlines the pros and cons of some of the most popular choices.

The ST Video Modes

Colour

The ST can operate in three modes, low, medium and high resolution, selectable from the Desktop menu bar under Preferences. The signal in low and medium resolution is very like that of a television, with the sync rates (see box) being the same as UHF TV. The picture obtained is fairly good but tends to flicker on most monitors. There are some PD utilities that allow changing the frame rate to 60Hz which reduces the flicker considerably, but some monitors cannot lock in to it properly and have to remain at 50Hz.

The most common choices for a colour monitor are the Philips 8833, the Commodore 1084 (a badged Philips 8833) and the Atari SC1224. All of these monitors give good quality with a respectable sound amplifier built in. Some monitors have stereo amplifiers to enable proper stereo when used with an STE and its phono socket outputs.

Monochrome

Way back in 1984 Atari decided to produce their new computer with the best display yet seen on a small computer. The result was the rock steady 640 by 400 pixel high resolution on the ST. The picture is still good today and suits the purposes of many users who can use it all day without eyestrain. The only drawback is that the sync rates are much higher than for the lower resolution modes and the demands on a monitor are much more severe. To display high resolution requires a dedicated monitor or a special 'multi-sync' monitor. In order to make full use of the high resolution mode Atari made a special dedicated monochrome monitor, the SM124, which gave excellent service and was complemented

by the SM125 with its tilt and swivel stand. The SM124/5 had a built in amplifier and speaker and is the perfect monitor for serious DTP and music work. Later, the SM144 was introduced with a larger screen and more modern styling but its performance was disappointing and only a limited number were shipped before being discontinued.

Second-Hand

Mono

With the SM124/5 now obsolete, and the successor the SM144 having suffered a similar fate, the second-hand market in these monitors is flourishing. Prices range from £40 - £70 for a good condition monitor. Points to look for are no screen burn (a pale image, usually of the desktop, imprinted onto the phosphor coating of the tube even when switched off), and a bright stable picture with no strange sounds or crackles coming from inside: check the picture for at least thirty minutes. One of the main failures with the SM125 is the line output transformer (LOPT). This is a unique part and is now virtually unobtainable. A symptom of the LOPT failing is strange ozone smells, noises and even smoke coming from the monitor, especially after it has warmed up.

Many people ask if old PC-type monitors may be used; invariably they don't work properly, as most monochrome PC monitors only sync to 60Hz and will not lock onto the ST's mono mode. Some suppliers such as System Solutions convert PC monitors to sync properly, add an amplifier and then sell them as an SM124 replacement. Alternatively, most modern 'multi-sync' colour PC monitors will work on the ST but only in mono mode. A

lead for this is readily available (see fig 1) and the quality obtained is quite acceptable. If there is a PC colour monitor available then these can usually be pressed into service with a suitable lead to work in high resolution on the ST. Being available for around £150 new they may be a better bet than a mono monitor as they can be used for other applications as well as just on the ST. Check the spec. first before buying to ensure they will actually sync correctly.

Colour

Second-hand Philips and similar can be purchased for around £100 and should give good service as parts are readily obtainable. Any user of a television should welcome a cheap monitor and there is a ready solution in the old Amstrad CPC464/6128. These systems were the first home computer to be sold as a total package with green or colour screens. The colour systems can easily be

found second-hand for around £50. The monitor, whilst not up to 8833 quality, is vastly superior to a colour television. All that is needed is a connecting lead (see fig 2) which may be built or purchased (see Contacts section) and possibly an addition of a speaker system to provide some sound.

The very latest colour monitors as used on later Amstrad CPC6128's were of a more 'futuristic' design and had stereo sound built in but used a different plug; see fig 2 for details.

All modes

Many users have limited space for monitors and really need a single monitor solution that can handle all three modes. There is only one answer to this, a true 'multi-sync' monitor that can sync right down to 15KHz. Most modern monitors will only sync down to 30KHz and so cannot display the ST's colour modes. There are second-hand and reconditioned multi-sync

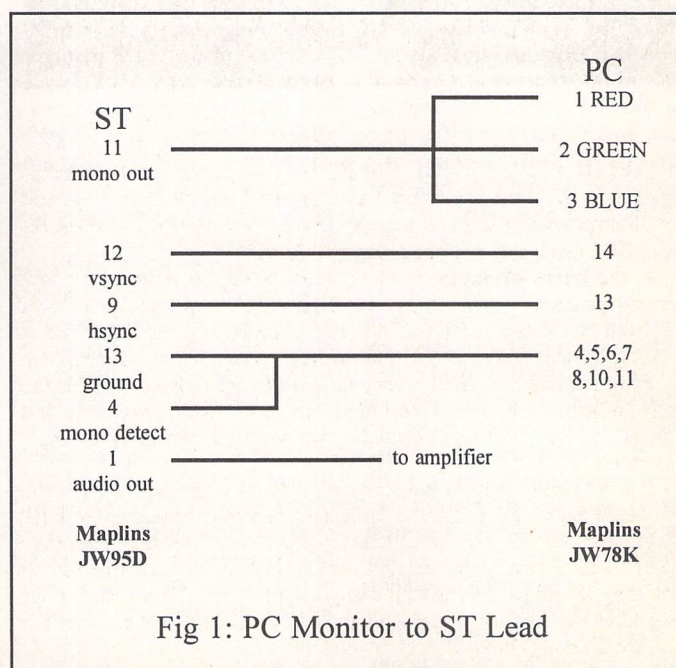
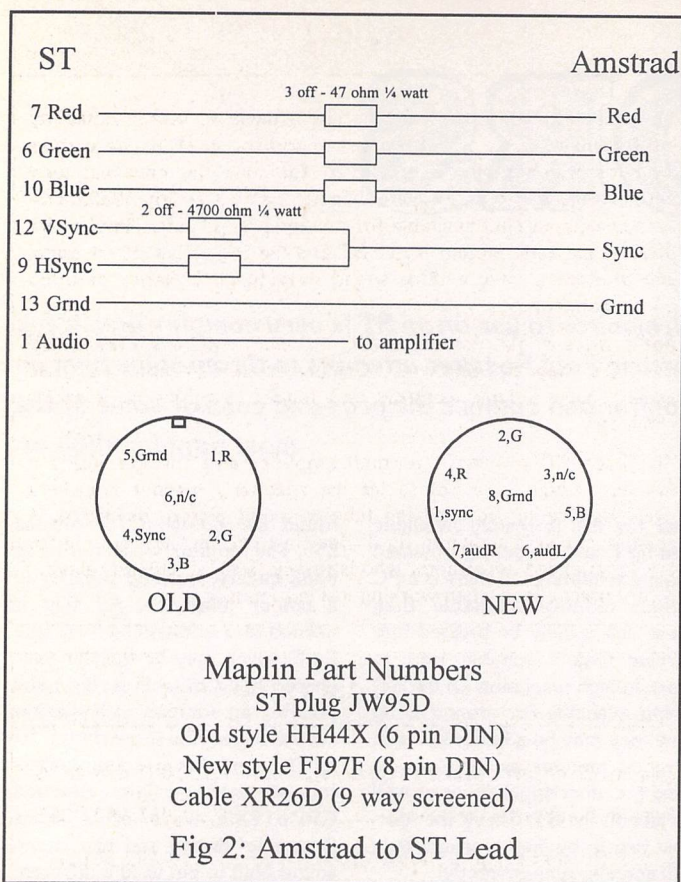


Fig 1: PC Monitor to ST Lead



monitors that will sync down to 15KHz available. One source of these is Display Electronics (see Contact section) who sell a reconditioned colour 'Forefront' monitor which (with a lead they can supply) will work in all three resolutions. The picture is quite acceptable but usually needs a bit of 'tweaking' internally to optimise the picture. The monitor is 0.28mm dot pitch and is a very robust, well made monitor if a bit scratched from its previous life. One useful aspect of this particular monitor is that it can still be used on a Falcon or a PC to produce up to SVGA pictures at a quality just as good as the cheap 14" monitors sold today.

More Pixels

Over the years there have been various attempts at increasing the number of pixels displayed on the Atari's screen. Overscan, which is still sold but only works on STFMs, Megas and TT's, intercepts some critical signals inside the ST and puts more pixels into the border. Compatible with most 'serious' software, Overscan has to be a very worthwhile addition to any FM or Mega.

The very successful Reflex card has to be the answer to any

user's prayers for a lot more pixels - but only in monochrome. The Reflex board can be fitted into an STFM, STE or Mega (not the Mega STE) and will display over 1000 by 700 pixels on a standard SM125 monitor with perfect clarity (assuming 20/20 vision). For those with deep pockets add-on monitors can be used ranging from A4 portrait up to 21" monsters capable of displaying an A3 page with readable 10-point text on it. The Reflex card plugs straight into the expansion slot inside a Mega but requires a special adapter on an STE which can be tricky; the FM needs hard-wiring in, which is complex but easily arranged if necessary (see Contacts section).

Users of TT's, Mega STE's and Megas can fit colour graphics cards such as Crazy Dots or Matrix cards which slot easily into VME slots without even taking the lid off!. Offering lots of colours at many resolutions these are an effective if quirky and expensive way of increasing the capabilities of the base ST's, but check that your favourite software will work first as there are many potential pitfalls. Once the price is considered, however, it's probably better to put the cost towards a Falcon!

Syncs Explained

A cathode ray tube which is at the heart of every conventional monitor has a beam of electrons produced by an electron gun at the back of the set which are fired at the phosphor coating inside the tube. This beam produces a bright spot of light, and in order to produce a picture the beam is moved (scanned) magnetically across the screen's face very quickly from side to side and relatively slowly down the screen. The frequency of scans across the face is termed the horizontal sync frequency, and the rate at which the whole picture is completed is termed the vertical sync rate. The computer sends special signals called 'syncs' to synchronise the monitor's circuitry; if they are too fast or slow the beam gets confused and a rolling or scrambled picture results. These signals are low going pulses on a normally high level (+5V) signal, termed negative sync.

Most monitors require separate sync signals which are provided by the ST at the monitor socket. Some monitors however require a composite sync signal which is the product of the horizontal and the vertical syncs combined, usually via resistors.

The other way of combining the syncs is with the video signal itself. If both the syncs and the video are combined the resulting signal is termed 'composite video' and only require one wire to the monitor.

Typical Real World Sync Rates

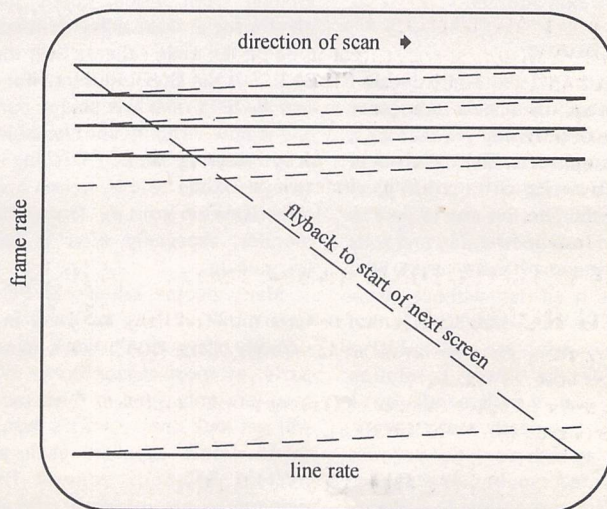
(Some specifications give sync rates in micro seconds instead of hertz. To interchange simply take the reciprocal of one to give the other; e.g. a sync rate of 15.625KHz (ST Medium/Low) gives a sync time of $1/15625 = 64$ micro seconds.)

A typical PC 14" colour monitor can sync between 30-40KHz horizontally and 60-80Hz vertically which is perfect for ST High Res.

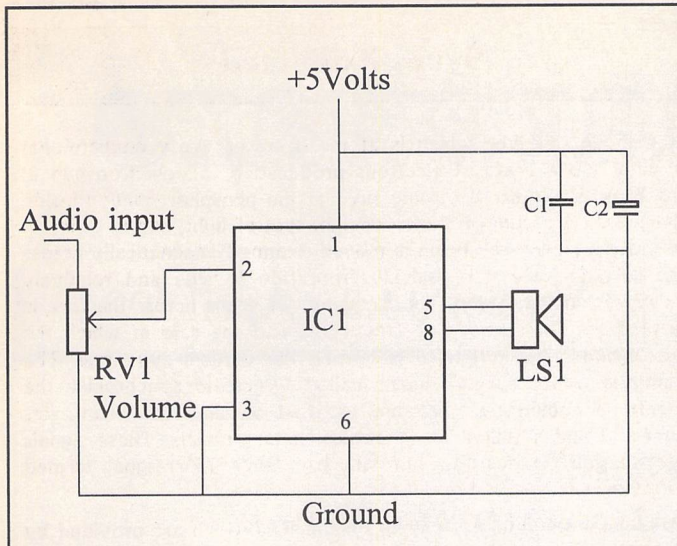
A quality monitor typically handles 28-58KHz horizontally and 55-110Hz vertically.

Standard VGA graphics are 31.5KHz horizontally and 60 or 70Hz vertically.

Note that some PC's produce different polarity syncs depending on the mode they are in. Most modern monitors will produce the correct picture without requiring sync inversion, which is perhaps as well!



How the screen picture is made up of horizontal lines



Maplin Part Numbers

- | | |
|---------------------|------------------|
| IC1 UK79L (TDA7052) | A simple |
| RV1 JM70M | minimum part |
| C1 YY11M | count amplifier |
| C2 FF13P | offering 2 Watts |
| LS1 YJ16S | from a 5V supply |
| knob RX99H | |

Fig 3: Simple built in amplifier for monitors(2 Watts)

Sound

As explained above, most PC monitors have no sound capability but fortunately it's a trivial process to add some. There are various methods which may be employed for this: the cheapest (and perhaps nastiest) but still quite effective is to use tiny Walkman-type speakers easily available for a couple of pounds. Simply wire these to the audio output of the ST and the few milliwatts of signal can produce a quite audible sound needing no batteries or other power connection.

For a more exotic (louder) sound the many active speakers sold for PC's may be employed. Costing from £10 upwards these usually have volume controls and require batteries or a mains eliminator.

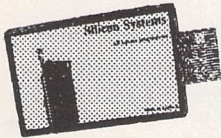
The keen DIYer can fit a small amplifier and speaker inside a monitor, taking care not to let the speaker's magnet anywhere near the side or front of the tube to avoid picture distortion. A suitable circuit is shown in fig 3. Bear in mind that this is only for the experienced constructor who is totally familiar with all relevant safety precautions when working inside monitors.

Contacts

- Display Electronics (Refurb monitors).....081 679 4414
- System Solutions (Overscan).....081 693 3355
- C & P Rossiter (Cables, Reflex Cards, Falcons)0602 681870

ST-EPROM Programmer.

- *Programs common 28 PIN devices eg. 2764,27128,27256 and 27512, also 271001/272001 via 32 pin adaptor.
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- *Choice of programming algorithms.
- *ROMDISK software included FREE makes it simple to store programs in FAST non-volatile silicon (acts like disk drive).
- *Files also downloadable via serial port
- *Simple Installation, plugs into Atari's cartridge port.



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NEW ST-ROMPORT Expander. £59.95

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- *Allows up to 3 devices to be plugged into the ST's cartridge port simultaneously.
- *Use Samplers, Security dongles etc. without unplugging.
- *Saves time, improves reliability (internal buffering).
- *Triple the effective size of your SILICON ROMDISK.
- *Simple Installation.

SILICON ROMDISK (takes two 27512's). £16.95

2MEG ROMDISK (takes two 271001/272001's). £32.95

A programming service is available for the SILICON ROMDISK's please write or phone for details.

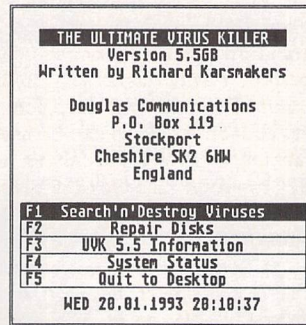
How to order : Enclose cheques \ PO made payable to: Silicon Systems. (All prices are FULLY INCLUSIVE).

Silicon Systems.

144 Hampton Road West,
Hanworth, Middx. TW13 6BB.
Tel: 081-898-4121 (9am-8pm 7 days)

Ultimate Virus Killer

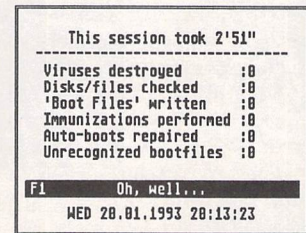
Written by Richard Karsmakers



Features:

- * Recognises all known ST viruses, both bootsector and link viruses, and virtually all software that legitimately uses the disk boot sector.
- * All data on your disks remains 100% intact!
- * Immunizing of disks against all known bootsector viruses.
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With this handy tool, you need not worry about viruses anymore: You can simply use it to de-infect your disks and programs, destroying the virus and leaving all other information intact.



V6 This latest version of UVK has a new easier-to-use user interface, can run as an ACC, and recognises even more viruses and boot-sectors - including the new Bellstein virus.

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Price: £12.95

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PD and Shareware Update

Version 14.3 ~ April 1994

Premier Range Disks:

Disks in this update with two-letter prefixes cost £1.25 each (£1.00 to subscribers).

Standard Range Disks:

Disks in this update with three-letter prefixes cost £2.75 each (£2.00 to subscribers).

Applications

AP.102: Ready-to-Run copy of SuperCard v3.11. Very comprehensive and easy to use database. This shareware version is limited to saving data files of no more than 50 records and will periodically sulk (momentarily stop working) in protest at your not having bought a registered version.

Graphics

GR.112: KOZMIK 4 (Updated Disk). Graphics package to create psychedelic patterns. No drawing skills are needed but experimentation is required to increase the

range of effects. This is the shareware version of Kozmik 4 and so you are restricted to saving only one screen per session. (C:1MB)

GR.626: FUTURETIME VIII: SPACE SHIPS v1.0 by Neil G. Donnan. This disc contains the latest cyclic films in the FUTUREWORLDS series. As in previous cases, they have been created using CYBERSCULPT, CAD 3D2, CYBERCONTROL and CYBERPAINT.

"Last year, Dick Lee wrote to me saying that he had noticed that I was not using CYBER STUDIO and CYBER CONTROL as much

as I used to do and asked the reason. The answer is memory. Even with compression, the amount that can be saved to disc is pathetically small.

"As I know to my cost in time wasted, weeks spent in the construction of an elaborate object, with hinge-points and a tree-structure, using CAD 3D, CYBERSCULPT and CYBER CONTROL can come to nothing when it is found, even when compressed, to overflow a disc or refuse to run on any less than 5 Megs.

"The CYBER series is perfectly capable of producing, say, a

half-hour animation of a rotating aircraft-carrier in great detail, complete with launched jetplanes. Sadly, until something with the capacity of a large hard disc, which is cheap enough and small enough to slip into a padded bag, becomes available, such an animation, made by these means, will remain a dream.

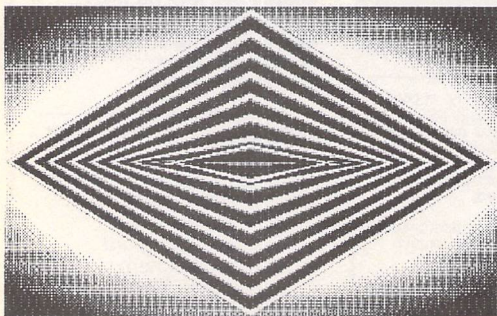
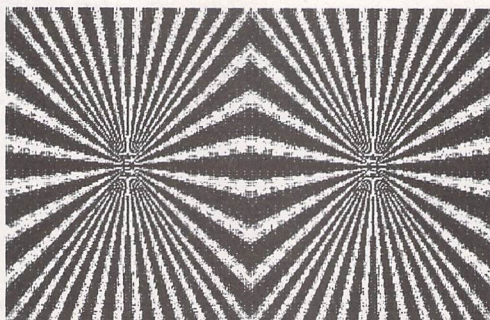
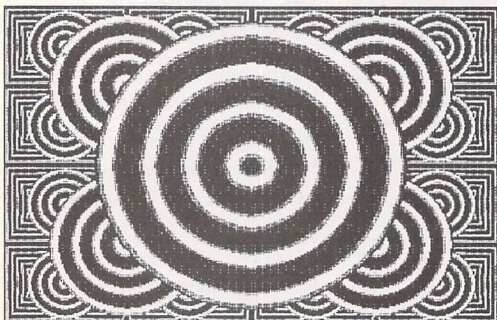
"With this and Dick's question in mind I have produced these sequences using CYBER CONTROL to make parts of large objects move."

Information

IN.560: INSIDE INFO ISSUE 68: Excellent on-disk magazine from ACE (Atari Computer Enthusiasts) in Australia. Contents include: Reviews of Devpac 3, EdHack, ST Zip v2.4; Games News, Jaguar News, and Music News; plus articles on The History of Electronic Music and an explanation of file extensions. Software on this month's disk includes v2.4 of ST ZIP and Diamond Format v2.1

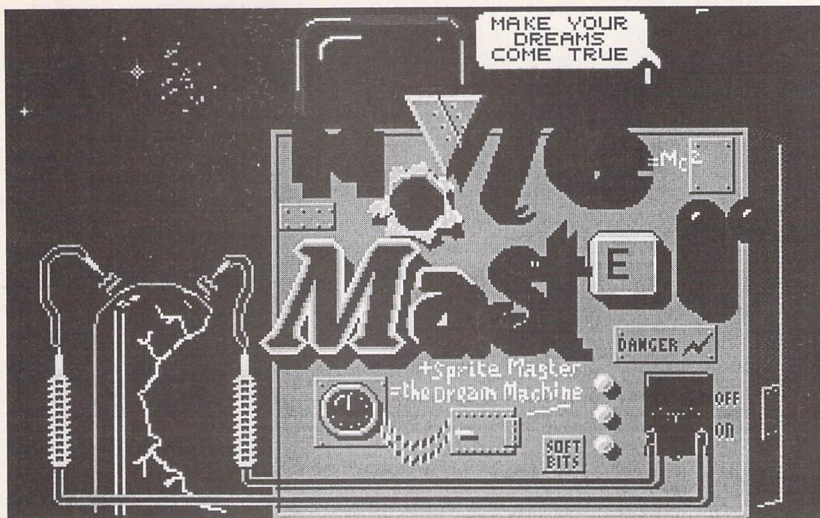
Programming

PR.485: Your Second GFA Basic Manual by Han Kempen. Knowledgeable and comprehensive alternative user guide to using GFA Basic. Comes with a library of functions that can be used in your programs and a folder of Extras that include: a demo of GIST sound-effects, a sample-player, a player of (Mini) Soundmachine songs, and a

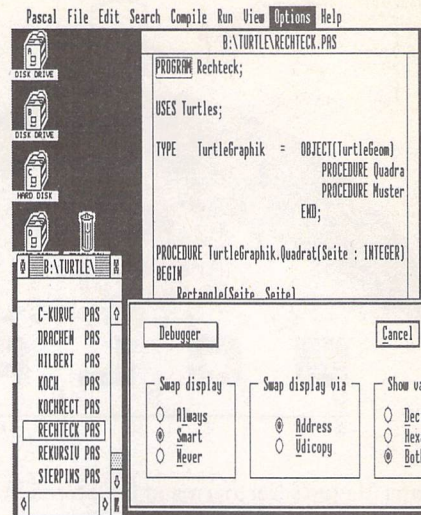


Psychedelic designs from Kozmik 4 on GR.112.

Shareware version - restricted to saving only one screen per session.



Movie Master on GRA.191: animation sequences without the programming!



Pure Pascal demo on LAN.155

collection of XBIOS 32 songs and sound-effects.

Utilities

UT.201: Desktop Icons: 18 RSC files packed full of icons for use with TOS 2.06+ and compatible desktops.

Games

GAM.234: JIGSAW from Dolphin Software Group. Computer simulation of a jigsaw puzzle. Full version allows 40, 80 or 160 piece puzzles but this shareware demo is limited to 80 pieces and load/save facilities are disabled. (C)

Graphics

GRA.190: KOZMIK 4 Slideshow - collection of creations made with Kozmik 4 (GR.112)

GRA.191: MOVIE MASTER - Shareware package that allows you to produce good quality animation sequences without any programming. It is possible to load a number of background screens, and define movement of multiple sprites over those backgrounds. The movement of all sprites is defined simply and easily using the mouse. Backgrounds and sprites can be changed at any time, and colour cycling and spot sound effects are also available. (C)

Music and MIDI

MID.87: Yamaha PSR 400 Bulk Dump Programs. PSR400 - allows an Atari ST to send/receive

a bulk dump of data from a Yamaha PSR400 keyboard. PSR400A - a menu driven program designed to assemble a disk for a concert performance. It runs best with a two drive system. (C)

MUS.101: OCTALYSER STE v0.8 - powerful music tool that uses PCM samples and STE DMA PCM sound chip to generate 4, 6 or 8 independent music channels with adjustable sample volume on each channel independently. Octalyser uses a typical tracker-style editor and can handle modules in the following formats: MOD-standard 15 instruments, 4 channels format, MOD-standard 31 instruments, 4 channels format, Octalyser STE 8 channels format, Amiga Octalyser 8 channels format, and Amiga StarTrekker format (both 4 and 8 channels). (STE Only)

Programming

LAN.155: Pure Pascal demo version from Pure Software GmbH.

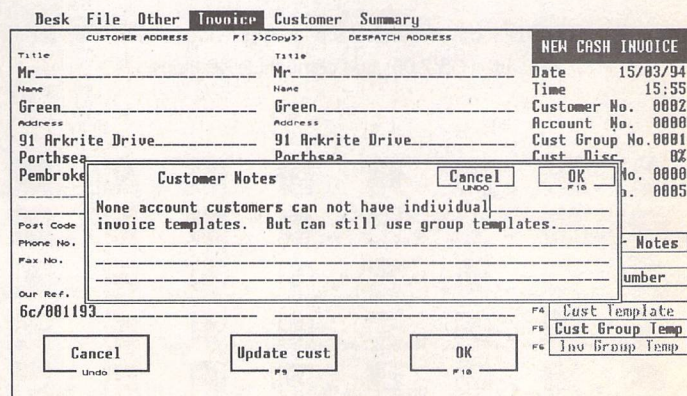
Utilities

UTI.324: TWO IN ONE Archive Utilities Disk. This disk contains all of the utilities that can be used by TWO IN ONE (on this month's Disk Mag - DM.40; see also this month's Shareware Column). Utilities include: ARC 6.02, LHARC 2.99, PFX Pack 1.10, SFX LHARC 1.20, ST Zip 2.4, UnARJ 2.41, UUENCODE, VD Quick (!) 0.95, and Zoo 2.10.

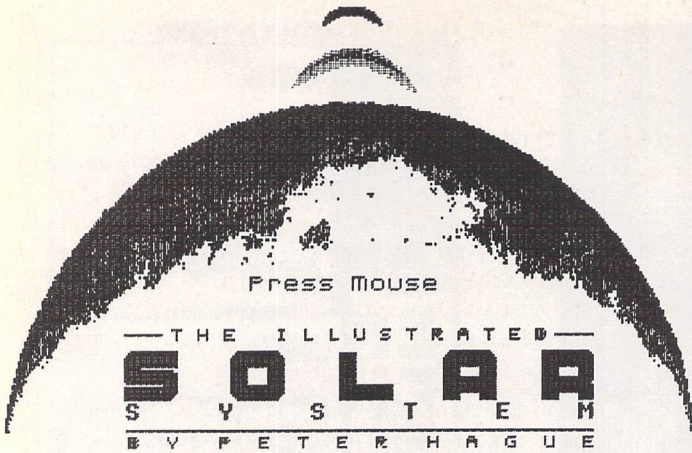
Super Card Main Menu



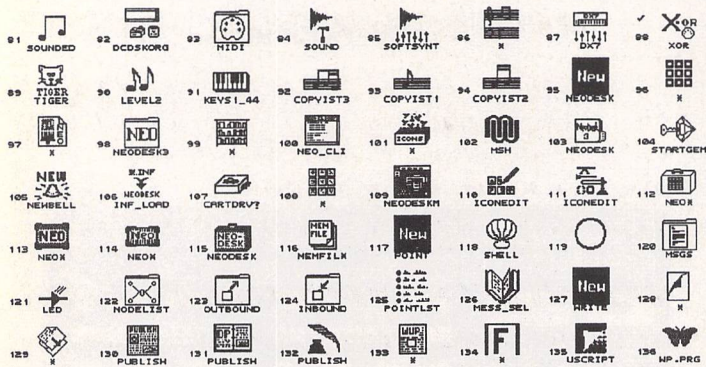
Ready-to-run copy of Supercard v1.11 on AP.102



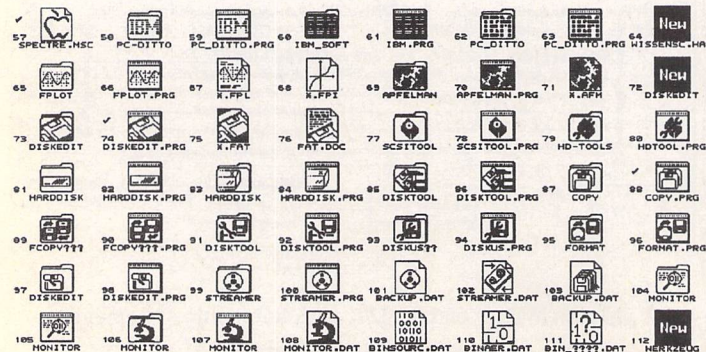
Invoice Master on UTI.327, with automatic statements and account balances.



△ Peter Hague's Northern and Equatorial Star Atlas on UTI.328.



△ and ▽ UT.201: Some of the desktop icons provided as RSC files for use with TOS 2.06+ and compatible desktops.



UTI.325: SCREEN SAVERS.
WARP 9 MODULES - A collection of screen saver (EXT) modules for use with the Warp9 Extend-O-Save screen saver. Modules include: Freckle, Pyro Deluxe, Ramdom Lines, Roaming Shapes, Shapes, Symetry, Swarm, and the SoftSci screen saver (complete with regulation issue flying toasters). Also on this disk is **DARK LORD** - a programmable desk accessory screen saver.

UTI.326: B.Ware Data Base Super Disc. This disc will produce shareware versions of every available B.Ware Data Base. The programs are: B.Base 1.5B, the first B.Ware Data Base; Super Card versions 1, 2.5, and 3.02; and **CONVERT 5** - the latest in a long line of CONVERT programs that allow you to Convert between ASCII, 1st Word and all B.Ware Data Base File Formats.

UTI.327: INVOICE MASTER - very easy to use invoicing package with features such as automatic statements and account balances. Good sorting, filtering, searching and built-in summaries make finding and extracting information a doddle.

UTI.328: THE NORTHERN AND EQUATORIAL STAR ATLAS v1.1 by Peter Hague. covers all the forty-three constellations of the Northern and Equatorial sky and provides the names or numbers of almost 1600 objects. These are displayed with relevant information where necessary. There is support for users of binoculars as well as small and large telescopes and the program is also useful for learning the constellations with the naked eye. This demo does not allow access to all the constellations, but those you can access are fully operable.

Disk Codes

We now carry four ranges of PD and Shareware Disks:

Premier Disks (AB.123 - £1.25 ea.)

These disks contain the best and most popular titles that we have. For maximum value for money many of the files on these disks are compressed. Uncompressing the files is simple - we use the same methods as some magazine Cover Disks and our Disk Mags. Full instructions on unpacking the files is supplied with your disks. Files which are not compressed are given a Ready-to-Run legend (RR) at the end of the disk description.

Premier Disks have disk codes made up with two letter followed by three digits (AB.123). Because copies of these disks are kept in stock your order will despatched the same day and these disks cost just £1.25 each. (£1 each to ST Applications subscribers.)

Standard Disks (ABC.123 - £2.75 ea.)

The full range of disks from our catalogues up to v13 are now designated Standard Disks. The disk codes for these disks are made up with three letters followed by two or three digits (ABC.123). Because these disks are now copied to order you need to allow five working days for us to send out your order and these disks now cost £2.75 each (£2.00 to ST Applications subscribers).

Licenseware Disks (LCW.123 - £2.75 ea.)

These disks are semi-commercial products (see What is PD Software box) and we pay royalties to the authors of the programs on these disks. Licenseware disks have the disk code prefixes GBU, GBD, BPR, and LCW. These disks cost £2.75 each and are they are kept in stock so that we can offer a same-day despatch on orders for them.

ST Computer Disks (STC - £2.75 ea.)

These disks are compiled by the German ST magazine ST Computer. They have the disk code prefixes STC and are copied to order for a 5-day delivery on your order. Disks cost £2.75 each (£2 each to ST Applications subscribers.)

Catalogues

Version 14 of our printed catalogue describes all of the disks in our Premier range and the more popular disks in the Licenseware range. The disks in our Standard, Licenseware and ST Computer ranges are described in two disk based catalogues, C.01 and C.02, which cost £0.75 each.

Updates to all three catalogues are printed first in ST Applications.

THE ILLUSTRATED SOLAR SYSTEM by Peter Hague. This program is designed both as a reference for amateur astronomers and to be educational. It deals with the Solar System in general giving a wealth of detailed information and data on the Sun, the planets, the moons, asteroids and comets. (1MB:C)

UTI.329: KITCHEN DESIGN - package that allows you to lay out a new kitchen design made up from standard kitchen unit pieces. (M)

Budgie Licenceware

These disks cost £2.75 each.

GBU.120: DUNGEON, a Talespin adventure game written by T C Basset. (C)

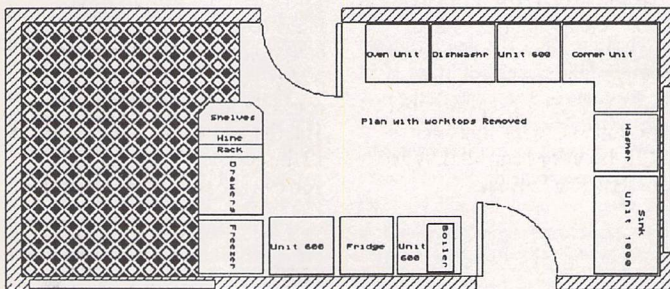
OCL Licenceware

These disks cost £2.75 each.

LCW.51: MURDER ON THE ORION EXPRESS. A Cluedo-style game set aboard a space ship. You need to unmask the killer by interrogating the other passengers and members of the crew. Everybody tells the truth except the murderer, who - probably for the not unreasonable aim of not being found out - lies a lot. You can ask the rag-tag collection of suspects where they were at the time of the murder, who they were with and what they were carrying. (C)

LCW.52: DEAD OR ALIVE...? Excellent adventure game written using STAC, but you wouldn't know it! There are loads of puzzles (starting easy and getting harder), great responses, good parsing, many jokes (the whole scenario is one big joke) and a very polished front end. It plays almost like an Infocom game. (C)

Desk File Base Units Wall Units Kitchen Function Help Mode=Plan



DEMO PLAN

△ UTI.329: Kitchen Design, a package that allows you to lay out a new kitchen design made up from standard kitchen units.

KEY

- (M) Runs in high Resolution only.
- (C) Runs in Medium or Low Resolution Colour only.
- (1Meg) Needs at least one megabyte of RAM.

Disks with two-letter prefixes cost £1.25 each (£1.00 to subscribers); those with three-letter prefixes cost £2.75 (£2.00 to subscribers).

C & P Rossiter

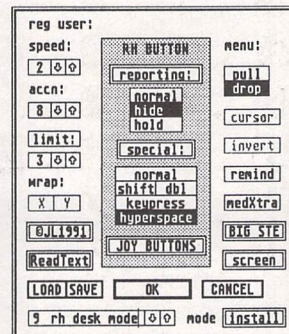
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Mouse Tricks 2



- * 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.
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- * 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.
- * Mouse Tricks combines many of the functions of existing mouse utilities in a single desk accessory and adds numerous extra functions of its own.
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New: Big ST now supports TOS1.4 virtual screens, and a serial mouse driver allows the use of PC mice on the ST.

DIY High Speed Serial Port Modification

A DIY Comms Project by Mark Baines

The highest speed that the serial port on an ST (STFM, MegaST and STE) using the MFP MC68901 chip can maintain is 19,200 bits per second. Until quite recently, this was more than adequate for most comms users as the majority of modems had a slower throughput speed than that unless you could afford over £600 for a top line Miracom or Hayes!

There are now many cheap high-speed modems available - Supra FAX-modem, USR Sportster, TKR etc., all of which sell for less than £250 and have data speeds of 14,400 bits per second. They also have V42bis data compression which can, under extremely contrived conditions, compress the data going through the modem by up to four times. This gives a theoretical maximum throughput of 57,600 bits per second - well over the 19,200 bps maximum of the serial port. The modem to modem connection may be working at full speed up to 57,600 bps, but as the serial port can only input data at 19,200 bps the ST has to tell the modem to stop every now and then so that it can clear its buffer to make room for more data. This is done using the hardware RTS and CTS lines at the serial port connected to the modem. Therefore, it is the speed of the serial port that determines the maximum throughput of data when downloading files or messages and not the modem. A serial port speed twice the normal maximum - 38,400 bps - would therefore be worth having and this modification provides that.

On compressed files using a carrier speed of 14,400 bps, a 19,200 bps serial port speed with V42bis compression I was getting anywhere between 1,200-1,600 characters per second (multiply by ten for bps) download transfer rates. After this modification I get between 1,300-1,800 cps. This isn't much of an improvement but the transfer rates on uncompressed files, such as text messages from CIX, show greater throughputs up to averages of 3,200 cps and rare maximums of 3,800 cps. Under these circumstances it is quicker for the bulletin board or CIX not to compress the data into an archive file for downloading and leave the modem to compress it with V42bis. I have confirmed this with various tests and you also save

on not having to wait whilst the remote computer does the compression.

MegaSTE, TT and Falcon owners have alternative modem ports controlled by Zilog 85C30 SCC chips which can handle both asynchronous and synchronous transfers with speeds up to 115,200 bps on Port A and 153,600 bps on Port B. They can attach their modems to these ports and don't suffer from this serial port bottleneck providing the software they use can support these high speeds.

Modification Overview

The Multi-Function Peripheral chip is a Motorola 68901 and provides an 8-bit parallel port, a serial port, various interrupt sources and four timers, A, B, C and D (TA-TD Output and TA-TD Input in Figure 1). Timer D Output on pin 16 creates the bit rate for the USART in the MFP. A USART is an Universal Synchronous/Asynchronous Receiver/Transmitter and is the serial interface part of the chip. The main USART pins are:

SI - Serial Input pin 9
SO - Serial Output pin 8
RC - Receiver Clock pin 10
TC - Transmitter Clock pin 7
RR - Receiver Ready pin 31
TR - Transmitter Ready pin 30
Pin 16 is connected to pins 7 (TC) and 10 (RC) via tracks on the motherboard supplying the USART transmitter and receiver clocks with the clock signal. In order to modify the chip so that a higher signal can be input to these pins, pin 16 must be disconnected from pins 7 and 10. The best way to do that is to cut the leg of pin 16 as close to the motherboard as possible and carefully bend the remaining bit of the leg upwards and away.

We then need to supply a higher clock signal from an external source. Pin 18 (XTAL2) of the MFP supplies a clock signal of 2.4576 MHz. If we can divide this by four we get 614,400 Hz which can be fed to pin 7 (TC) of the MFP (which is also connected to pin 10 (RC) remember). The USART in the MFP will divide this signal by sixteen giving a bit rate of 38,400 for both the transmitter and receiver clocks.

The device that is going to divide the clock signal from MFP pin 18 is a 4040 chip of which there are several sorts.

Maplins do a 4040 in the 74 series called a 74HC4040N and is known as a 12 Stage Ripple Counter if that means anything to you! This chip needs power on leg 16 which can be supplied from pin 11 of the MFP. The signal from pin 18 on the MFP is supplied to pin 10 of the 4040 which then outputs the new signal on pin 7. Sounds simple enough?

We also need to consider switching this modification off for the odd occasion when we need the old bit rates back. This is necessary as disconnecting pin 16 of the MFP from the motherboard means that all the old rates will be unavailable and that 38,400 bps will be the only rate you will have. You may not need to switch the mod off because even if you connected to another modem with a much lower speed, say 2,400, your modem will automatically cope with that. However, if you have a FAXmodem there can be problems with some software and fax machines running the serial port at 38,400. You may also need to connect your ST to another ST or other computer where the rates are limited. I transfer files into my wife's Mac Classic where the top speed is also 19,200 and my Z88 which doesn't work well above 9,600 bps.

The switch will need to be mounted through a small hole drilled in the ST's case. There are many suitable places at the back or sides. I put mine in the removable panel at the back of my MegaST4. All that seems necessary is to connect a wire from pin 16 of the MFP to one switch terminal and a wire

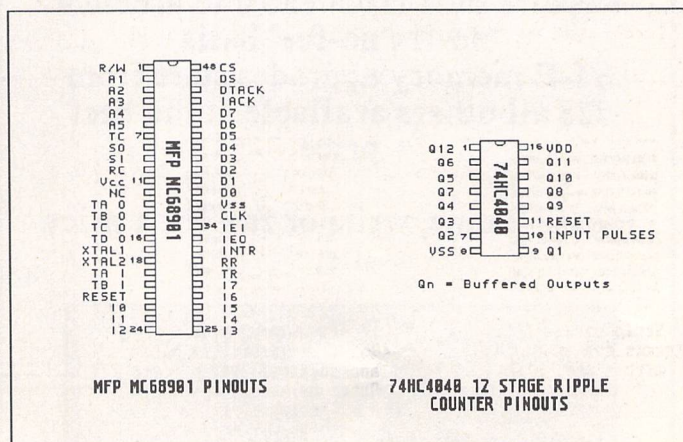
from the other terminal to the hole or pad on the motherboard where pin 16 was connected to before you cut it. However, I found this doesn't work as the 4040 chip is still supplying the new signal to pin 7 of the MFP. Therefore we also need to break the connection between pin 7 of the 4040 and pin 7 of the MFP as well as connect pin 16 of the MFP to the motherboard. For this you need a double pole double throw switch also from Maplins. This switch can be connected so that switched one way it connects A1 and A2 but disconnects B1 and B2 and vice versa. Perfect!

Modification Details

See the boxes for a list of the items you will need. You may well have some components already such as insulating tape, wire and stripboard.

Firstly, it is a good idea to make sure that you are earthed and an Earth Wrist Strap is ideal especially if you intend to make a habit of investigating the insides of your ST! Many people will claim that they have never blown any chips with static whilst I have a friend who says his high static charge will write off any chip almost by looking at it. Don't take any chances - earth yourself.

I chose to mount the 4040 chip on a piece of stripboard for convenience making sure that it was mounted in such a way that none of the legs was connected to another via the tracks on the stripboard. If necessary cut the tracks with a sharp knife (see Figure 2). The chip will fit in the holes correctly and is soldered into place. Trim the legs on the other side and cover with insulating tape so that no metal shows. If you cut a big enough piece of stripboard the outer series of holes on the tracks can be used to solder the wires to rather than disturbing the legs again. You can try placing the 4040 chip on top of the MFP without a mounting board. You may find it easier to crop the legs back a bit to make it more stable. Be careful not to touch any of the legs of the 4040 against the MFP legs. It might be safer to cut off the unused 4040 legs alto-



△ Figure 1: MFP and 4040 chip pinouts

List of Tools (all available from Maplins)

- ✓ Wire stripper
- ✓ Snip cutter
- ✓ Soldering iron with small tip
- ✓ Solder
- ✓ Desolder braid to clear around MFP 16 hole
- ✓ Earthing wrist strap
- ✓ Drill with 1/4" drill bit
- ✓ Crosshead screwdrivers to open case, etc.
- ✓ Pliers to remove shielding
- ✓ Hack saw to cut stripboard

List of Components from Maplins Sept 1993 – Aug 1994

Catalogue from Newsagents

Telesales: 0702 554161 Fax: 0702 553935

Part	Order Code	Page	Cost
SN74HC4040N chip	UF02C	493	£0.95
Double pole switch	FH04E	394	£1.10
Solid core wire	BL85G	358	£0.45
Stripboard (optional)	FL17T	699	£2.65
Insulating tape	FT20W	697	£0.30

gether. You could try sticking it to a double-sided sticky pad.

Open your ST so that you have access to the motherboard. On an STFM the MFP 68901 chip is at the back on the right underneath the floppy disk drive. You can remove this by undoing the screws underneath and carefully removing the data cable and power cable. Make a note of which way round they go before removing.

On the MegaST, the MFP is underneath the power supply which is easily removed by undoing 2 screws and the power cable and easing the whole thing out of the sockets at the back. It really is easier than it looks.

Locate the MFP chip. It is rectangular and has 48 legs. It should have markings on it indicating that it is an MC68901. Now look for the end with the 'notch' - a semi-circular indentation on the chip surface. This marks the end where pins 1 and 48 are. Looking down on the chip pin 1 is always to the left of the notch and numbering occurs down this side and up the next. See Figure 1. Locate pin 16 and with a pair of snips that cut right at the tip, cut the leg as close to the motherboard as possible. Very carefully slightly bend up the remaining part of the leg away from the board so that you can get a wire and soldering iron down to the filled hole where the leg joined. You may clear the hole a bit with soldering braid.

Decide where you will mount the

switch, drill a hole very carefully and mount the switch in the case with the locking nut provided. Connect a piece of wire from the leg of pin 16 to one terminal of the switch and another from the motherboard beneath pin 16 to the other terminal as shown in Figure 3. Be careful not to get the terminals mixed up. Also, make sure that the wire is out of the way and doesn't snag anything. I prefer the stiff single core wire as listed as it will stay in place once bent into position and makes soldering very easy with a single core. Remember that you will have to put back the floppy drive or PSU so don't just stretch the wires across the space.

Now find a place to put the 4040. If not mounted in stripboard then the best place is on top of the MFP. If mounted then it can go elsewhere next to the chip but it's best to keep wires short. There should be enough clearance between the drive or PSU and the MFP with the 4040 on top. Check first before soldering into place!

Study Figure 3 very carefully. Where wire lines cross they are NOT joined except at the one place indicated. Connect a wire from pin 7 of the 4040 to the switch terminal as shown in Figure 3 and another from the switch to pin 7 of the MFP. All the wire connections are thus:

- | | |
|--------|-------------------|
| MFP | 4040 |
| pin 34 | pin 8 & 11 joined |
| pin 18 | pin 10 |

- | | |
|----------------|-----------|
| pin 11 | pin 16 |
| pin 7 | switch B1 |
| switch B2 | pin 7 |
| pin 16 leg | switch A1 |
| pin 16 m'board | switch A2 |

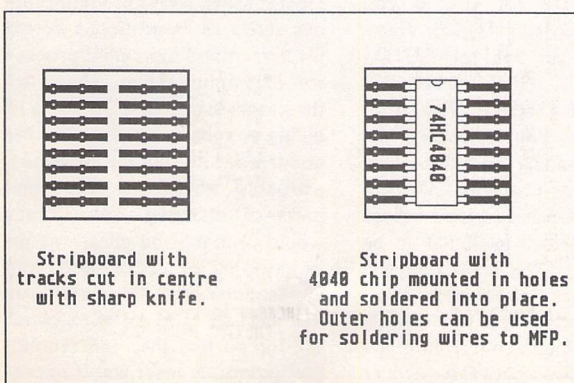
Now measure up the distances between the other wiring points between the two chips and cut some wires to match, tin the ends with solder and solder into place. For pin 8 and 11 on the 4040 chip, join these together with a short piece of wire then take a wire to pin 34 on the MFP from one of these two pins. The stiff wires should hold the chip firmly into place as close to the MFP as possible. Make sure that no bare wires touch another part of the board, that the legs of the 4040 or the bottom of the stripboard is fully insulated and not touching anything and, when all is in place, cover the top of the 4040 with some insulating tape. The last thing you want is for it to touch the bottom of the drive case or PSU! OK, it looks messy, but it's safe!

Write on the outside of the case or use a labelling device to remind you of the position of the switch when on or off. 'On' is where the pin 16 of the MFP is disconnected and the two pin 7s are connected.

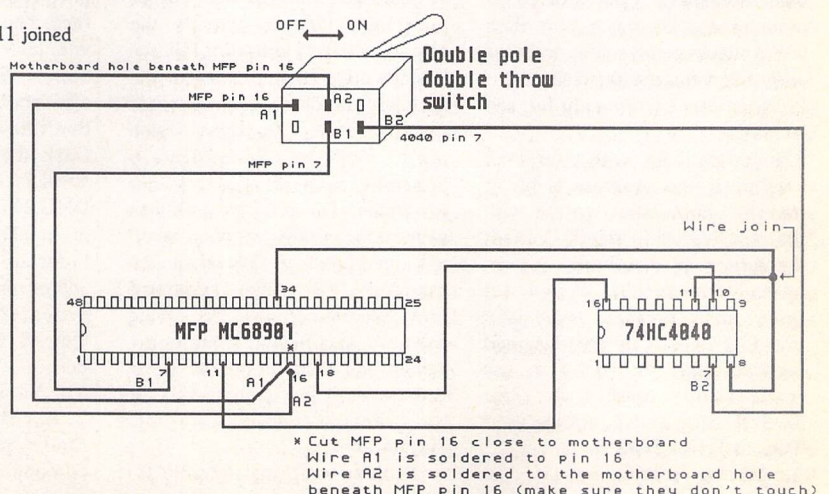
Setting Up

Your software will probably still only allow you to set a serial port speed of 19,200. This won't matter. You will have 38,400 bps at the port and the modem and software will automatically cope. Set up the modem report codes to show the connect message to be the computer rate or the speed of the DTE (the computer). When you log on it should see CONNECT 38400 and perhaps CARRIER 14400 depending on your modem and how you set up the reporting. For the Supra FAXmodem I have S95=44 and W1. You may have to experiment. For point systems and sysops using BinkleyTerm put 'Carrier 80', 'Hard38400' and 'Baud 38400' in the configuration file. I advise everyone to use the HSMODEM serial port patch regardless of TOS version as this also contains some optimised code for the port.

Lastly, you perform this simple modification at your own risk. Neither I nor the ST Club will be held responsible for any damage you may cause whilst performing this modification nor for any errors contained herein. However, it works very well for me and has paid for itself many times over!



△ Figure 2: Stripboard layout for 4040



△ Figure 3: Serial port modification wiring diagram

Beginners' Forum

Mark Baines

Program Failures and Crashing

Our most frustrating time with computers is when a program crashes causing us to lose data and reducing our confidence in that application and perhaps in computing in general. It happens to us all and sometimes, with experimentation, you can figure out a reason why it happened. Sometimes you just have to give it up as a bad job and stop wasting time.

There are so many reasons why programs crash that I cannot describe them all here nor provide you with a panacea for all ills. What I can do is try to start you off thinking about what might be happening and what to do about it.

Reasons for failure

It is almost impossible to know why a program causes problems at first sight. All you can do is to try out various ideas and see if that alleviates the problem.

1. Corrupted program. If the program crashes at the same place and there appears to be no other reason besides a bug, then use a backup or make another copy from the master disk.
2. Virus attack - unlikely but see last issue.
3. Incompatibility with your TOS version. If the program is old it may not have been written with the new TOSes in mind. Contact the writer or distributor for an up-to-date version. If you are using an old TOS (especially pre-1.4) then a newly designed program may be trying to use features not present in your TOS. If using an ST, update your TOS to 1.4 or 2.06.
4. Wrong installation. If the program had an installer and copied most of the files onto

work disks or the hard disk for you, you may have made some incorrect assumptions when asked about your set up and the wrong files have been copied over. This can happen with some large DTP or graphics programs. Delete all the files and re-install the application.

5. Missing configuration files. Many programs need configuration or other data files although they shouldn't crash if one is missing - they should use default settings - but who knows! Reconfigure the program or copy over a backup copy.

6. Hardware incompatibility. Some programs won't work with the BLITTER chip switched on in a Mega ST (very rare) or the processor chip cache on a Mega STE, for instance. If you have fitted any hardware modifications, such as a processor accelerator, monitor OverScan, serial port modification, etc., and then switch them off and see what happens.

7. Incompatibilities with other programs. This is perhaps the biggest cause of program failures besides bugs. It is also one of the hardest to solve as it involves thinking about programs which may not be immediately apparent, such as AUTO folder programs. The ST can multitask several programs at once even without MultiTOS. There can be many AUTO folder programs and accessories all occupying memory and having some component of them active at some time, even if it is just waiting for an event to trigger them into further action.

Problems with installing AUTO folder programs are common, often seen as crashes before the

Desktop appears (a total incompatibility between two AUTO programs) or during the loading or running of an application (partial incompatibility between two AUTO programs triggered when a particular event occurs in that application). Most AUTO folder programs are TSRs (Terminate and Stay Resident), that is, they run at boot up and stay in memory periodically performing some task or waiting for a triggering event. If you have several of these installed and they are waiting for the same event or trying to access the same part of memory or TOS then they may come into conflict with each other and cause the crash. There is a proper way to write this sort of program which I won't go into here, but many earlier ones didn't use the right protocol and these tend to cause problems with more modern AUTO programs.

There are several ways in which to investigate these problems. If the crash occurs before the Desktop appears then run a series of boot ups starting with an empty AUTO folder and each time installing an additional AUTO folder program until the crash occurs. The last program to be installed before the crash is the culprit, or one of them. This procedure is very tiresome unless you have some boot up program such as Superboot or XBoot to make selecting the AUTO programs easy and quick. Otherwise, you will have to rename all the PRG file name extenders to PRX and rename one PRX to PRG before each reset!

One other way to solve many of these AUTO folder incompatibilities is to change the order in which they load into memory. This isn't the file name or date order but the order in which they physically appear on the disk surface. This is shown by NeoDesk's and later TOS's No Sort menu option. Some file selectors will also show this for you. If you don't have a later TOS or NeoDesk then get hold of AUTOSORT (ST Club DMG.23, DMG.27 or UT.380). This program allows you to change the order of loading and this often solves many problems. On my system GDOS has to load before QuickST3 which itself has to be before the OverScan program with NeoDesk last, for instance.

Accessories can also cause similar problems but I find incompatibilities between accessories to be quite rare indeed. If you are still getting crashes with

no AUTO programs then do the above selection procedure with the accessory files, renaming them all to ACX to deactivate them all and then load in one at a time renaming it to ACC before the reboot.

8. Bugs! The biggest culprit will always be bugs in the program code, something you have no control over and can cause the biggest headaches because they are the hardest to track down. Load the program into an empty computer (again Superboot helps here) - that is, one without any accessories or AUTO folder programs. If in doubt put a blank disk into the drive when you boot up, don't even have a DESKTOP.INF or NEW-DESK.INF file on it. Now test the program. If it still crashes then you have most probably found a bug. Write down exactly what you did to create the problem and include this information together with the type of computer you have in a letter or EMail to the programmer. PRO-FILE from the ST Club or Floppyshop will give you a complete run down of your computer's specification. Don't assume that no one else has reported it. Last year I came into a project late and reported a fundamental error which beta testers over two years previously hadn't reported - I guess they all thought it was so obvious everyone else had done it!

All serious programmers are glad to receive bug reports and many will send you an updated version when the problem is solved. Today's operating systems, hardware and, consequently, applications are complex and I'm afraid that bugs are increasingly a fact of life. Helping the programmer to overcome some of these complexities will help you get the best software.

Bombs

Most crashes result in the infamous series of bomb icons across the screen and are called processor exception errors. These are the processor's and TOS's way of telling you that a serious error has occurred and which has most probably corrupted important parts of memory. To continue would probably be unsafe as the behaviour of TOS and any applications can't be guaranteed. The best thing to do is to switch off for no less than ten seconds and reboot. A reset won't necessarily cure the problem as it doesn't carry out a complete in-

BIOS Errors

The BIOS part of TOS can return non-fatal error messages from a program and show them usually in an Alert box.

Name	No.	Meaning
E_OK	0	OK - no error
ERROR	1	Fundamental error, such as drive not found
EDRVNR	2	Drive not ready
EUNCMD	3	Unknown command
E_CRC	4	CRC error
EBADRQ	5	Bad request, invalid command
E_SEEK	6	Seek error, track not found
EMEDIA	7	Unknown media (invalid boot sector)
ESECNF	8	Sector not found
EPAPER	9	No paper
EWRITF	10	Write fault
EREADF	11	Read fault
	12	General error
EWRPRO	13	Disk is write protected
E_CHNG	14	Media change, disk was changed
EUNDEV	15	Unknown device
EBADSF	16	Bad sector on formatting
EOTHER	17	Insert other disk
EDISC	18	Insert disk
EDEVNRS	19	Device not responding
EHARD	20	(unknown)

5 Divide by zero. Occurs when a program tries to divide something by zero. In mathematics and programming the result is undefined and unpredictable.

6 CHK instruction, indexing error. Caused by a special instruction in the MC68000 processor called a CHK instruction. Some compilers and programmers use this instruction to make sure that indexes into arrays are never negative and are not bigger than the size of the array.

Bombs Meaning

- 2 Bus error. Occurs when a program tries to use memory that does not exist or is protected and inaccessible.
- 3 Address error. Occurs when the MC68000 processor in a ST is accessing a 2- or 4-byte object in memory (an integer or long) on an odd-byte boundary. The 68000 can only access 'even' addresses. This restriction is lifted in the MC68030 processor in the TT and Falcon which can access bytes, words and longs anywhere in memory.
- 4 Illegal instruction. Occurs when an instruction is encountered by a processor that is not in its instruction set.
- 7 TRAPV instruction, overflow error. Caused by a special instruction of the MC68000 called a TRAPV instruction. If a program tries to add two numbers whose result is too big for the available storage space, then an overflow is said to have happened.
- 8 Privilege violation. Occurs when a program is in user mode and tries to execute an instruction that is only allowed in supervisor mode.
- 9 Trace error. The CPU can be set to jump to a specific address after every machine instruction is executed. This

address is normally used by programmers using debuggers to step through a program. If this address has not been set and a trace does occur then this error occurs.

- 24 Spurious interrupt. Occurs when a bus error occurs during a system interrupt. others: May be combinations of the above, one row of bombs printed after another. My record is about 60!

Besides bombs, other errors are intercepted by TOS and reported to the screen - see Boxes 1 and 2.

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 if a SAE is enclosed. 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

GEMDOS Errors

The GEMDOS part of TOS can also return error messages from programs.

Name	No.	Meaning
EOK	0	Operation was successful, no error
EINVFN	32	Invalid function number
EFILNF	33	File not found
EPTHNF	34	Path not found
ENHNDL	35	No more handles left (too many files open)
EACCDN	36	Access denied
EIHNDL	37	Invalid handle number
ENSMEM	39	Insufficient memory
EIMBA	40	Invalid memory block address
EDRIVE	46	Invalid drive
ENSAME	48	Not the same drive
ENMFIL	49	No more files
ELOCKED	58	Record is locked - (file locking and network)
ENSLOCK	59	No such lock (unlock an unlocked record)
ERANGE	64	Range error
ENAMETOOLONG	64	A part of the filename is too long
EINTRN	65	Internal error
EPLFMT	66	Invalid program load format
ENOEXEC	66	Invalid program load format
EGSBF	67	Setblock failure owing to memory growth restrictions
ELOOP	80	Too many symbolic links

Going On-Line

Mark Baines

Until fairly recently, US Robotics (USR) in the States sold modems at prices that I found hard to stomach. Certainly the only people capable of buying them were sysops who got very good discounts and companies looking for reliability and the BABT sticker.

Last year saw a major modem revolution - high speed modems with all the specs at less than £300 and by the year's end, just above £200. Sales of Supras and Zooms in the US rocketed and USR had to come up with something fast. The answer was the Sportster.

The Sportster is nothing to look at. A cheap, corporate cream coloured, plastic case reminiscent of a Tandy intercom about 6.5" x 4" x 1.5". Small and neat with the serial, power and phone sockets at the back together with some dip switches and a loudspeaker volume switch on the left. The on/off switch is at the front where it ought to be. There is the usual sprinkling of LEDs:

AA	Auto Answer
CD	Carrier Detect
RD	Receive Data
SD	Send Data
TR	Terminal Ready
CS	Clear to Send
ARQ	Automatic Repeat Request (error control) or FAX Mode.

There are no LEDs to signify the current speed or providing other information, such as Retraining, Receive Error and Transmit Error as on the Supra. I found this annoying at times when a transmission stopped and I got no feedback from the modem as to what was going on.

A certain amount of configuration of the modem is done through eight dip switches, the sort of thing normally done through setting the modem's 'S' registers. I'm not really sure why this expense was added to the manufacture of the modem, as they don't provide any real advantage. The loudspeaker is quite poor and the dialling clicks

sound like high voltage sparking - most weird, but it worked! Once connected the loudspeaker was quiet even at full volume.

Specs

Data speed is 300bps to 14400bps (V32bis) with all the normal and expected CCITT and Bell standards in between. There is even V23, the strange split rate of 1200/75 bps which was common some years ago for systems such as Prestel. Today, it has no use as most Viewdata systems will accept higher rates - Prestel did years ago. There is V42 and MNP2-4 error control and V42bis and MNP5 data compression. Fax speed is a maximum of 14400 bps which is useful for future compatibility and it supports the Group 3 fax device standard. However, the command set is only Class 1 with most other modems sporting Class 2. USR won't support Class 2 until it has been ratified by CCITT (and will be known as Class 2.0). In practice it doesn't matter too much but you do need fax software that can communicate with the modem at the Class 1 standard. STRaight FAX version 2 can do that but not version 1 or Tele Office.

The modem is BABT approved which may be important to you and has a five year warranty which is even more valuable. The power supply is a separate unit and the telephone cord is seven feet long with the usual BT plug at one end and the US plug at the other. Most modems also have a socket in which to plug the telephone but being US-sourced will only accept US plugs. The Sportster's socket was blocked by a plug with the release tab cut off making it very difficult to remove. I suppose this was to comply with BABT regulations. Anyhow, US to BT socket converters aren't

available and a phone socket doubler acts just as well enabling the modem and phone to be plugged into the same wall socket.

Four phone numbers can be saved within the modem's non-volatile RAM but only a single set of register settings can be stored as opposed to two sets for the Rockwell chip-based modems, such as the Supra and TKR. I found this a little inconvenient as once a set of registers has been saved it can be made active by the command ATZ0 or ATZ1 depending on which set you want. On the Sportster you might have to enter longer and more complex command strings quite often to configure the modem for alternative operation. The command set was adequate but not as complete as other modems. It lacked many features which some users might need, for instance to fine-tune it in difficult situations. On my line, the Sportster couldn't recognise a BUSY tone - a common complaint with US modems on UK analogue exchanges. The Supra can be configured to recognise the BUSY tone frequency although it was unnecessary with the new v1.8 ROMs.

The documentation was thorough, clearly written and well presented including a useful FAX section which the TKR and Supra manuals lack. A Quick Reference Card was useful and an Addendum for UK Users outlining some of the features introduced because of the BABT approval. There was a separate guide to the dip switches which is a good idea as this is probably where you need to start.

The included software was all PC-based and not tested. I still have my Supra PC software

unopened! Blast Fax and Delrina LITE should get a PC user on-line quickly and even sending faxes. A pity that in the UK you have to pay £90 for fax software almost half the price of a modem these days...

By now you have probably got the impression that I didn't like the Sportster. Well, in many respects I didn't and couldn't justify spending the extra £35 (the Supra FAXModem is now £209.99) for a lower quality device with fewer features unless you needed BABT approval. However, the modem did perform well and hung onto the line throughout the tests being a stable and a solid performer. Transfer speeds were comparable to the Supra and I could detect no difference in their performances.

The USR Sportster can be bought for £245.99 at the First Computer Centre. Thanks to them for the loan of the modem.

FIRST COMPUTER CENTRE
Sales and Technical
Support:..... 0532 319444
Fax:0532 319191

Correction

In issue 38 I inadvertently said that 'uk' is the ISO standard domain code whereas it is, in fact, 'gb'.

<p>Email: Internet: msbaines@cix.compulink.co.uk FidoNet: 2:259/29.10@fidonet.org NeST: 90:105/5@nest.ftn TurboNet: 100:106/0.10@turbonet.ftn</p>

DESKTOP DISCUSSIONS

Have you got, or do you know of someone else who has, an ST gathering dust in a cupboard somewhere? William Hern explains that there are plenty of people out there who could make use of it.

Wherever you look in the Atari press these days, it's hard to avoid reading stories about decline. Whether it is an article about stores cutting their stock of ST products or a software company complaining about falling sales, it is clear that the market is in a deep slump. I saw a recent piece that estimated that the size of the ST community in Britain had shrunk to under a hundred thousand, a far cry from the late eighties when the number was five times that.

Let's think about that statistic for a moment. Where did those other four hundred thousand STs go to? Computers aren't disposable, they don't just evaporate into thin air. Where are they now?

Of course, some of them will have been broken beyond repair (like my original 520 ST which passed away while undergoing memory upgrade surgery). However, the majority of them, I suspect, lie forgotten in attics and at the back of cupboards, made redundant by the purchase of faster, more modern computers or video game consoles. The truth is that the homes of Britain contain several hundred thousand fully functioning, but unused, ST computers. What a waste.

I read an interesting book a couple of years ago called "The Used Computer Handbook" which was written by the organiser of America's largest forum for the selling of second hand computers. I remember vividly a section from it which described the concept of the technology ladder. Each one of us is on the ladder, climbing up

rungs as we outgrow our old computers and move to faster and more capable models. However there are always people below us who could take our old machines. Although to you your computer seems too slow and outmoded to be of any use, it will be attractive to someone who has used an even slower computer (or perhaps has no computer at all).

Buying a second hand computer that's a couple of years old is not necessarily risky. With proper care, the average computer system should last around seven years before the mechanical parts such as the disk drives need repair or replacing. That's several lifetimes in computing terms, where a particular model may not even last eighteen months before being dropped from the manufacturer's catalogue.

Don't forget the environmental advantages of re-using these computers. Just because the microcomputer doesn't have an exhaust pipe or require frequent refills of increasingly rare refined crude oil, does not mean that it has no environmental cost. Precious resources were consumed and pollutant released during the manufacture of the silicon chips, printed circuit board and the plastic casing for each new ST.

If you can't sell your old machine, why not try giving it away? Charities have pressing word processing/desktop publishing/database needs, yet have very little money to spend on IT. Even though this is supposed to be the high-tech nineties, you'd be surprised at just how many charities make do with a mechanical typewriter and a photocopier for producing promotional material.

If you have time this weekend,

take a look in your cupboards and attics for old computer hardware and ask yourself if there is anyone who could make use of it. If you have any friends who used to be ST owners, ask them what happened to their old machine. Offer to take the machine off their hands and pass it on to a deserving cause.

Wherever you live, I'm sure there are needy causes that would welcome a donation of computing equipment. Whether it is a local charity, or a student who needs a machine to write essays on, there are always people willing to take old computers. In the most part they are looking for complete systems, computers with displays and printers along with software to drive them (what use could someone find for a Dragon 32 if they didn't have any software for it?), so if you have a dot-matrix printer gathering dust because of your new ink-jet or laser printer, do think about donating it as well. A 520 STM equipped with a 9-pin dot matrix printer and a copy of 1st Word is a very capable low-end word processor.

Not only will you have the satisfaction of doing a good deed, it could also be good for Atari in the long run as you will be creating another Atari user. A student who starts off with a lowly 520 STFM may consider upgrading to a 4 megabyte Falcon when they leave college or university. They may choose to buy more software which creates increased business for the software companies and public domain libraries. Every extra user helps keep the ST market alive.

So as part of your spring cleaning this year, keep a look out for excess computing hardware.

Not only will it help brighten your halo but you could be playing a part in expanding the size of the active ST community once again.

Falcon Fact-File Update

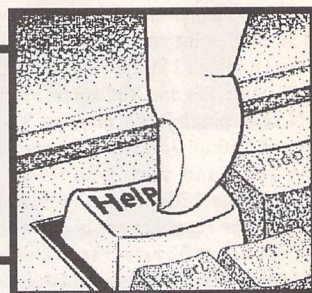
Falcon Fact-File, the free service that allows Falcon owners to find users with similar machine configurations and interests, continues to go from strength to strength. The first register disk was sent out in January containing the list of Falcon owners who have registered so far along with some top class PD software. The database portion of the disk will be updated monthly and the PD changed every three months, so existing registered users will find it worthwhile sending in a disk for an upgrade four times a year. For more details and an application form, send a stamped addressed envelope to the FFF at 11 Pound Meadow, The Green, Whitchurch, Hants RG28 7LG. If you own a Falcon then you ought to be registered. Trust me on this.

TT Fact-File Anyone?

A number of TT owners have approached the FFF, asking to be included in the register as they face exactly the same problems as Falcon users. The organisers of the FFF have decided that they don't have the resources to expand to cover other machines so I'm mentioning it here in the hope that some TT user would like to set up a similar operation. All the justifications that I gave in my September '93 column for a Falcon register apply to the TT as well, so if there is anyone out there who would like to play an important role in the TT community, write to me c/o ST Applications magazine.

Needy Causes

FORUM



The Jaguar Fiasco

I With reference to your editorial "The Jaguar Fiasco": I am afraid this highlights the problems that we as a Corporation face from "rumour, allegation and counter allegation", the end result being a negative press for what was intended to be a positive action on our part. Let me give you the facts:

1. Jaguar was launched in the New York and San Francisco marketplaces in November 1993.
2. We were not due to receive European machines until end of Q1 '94 at earliest.
3. This meant that grey imports were sure to arrive before Christmas which (i) would not work on UK TV's and (ii) would be priced exploitatively.
4. To counter this we asked US production

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

to give us a small supply of PAL machines. To change the production lines from NTSC to PAL not only deprives the US market of the machines they could have made off those lines at a time when they had huge demand but also could not guarantee any specific quantity for the UK. Until the machines came off the lines and into shipping we could not advise how many machines the retailers would get as QC and changeover delays were unknown. Hence disappointment and accusations of confusion. It would have been much easier for us to just say "No Jaguars until '94". By our efforts to help the trade and consumers by trying to stop the grey market exploitation, we gave ourselves a lot of work and a lot of grief. (It is probably irrelevant, but once a Jaguar is flown over - rather than shipped - there is no profit in it for us!)

Anyway, our final delivery was under 1,000 machines (your figures do not take into account some direct supply to retail accounts and 500 machines for a mail order house), which is half what we had hoped. However, the main reason for the pressure on retail was the huge demand which accumulated. It is important to note that, even if we had brought in the full amount hoped for, it would have got nowhere near supplying the full demand. This is due to the popularity of the machine, which we would like to take some credit for. I apologise to retail if they are getting a lot of orders!!!

In the meantime the Stateside launch has gone extremely well, pressure to the supply line. However we have spent time second-sourcing important components and solving this situation.

6. The situation is now that we are continuing to receive small supplies but backorders are so huge that they will not be cleared before June, when ready supply should be available.

7. To conclude, we are in the middle of launching what looks as if it will be the most successful product in the history of the company. In one year, Jaguar is likely to achieve the same-sized user base as the ST in its entire history. This is not a task to be taken lightly or to be underestimated, so please give us a break and stop these "Fiasco" stories. Here we are, three months

before launch, 'late again', just because we tried to respond to market requests to stem a grey import tide.

We don't expect to win with you guys, but we'd appreciate starting the game at 0-0!

Darryl Still

- 0-0: I thought that we were on the same side? Then, judging by the lack of similar response from Atari when we have commented on the Falcon fiasco... Maybe fewer own goals from now on?

Opus Problems

Derek Smith - Forum STA 38

David Teal - Forum STA 39

Keith Powell - Forum STA 39

I I have not experienced any particular problems in creating charts with Opus, but I have had problems with import into and subsequent printing from other packages. The following ramblings may be of interest to other Opus users.

Easydraw (V2.35) does not display the borders around filled bars, and vertical text appears horizontally. Printouts from Easydraw using Migraph's Outprint is however perfectly OK, including GDOS fill patterns.

Arabesque Pro (V2.14 ex cover disk) doesn't display or print text at all, but I did get a box where the title should be. (As an aside, I've never managed to use vector text with this version of Arabpro.) Fill patterns also print darker.

Timeworks 2 has two .GEM import options, GEM Draw/Artline and Easydraw. The GEM Draw/Artline import gives the better result, text and fills are fine. With the Easydraw import option however, TW2 removes any white space around the chart and crams titles etc up to the frame borders.

Calligrapher (Version Pr 03/44) displays vertical text horizontally, but prints it out correctly. Fill patterns are also as expected.

With my particular ST set-up, Calligrapher does in fact offer an advantage over Timeworks in particular, because of its vector font printing. Let me explain: for Timeworks, I use the 360dpi NECP6 set up, which has 14- and

20-point fonts, but no 18-point ones. Opus however refuses to work with this GDOS set up, and so I use the Atari 180dpi 24-pin fonts and driver, which has 12- and 18-point fonts but no 14-point ones. Calligrapher correctly prints 18-point 180dpi text from Opus charts at 18-point size and 360dpi resolution.

Now a plea! Does anyone know where I can get 360dpi fonts which comply with the Opus rules, and work with TW2? At present I'm using the 180dpi ones from the GDOS-D disc, but the frequent re-boots even with Superboot to use Timeworks is time-consuming to say the least. I tried Craig Oldfield's suggestion of using TW fonts (Forum STA 28), but after I'd run Assigner, all I had left was 7-point serif. I even tried renaming TW2 .B36 and .VGA fonts, but got similar results.

My final Opus point might be of interest to David Teal. I use the Mini Office Professional spreadsheet (other spreadsheets might have similar facilities), and Calligrapher to obtain a presentable spreadsheet. The procedure is as follows:

- 1) Save the Opus spreadsheet as ASCII.
- 2) Set up a MOP work sheet with identical column widths to the Opus original.
- 3) Import the ASCII file using the MOP option 1, "Each row as cells in a line. Cells split by column width", save the resulting spreadsheet, then export it using the MOP option 2 "Each row as cells in a line. Cells split by commas".
- 4) Use a text editor with a global replace facility (I use Spirited) to replace all the commas with the vertical bar character.
- 5) Import the file into Calligrapher (given away with ST Review issue 24), and use the "Make a Table" facility. This is a nice feature of Calligrapher, which turns text into a table, using the "pipe" character as the cell boundary and CR as the end of a row. It draws the lines round the cells, and contents can be Left, Right or Centre justified. All the usual text styles are available and it can produce extremely respectable printed charts.

This may seem complicated, but it is far preferable to using Timeworks, which requires all superfluous spaces to be deleted and tabs to be inserted. (TW does not recognise the TAB character.) So far I have not solved the import problem with the PD version of Opus, and, like David, I would register through Joe Connor.

Dave Luker

Universal Item Selector

Mike Playle - Forum STA 39

I Thanks for the tip about disabling the UIS Vanishing Act feature when using Timeworks. Incidentally, the same problem occurs with Selectric. Perhaps someone could offer a solution to another problem I am experiencing with UIS and Personal Finance Manager. When printing an account statement from PFM, all I get is the title lines, date and column headings etc, which I presume are held in the program itself, but no account figures. Which is at fault, PFM or UIS? Any suggestions?

Dave Luker

Calamus Driver

WA Booth - Forum STA 39

A This is something of a hoary one. The consensus of opinion seems to be that the problem is that paper length settings differ between the printer and Calamus. Even though printed output all falls on the right page, your printer may disagree with Calamus about the right page length and send a form feed for the next page, even though this is not appropriate. Set the printer's DIP switches carefully to set the right paper length (switch it off and on again for any changes to take effect). Use Minimum Margins in Page Layout in Calamus in order to see the maximum printed area and use this as a guide to set the printer up.

Derryck Croker

Spectre GCR

R Chiswell - Forum STA 39

A In STA 39, R. Chiswell asks for a simple solution for getting double inverted commas (double quotes) in Claris Works documents when using Spectre GCR.

My solution for getting ordinary double quotes works, but is not that simple, and relies on the Key Caps DA being present. This will be found on the Apple symbol pull-down menu.

Start Key Caps running, and then hold the Shift key down. The keyboard drawn on the screen should have a double quote (") character on the key next to the Return key. Click on it (don't type!) and the double quote should appear in the window above the keyboard. You can then use the mouse to highlight it and then copy it, switch to Works, and paste it into the Works document.

Alternatively, typing Shift-Alt-[will give the more fancy 99-style double close quotes, and Alt-[gives double (66-style) open quotes.

I have a couple of Spectre GCR questions of my own. I am using an Apple LaserWriter II plugged into the serial port of my Atari. To print a file when running Spectre, I have to save the PostScript to a file, and then use Apple File Exchange to move the PostScript file to an MS-DOS format floppy. Then I reboot the Atari and print the file from the floppy.

I would like to be able to print files direct to the printer while running Spectre as this would save several hours of effort a year. The Spectre 3.0 manual tells me this is all possible; all I need is the Async LaserWriter package, available from Apple dealers. All the Apple dealers I have talked to look totally blank at the mention of Async LaserWriter! Does anyone know where I can get the package, or an alternative solution to this problem?

My second question concerns the reading and writing of floppy disks. I have used Spectre on two different Ataris and three different floppy disk drives. In all cases, writing of disks often leads to corruption, and reading

is unreliable. I have tried altering the potentiometer in the cartridge without any visible improvement (though I can make it worse!). I have also followed another tip and tried shielding the floppy drive cables inside the case with aluminium foil. This did not help either. Any ideas?

John Richards

Psion/ST File Exchange

Mike Playle - Forum STA 39

A I too had problems trying to download from the Psion. Some were user instigated, such as not matching transfer protocols (oops!) and baud rates (arghh!). I found that both the Psion comms program and the terminal program (D Term) running on the ST would freeze if the receive and transmit steps weren't carried out in the right order. That was surprising, since the Link manual insisted that it didn't matter which was set first. Since then I have moved over to Teddy Term (ST Club disk DM.38) and XYZ.TTP (look it up in the catalogue), and files nip back and forth with ease. Sadly though, Teddy Term doesn't have a means of translating a CR into a CR/LF combination, nor can you set local echo on so any party pieces of typing on the ST's screen from that little black box on a wire will have to go.

A brief attempt to use the Psion Link's capacity to use the disk drives of an attached PC as if they were the Psion's failed using PC Speed. Time did not permit further investigation since the owner wanted his ST back!

Incidentally, the batch facility of the Ymodem protocol can be used from the Psion by using the Tab key to call the fileselector when the file transmit dialogue box appears, then choosing files with the + key. Teddy Term will download all the files thus marked, but other terminal progs may need to have each file sent individually (but at least they are presented in order in the dialogue box).

Furthermore, there is a Psion conference on Fidonet. Make your modem dial your local BBS, if it carries this network (an Off Line Reader is virtually a necessity when dealing with these networks!).

Derryck Croker

Publisher 2

T Goss - Forum STA 39

Q I am awaiting the arrival of a SpeedoGDOS version of Timeworks Publisher 2 and although some fonts are provided I would like to be in a position to use the GDOS fonts I currently use for DTP work. I already possess Fontkit Plus 4 but wonder whether there is a further program available which would allow me to convert GDOS fonts to those recognized by SpeedoGDOS.

Malcolm Mitchell

● GST have announced that there will never be a Speedo version of Timeworks so your

question is rather academic. A fully implemented Speedo compatible application should be able to use both Speedo and GDOS compatible fonts. There is still no sign of a font editor capable of editing Speedo fonts.

Unhappy Swine

I note that with issue 39 of ST Applications you have now lowered yourselves to the foul-mouthed levels of the rest of the media. Daron (CIX 614, page 47) may be a foul-mouthed guttersnipe and reflect your own standards, but some of your own readers at least do not wish to receive such material. If ST Applications is to be reduced to a foul-smelling slurry of four-letter words then I for one will cancel my subscription. (So will I - PG.) I say this from the stance of one who is already hanging onto Atari by his finger nails and looking ever more closely at the Apple Macintosh 040 system. Like thousands of other Atari users and ex-users, I too am becoming more fed up with the whole scene.

Dr John F Reilly

● Sorry - we're expertly informed that pigs are most unhappy when they are covered in excrement, and what really gets them going is rolling around in mud. What Daron actually wrote was "happy as a pig in s**t" but our layout man David objects to the coy (tabloid-esque) use of asterisks in such words and so replaced them with what was obviously intended - it certainly wasn't 'salt'!

GoGo ST

Richard A Carsons - Forum STA 37

A I have registered for GoGo ST and I am now happily using version5. The author Mark Cawthon's address is now 3550 Pacific Avenue #210, Livermore, CA 94450-4822 USA. Let Richard Carsons try again. I found Mark very responsive to queries and suggestions and generally rather helpful.

Emmanuel Frimpong

PD Notes and Queries

I The disk PR.402 (C sources #2) contains a 680x cross assembler, "for 6801/4/5/9/11". Sadly, only the 01 and 09 assemblers' source modules are actually on the disk. The docs provided by the person who compiled the collection also refer to all the modules, but the omission of many of them is only stated right at the very end! He did not take the trouble to download the other modules. There is nothing that you can do about this, but maybe someone can help me to track down the '11 module?

Alun Foster

Q Can anyone confirm the address or provide a 'phone number for Graham R Hut-

cheon of Finansoft, the author of the Double Sentry accounting package? I've been trying to order a registered version of the program since the beginning of February, but have had no response - even the cheque hasn't been presented. Directory enquiries could not find a Hutcheon or Finansoft entry. The address I've been using is 45 Connaught Street, London W2 2BB.

Dave Luker

● Sorry, we do not have a more up to date address, so it looks as though Graham has stopped supporting Double Sentry.

Q I am hoping that you will be able to help me. I desperately want to get hold of the full version of the demo that I have sent you.

It is the best German language tutorial I have come across. I have tried many full-priced progs (which I could have written better myself!). I sent my £10 reg to Micro Intellect but have received no reply. I have written to them without avail. L.A.P.D. have been unable or unwilling to help me. I can only assume Micro Intellect no longer exists.

Lee J Smith

● Sorry, the only address details we have are those you already have. There is almost a case for a modern day variation on the squatters law, one that would allow software that is not actively supported to be seized by users and freely distributed! Better still, a software version of the Performing Rights Society that would collect royalties from all licensed distributors (libraries and BBSs) and split the royalties amongst all registered authors.

I I hope you will not be too upset if I bring to your attention a small problem in your Catalogue #14.

Briefly, you state at the top of Page 9 "All pictures are in IMG format files unless it says otherwise". Earlier this month, I purchased your discs AM.180 and AM.181 only to find that all of the files are in .TNY format. In contrast, AM.182 received in the same order is in .IMG format which is actually what I can use!

Anyway, I am far too lazy to return the two .TNY discs (one of these days, I may acquire a WP programme which can make use of such files, failing which they can always be taken into blank stock) but it occurs to me that a short addendum to the catalogue, when possible, might avoid disappointment to others. I don't envy you the job of trying to keep track of all the variations!

The rest of the items were entirely in order and, once again, I thank you for your very prompt service.

S M Hill

● Whoops, will convert these all to IMG as soon as we have time. You can use a PD utility such as TinyStuff or PicSwitch to convert the files to Degas or NEO format; both of these picture types will load into Timeworks Publisher. Imagecopy will convert the files to IMG format.

I The UT disks were something else - I still haven't managed to wade through all the files yet and have found some absolute crackers!

David Roberts

● Thanks. We pondered long and hard over how enthusiastic the response to compressing files on disks would be.

I Disks AM.950 (ex SSM.51) and AM.951 (ex SSM.52) both contain some colour GEM images. This only came to light when using Image CAT's ultimate slide show program on the Falcon. Lo and behold: colour images. But the majority of the images are in monochrome.

R A Gape

I I got your 'Whoopsy' disc GBU.87 but find that it needs a joystick. Never mind, but it might be useful to add a J to those discs which require one.

Max M Wirth

I Robugs on DMG.38 is absolutely brilliant and tantalizing. As it stands my own creations never work quite well and the arrow-mouse is easily lost. I hope there will be a future non-beta version, as I might even consider paying for it! GENETICS on DMG.37 is not the silly little program the author pretends it to be, it is excellent. Could Matthew Carey publish the algorithm in STA, explaining why with only 18 bytes of input, the program takes 29KB?

Max M. Wirth

I I like the new look catalogue, even if it does prove what a benefit white space is to usability. It's so much better than trying to plough your way through acres of uniform text. Congratulations to your designer, and the team! I also approve of the slimming down of the content, even though it means that some things are going to be left out. "Less is more."

R A Gape

Double Screen

I I have been using MonSTer for quite a while with PageStream but found the extra width a distraction with word processing. Double2 fits the bill nicely but I haven't taken to its requirements to hold down a shift key whilst booting; especially since I would never use the Interlaced Display after seeing it in action on my SM125.

Enter Double1 which is simply Double2 with the Interlaced Display removed and an option added to either install or not along the lines of MonSTer.

I am very conscious of the fact that Double2 is copyrighted shareware and I shall be using Double1 for my own use. Perhaps I should leave it at that but enclosed is a copy of Double1 and an accompanying ASC file which maintains the credit to Lars-Erik Ostersud if

you wish to include it within the Double2 folder.

David Roberts

- As Double is distributed with the full source code and the author does not ask that it is not modified, what you have done would seem reasonable, so long as you pay your shareware registration and send Lars a copy of the modified source code.

Word Plus to ASCII

Anne Strachan - Forum STA 36

Q I was puzzled by this query. Carriage return is an ASCII character (0C hex, 13 dec) as is the linefeed (0A hex, 10 dec) that is found at the end of every line. They are essential, and I hate to think what a document without them would print like?

I have been using 1st Word v1.06 for 6 years to prepare documents in WP mode and save them as ASCII files on disk. (1st Word can do this - click on 'WP mode' 1st item in 'Edit' drop-down menu to remove the tick.) I then used the disk in a PC at work to print them on a laser printer via its WP programme. No problems at all.

I was shocked by your reply - why spend money on software to do what 1st Word can do? In any case converting from WP mode to ASCII will not remove carriage returns.

Colin H Stacey

- An ASCII file should have carriage return and line feed at the end of paragraphs only. 1st Word cannot do this and so its 'WP-Mode Off' files have unwanted control codes at the end of each line, so preventing word processors that import these files from editing the layout correctly - each line is treated as a paragraph. Try loading one of your '1stWord ASCII' files into 1st Word and reformatting it to a new paragraph ruler length.

With word processors like Redacteur you can convert these '1st Word ASCII' files to continuous ASCII by replacing 'space followed by carriage return' with just a space. If there is no space between the final letter and the carriage return, and if there are two carriage returns between real paragraphs, you will need to preserve these first by replacing them with a couple of hashes (for example). In other words, search for $C_R C_R$ and replace with $##$. Now replace the single CR occurrences with a space, and then reinstate the double carriage returns by searching for the double hashes and replacing them with two carriage returns (Shift Control M in Redacteur). Voilà!

WP Conversions

I I don't know if this will be of any use to anyone, but just in case:

My flatmate had written thesis at home on a "Canon word processor" (she couldn't be more specific), using Wordstar, and wanted to edit it on my ST. I managed to convert the file to a usable Prottext format as follows:

1) Using CONVERT.PRG, I converted the file from Wordstar to Prottext. This didn't seem to appear when loaded, so I had to continue...

2) I then converted it to ASCII.

3) I loaded this into First Word, and saved it in its own format.

4) Back to CONVERT.PRG, and once this file was converted to Prottext, everything was hunkydory. No formatting at all, but it's all there.

Phil Gyford

DTP Matters

I As we are totally and solely concerned with using our Atari for DTP, there are some points that we have learned that may be of use to others concerned. For example, most fonts for Calamus are in the region of some 50,000 bytes, some larger. After taking a copy of a font, we feed it into Fonty and remove all the characters that we never use such as the odd Hebrew characters, Danish 'å's, etc., etc., thus ending up with a shortened font with all the characters that are used in the English language only. This reduces the byte size to approximately half. Not only does that mean one has far more memory left, but more importantly, the foreshortened fonts take half the time to load. It is quite a job and we expect that using the repeat function in 'Mousetricks' will make it easier, thus the order above for it. When you think of it, it is stupid to keep loading these large fonts with characters one never uses. Of course should we ever get an order for Danish books, we would reload those characters from our copy!

Incidentally, we have also drawn and designed several fonts. All are based upon eighteenth century fonts cut by the old typefounders. We describe ourselves as students of typography and twenty years back, 1973, printed and published *Miller & Richards's Typefounders' Catalogue For 1873*, 450pp in two colours, hardback. Our entry into the world of computers happened less than a year ago and we have had lots of problems which are now happily solved, partially thanks to your magazine.

Niky Baker, Enram Press

Thrilled User

I As a new subscriber, I don't want to add to the fruitless ST vs PC debate, but there seems to be an air of depression among ST folk which surprises me. Maybe my experience will cheer them up!

In Jan 93 I decided to buy my first computer for music score-writing. I didn't want to commit a lot of money until I knew whether it would suit my way of working. It soon became obvious that Macs were too pricy (hardware and software), and PCs ill-adapted to the application. The ST had no real competition for my purposes.

From the secondhand ads I found an STFM 1040, SM124 and Notator software for just £400. In this first year, I've used it virtually every day. I've learned a lot, produced some

good work, and incidentally had a tremendous amount of fun. I call this good value. I'm now fairly fluent with Notator, I use the ST for WP, and I'm flirting with DTP. All this from nothing 12 months ago. Impressions?

1. The ST is a superb machine. If money was no object I'd have a Mac, but I wouldn't swap the ST for any PC: I use them at work and they stink.

2. ST users are a special breed. They feel beleaguered because of perceived lack of support from Atari, and the dominance of other brands. But this has led to a great spirit of independence, and a thriving PD scene. For example, the helpfulness of regular Forum contributors seems outstanding.

3. The future for Atari has a big question mark over it. The ST is old. The Falcon is neither fish nor fowl, and I can't see a big future for it unless the price crashes. Atari have no profile at all (never mentioned in the Independent's computer page, Lynx missed out of Radio Times article on consoles - and even the subsequent correspondence about other makers than Nintendo/Sega). If they have a PR person, they're not doing their job.

With IBM and Apple now co-operating on development, there's a problem and an opportunity. There's an opportunity for a third force to offer competition and prevent a complete duopoly. The threat is that in setting the new standard the two big boys will wipe everyone else out. Or what about a Falcon with built-in Mac and PC emulation? That would get headlines for Atari (more lawsuits probably too...)

Take heart, ST users. It's a good machine, though old, and still attracting new users like me. I'm thrilled with my ST.:-)

Laurie Dunkin Wedd

New PC User

I After lengthy consideration of the Falcon v. PC issue I finally decided to take the plunge and convert. After grappling with a fairly steep learning curve, and with the help of Paul Rossiter and Peter Norton's book on DOS I am beginning to feel that I am on the way to getting the beast tamed!

How on earth IBM managed to get the world hooked on DOS I cannot understand. A spirited discussion last week with Microsoft about the awkward way in which the claimed ability to transfer DIF files into Excel spreadsheets has to be carried out led to me telling them to get a copy of K-Spread 4 to learn how a clipboard should be implemented in Windows and Excel! Their latest effort is quite, quite pathetic when put along side the high flexibility and almost unlimited capacity provided by Cliff Harker's clipboard facility within GEM, and that was written many years ago! Perhaps one should not be surprised when the folks at Microsoft have no knowledge of applications that were available to the ST world a long time before Windows made its appearance as the MS gift to the computing world.

W B Kemmish

● Quite. The absence of standardised programming rules on the ST has allowed the machine to be host to an extraordinarily wide range of different user interfaces and concepts. By comparison PC software regularly looks like something put together by the Flintstones late one Friday afternoon, and Mac software can all too often be like designer furniture that is a lot nicer to look at than it is to sit on.

GFA Basic

I I have been following with interest Tim Finch's articles on programming with GFA Basic. However, I note with regret that Tim's next article is to be the last. It would be great, if, at a time not too distant, you could find room for and persuade him to write a continuation series of articles on the same subject.

Derek Warren

● We've persuaded Tim to continue doing his GFA series on an irregular basis, so do continue sending in your GFA programming problems to Tim.

Q In order to follow the series on GFA Programming by Tim Finch, which software can I use?

Can I use PR.482 GFA Basic 2.0 Interpreter - if not where can I buy the relevant program?

David Barker

● Tutorials have been based upon GFA Basic version 3, but the principles are in most cases valid for version 2. Sadly, GFA no longer seem to be in existence and so you will have to look on the secondhand market for a copy.

Printer Drivers

Q Do you have a CPX or ACC that can be substituted for the Atari "Install Printer" control panel/accessory and replaces it with the code for a Deskjet 500/510? If not, is there an AUTO folder accessory that hijacks the output and converts it? I'm trying to run an old copy of VIP Professional that came with my original 1040STFM, and uses the GEM installed printer as a default.

Dominic Mooney

Q I have been using the PD program Award Maker for some years now with a 9-pin DMP. However, since I have recently bought an HP DJ510 printer, I have been unable to get a printer driver to work with the program. Has any reader got a solution to my problem?

I have nothing but praise for my HP DJ510, but there is one small niggle. I would like to ensure that some of the things I print out from various programs do not smudge if, for example, I inadvertently lick my fingers when I am turning pages over. Is it possible to buy replacement ink for these cartridges which is permanent?

Tom Gall

● Because the printer control codes for HP

and Epson printers are radically different there is no easy solution to your problem. Many ST programs were written in the days when Epson 9-pin printers were the norm for home users and HP laser printers cost thousands of pounds.

If a program uses the ST print screen routine then you can substitute an alternative printer routine (PD disk UT.910 or Imagecopy). If you have the time and patience then simple text output, from a database or spreadsheet say, can be re-directed to a disk file and edited in a text editor. Where applications output in Epson graphics mode there is no off the shelf solution other than the expensive (£90?) Epson emulator from Hewlett Packard.

A software Epson emulator would be a nice solution but the resolution of Epson 9-pin printers does not easily scale up to the Desk-Jet's 300-dpi. See this month's Programmers' Forum for more thoughts on this.

Amiga Disks

Q Do you know if it is possible to read and write text and picture files from Amiga format disks?

● It is not possible to read Amiga disks on an ST. But there are a number of utilities on the Amiga that allow them to write files to PC format DSDD disks that can then be read on your ST. (The same applies to most recent Apple Macintosh computers.)

Popular Amiga picture file formats such as IFF and GIF can be read by packages like GEMView and Imagecopy 2. There are few software packages that are available for both the ST and the Amiga - PageStream and SuperBase are the only ones that come to mind - but of course text files in Ascii format can be readily transferred.

Calligrapher

Q Is there anyone out there who is using Calligrapher with 1 megabyte and a single floppy? Why does it do strange things to the format of the disk that it prints from? At the moment I am having to reformat the disk and copy across the Calfonts folder before every session so that I can be sure of having enough room on the disk to actually print. After a session I regularly find that a double sided disk that starts out with a single folder (Calfonts) of about 400K and the rest of the disk free, ends up with the folder slightly increased in size and no free space at all. I long ago gave up printing from the Docs disk.

Will more memory help? I can't begin to afford a hard disk, but if I had one, would the same thing happen to that as well?

A while back, a contributor described how he set up a Ram disk to print from. Would that still be possible, even though Calligrapher no longer uses ASSIGN.SYS, and so presumably can't be fooled?

Alan Johnson

● It looks as though Calligrapher is writing data to a temporary file on disk and then fail-

ing to delete this folder. Check that you are swapping disks correctly as and when asked to by the program.

It would be interesting to look at the disk with a disk editor to see what is on it. If the temporary file is simply a hidden file then you can delete this (UIS III will do the job) after every print session.

Textstyle and Signum!

Q I intend to use Textstyle to enhance Signum!2 but it would appear that Textstyle is only able to deal with GEM and Calamus fonts. To ensure font style compatibility, I really need to be able to convert Signum fonts to either GEM or Calamus format. Do you know of any program which is able to do this conversion?

Over the past months I have noticed the occasional comment regarding the existence of Signum!3, albeit in Germany. Do you have any information on this?

Jeff Walker

● Fontkit Plus will convert Signum fonts into GEM format. Signum 3 is available from Application Systems in Heidelberg. There is no UK distributor or English language version.

ST Applications

Q I have to inform you that I have not yet received issue 39 of ST Applications. What date do you distribute them? My subscription is due soon, I will be renewing it. Can't do without my monthly 'fix' - it makes good reading.

D Smith

● Issue 39 was mailed exactly four weeks after issue 38, but there was a longer than usual gap between issues 37 and 38 because of the long Christmas break.

Nevertheless, there have been a series of problems with mailing houses over the last few months. One company sent out a lot of magazines in unsealed bags, and only this month a couple of dozen magazines have been mailed without address labels. A new mailing house has now been employed and from this issue on mailings should be a lot more secure and magazines will arrive better packed in reusable, re-cyclable mailla envelopes.

Print dates for the next few issues of ST Applications are provisionally set for:

- Issue 41 ... 22nd April
- Issue 42 ... 20th May
- Issue 43 ... 24th June
- Issue 44 ... 11th July

(We're closed for the week starting 20th June.)

Magazines are mailed in batches towards the end of the week following these print dates. While it's great to know that you are all so keen to get your copies of ST Applications, it will be most helpful if subscribers can refrain from phoning prematurely to check magazine deliveries. Please bear in mind that the above dates can easily shift by a week to ten days either way.

...and here's one I made earlier!

Having read R.L. Tufft's excellent DIY article in STA 37, 'A5 Loader for DJ500', I thought you may like to try a stickyback plastic version. Blue Peter would be proud of this one: it was made about a year ago and is still going strong.

Let's call it 'the thingy that lets the DJ500 load A5 paper' or the 'DJizmo' for short. Find two pieces of card, about the same thickness as a post card, 13cm by 19cm and 7cm by 8cm. You need some sticky tape as well.

Cut the large piece of card to the dimensions in Fig 1, and score with a blade along the dotted lines ready for folding. Take a little time over the measuring and cutting, get the dimensions right and it'll fit together better and feed the paper smoother. I have never forgotten the motto on the wall of the metalwork room at school: 'Measure twice, cut once'.

Right, are you ready to become a black belt in origami?

With the card facing you as in Fig. 1, you need to make some folds ready for sticking it all together. Fold from the left upwards 90 degrees along the scored lines a, b, c, d and f. Now fold downwards on lines e and g. Pinch together the two 1cm faces made by the folds along lines d, e and f and stick some tape underneath to make a 1cm upright face, B. You should now be ready to stick the under side of face A to face B with tape. This gives you a box structure with a flat extension, C, to its right and another, D (with folded down flap, E) below. Yes? good, you are now holding the DJizmo!

What you need now is a little DJizmette to use with the paper tray extender to hold the paper against the printer. Ori-

gami, lesson two! Take the small piece of card, measure, score and fold lines a, b and c and stick as for lines d, e and f in the DJizmo (with line e being halfway along the 8cm length). This makes the DJizmette, a 1cm high T shape with a 6cm top.

Now to fit the DJizmo to the DJ500. Remove the out tray and cover. With the paper width adjustment lever to the left, place the DJizmo against the spring loaded pressure plate with the downward folded flap, E, in the gap between the dark and light grey plastic, just behind the ribbed face (this is to prevent the DJizmo sliding into the rollers). Put your A5 paper in place, to the right of DJizmo, on top of face, D, and slide the paper width adjustment lever to the right. Pull out the paper tray extender and pop the tail of the DJizmette into the gap between paper and extender. With your hand on the top of DJizmette, gently slide the extender inwards until the paper is against the inside of the printer.

Don't overload the tray with paper, i.e. don't stack the paper more than 1cm deep, and all should be well. It's worked for me for over a year but no guarantee is given or implied. Put the DJizmo and DJizmette in your printer at your own risk.

For our next project you will need a washing up bottle, sparkling glitter and some stickyback plastic. We will try to make a Falcon030 with multisync monitor...

Colin Fisher-McAllum

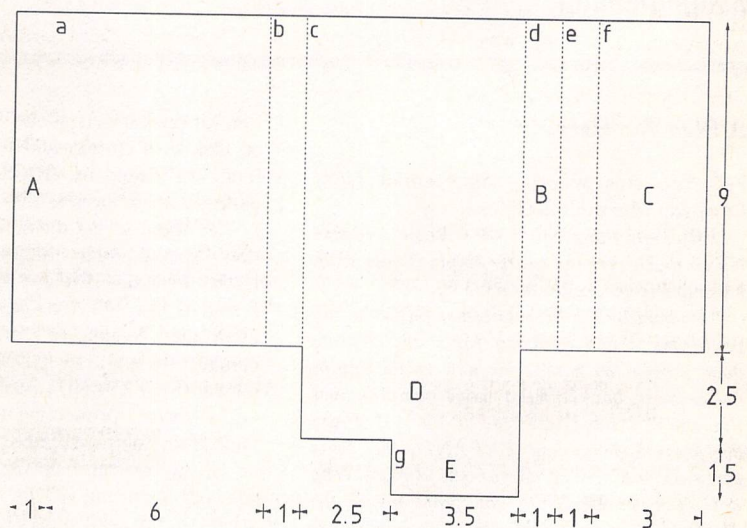


Fig. 1 - DJizmo - Dimensions in cm.

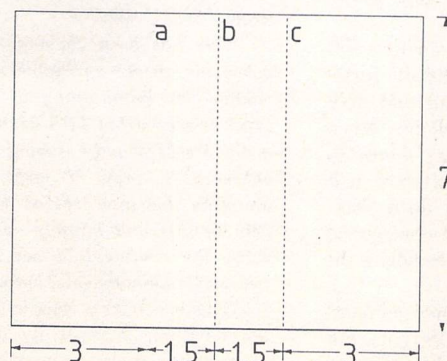


Fig. 2 - DJizmette Dimensions in cm.

Programmers' Forum

In this month's edition of ST Applications' regular programming column, we hear a plea for help with GDOS and GFA BASIC, find out how to intercept the GEM vector, and look at DeskJet programming.

A Plea for Help

First up this month, some email from Cameron Marshall in Oxford:

My main language is GFA Basic, because it's so much simpler to do simple things with. I wonder if you could help me.

I would like to be able to use GDOS in my programs. I can load my fonts and display them screen, as it tells me how to do this in the manual, but anything more complex and I'm stuck. I have told you a lie - if I use compressed fonts and FXPAND, the fonts come on the screen corrupted. Aargh. Why doesn't it work? Could you point me in the direction of some sound advice on how to use GDOS in GFA programs?

I have one other problem: the only copy I have left of a program I wrote and want to rekindle has been saved with PSAVE - i.e. I can't access it any more. Can I do anything? Experimenting with small programs, I have found that changing the first byte of the .GFA file to \$00 rather than \$FF does the job, but as the programs get bigger, this stops working. Is there a way out?

As long-time readers of the column will know, GFA programming is hardly my forte. However, there is a general point that may help with the first of these problems. When trying to debug a program that seems to have an interaction with other software, it is often best to try the program on a completely clean or minimally-configured machine. This can help track down where the problem lies.

Returning to the first of Cameron's questions, the problem of using GDOS fonts. For those not expert in this field, FXPAND is a clever AUTO folder program written by Jeremy Hughes as part of his excellent

Fontkit package. It allows fonts to be stored on disk in a compressed format. When the fonts are loaded by GDOS, FXPAND transparently uncompresses the data on the fly.

Without seeing the nature of the corruption displayed when the font is used to print to the screen, it is impossible to be sure, but it sounds like FXPAND has become partially uninstalled, leading to compressed font data coming through to GDOS. Perhaps GFA overwrites FXPAND's hook into the trap #2 GEM vector, preventing the decompression code from being activated.

If anyone can help Cameron with example code for using GDOS, or offer advice on what to do with PSAVE'd programs (and enlighten me as to what they are!), their contribution will be most welcome.

Capturing the trap #2 vector

While speculating on the cause of Cameron's problem with compressed fonts, we touched on the issue of capturing the GEM trap #2 vector. This leads nicely into our next contribution, from Russell Thickings of Brentwood, Essex:

This has been causing me a few headaches: is there an approved or accepted method for maintaining a TRAP #2 intercept? It seems that TOS destroys the replacement intercept and resubmits its own without checking. I know it must be possible to maintain this intercept as several programs achieve this and happily co-exist. I've tried using the routine laid out in the Codehead Eleven Commandments, but without success.

This is a tricky area indeed. The general approach for successfully grabbing vectors in order to replace operating system functions has been rehearsed several times in this column over the years. However, owing to

somewhat antisocial behaviour by TOS, grabbing the GEM trap #2 vector requires some extra work. If a program were to simply hook into the trap #2 vector using the usual approach, it would quickly find itself disconnected, as from time to time TOS writes its own value into the vector.

The Codehead Eleven Commandments referred to by Russell are contained within a text file that has been widely available from on-line sources for several years. The authors, Charles Johnson and John Eidsvoog, are responsible for many shareware and commercial programs. In the document they formulate some guidelines for grabbing vectors in general, and include some sample source code for grabbing the GEM vector. Whilst the text is becoming a little outdated now, it is still a useful read for any would-be system hackers. I'm not sure if the source code in the Eleven Commandments quite does the trick or not, but the idea behind it seems to be right. Code based on this trick works for me on a TOS 1.4 1040STF and a TOS 4.02 Falcon.

Listing 1 contains assembly language source code for an AUTO folder program that uses the technique to hook into the GEM vector and suppress the expanding and shrinking outline boxes that so annoy some users. It does this by waiting for the calls that draw these boxes, and then not passing them on to the operating system. As it happens, the program does not work on machines with early versions of TOS. This is because early Desktop code makes a direct call to the outline box drawing code rather than going via the GEM interface (poor practice).

The Codehead technique relies on the observation that immediately after the periodical reinstatement of the TOS trap #2 vector, TOS always calls the BIOS setexc() function to reset the critical error vector. By spotting this call, and then replacing the hook into the trap #2 vector chain, a program can stay installed in the GEM vector.

In practice, it is possible to add a few more refinements and produce a flexible skeleton for developing GEM-modifying programs. Listing 1 should serve this purpose. Starting at the beginning, the first instruction is a jump to the installation code. This saves space as there is no need for the installation routine to be kept when the rest of the program goes resident.

The installation code determines whether the program has been run from the AUTO folder or double-clicked from the Desktop by looking to see whether the AES is active or not. During the AUTO folder boot, the AES has not yet been initialised, so a simple text banner is printed. If alert boxes are available, a simple alert is displayed, and the user given a chance to abort program installation.

The installation process proper is carried out in supervisor mode, as it involves fiddling with vectors in the protected area of low memory. Handler routines are installed into both BIOS (trap #13) and GEM (trap #2) vectors.

The first of these handlers monitors the

BIOS trap for Setexc() calls, which have the function code 5. Only Setexc() calls on the critical error vector (\$0404) originating from within the TOS memory block in supervisor mode are processed. These extra constraints lessen the chance of an inappropriate activation of the code which restores the trap #2 interception.

The new GEM handler itself acts by interrogating the arrays that form the GEM interface. If the control array specifies a call to one of the AES functions graf_grow(), graf_shrink() or form_dial() with the FMD_GROW or FMD_SHRINK modes, the call is ignored by simply returning to the caller immediately. Other AES functions are handed on to the original target of the GEM vector.

The GEM handler can be modified to perform more substantial tasks such as splicing in a replacement for the form_do() function to allow keyboard shortcuts in dialogue boxes etc.

DeskJet programming

The DeskJet is one of the most popular printers amongst ST owners. It is substantially cheaper to buy than a laser, yet offers 300dpi graphics and is almost silent in use. In the early days, before the DeskJet enjoyed widespread use, it was difficult to obtain printer drivers. Part of this initial difficulty arose due to the difference in programming language between the DeskJet and the then-dominant dot matrix printers.

All printers offer a selection of programmable facilities. These may range from basic determination of line spacing and print position, up to selection of the typeface used from a set of internal fonts and engaging a bit-image printing mode. Although the range of printer functions is largely the same across printers, the exact incantation required to obtain the desired effect does vary.

The two most important control languages for printers are those popularised by Epson and Hewlett-Packard. Most dot-matrix printers offer Epson-compatibility either as the native programming language, or as an option. The HP system, called PCL (Printer Command Language) is widespread amongst laser printers and inkjets.

Enough preamble: on to the reason for raising the subject. Darren Goodwin writes from Rotherham:

I have written a program called Circuit Designer which has a very basic print function relying simply on the internal hardcopy routine. What I would like to know is how to actually output screens to printers other than the basic Epson 9-pin, such as lasers, inkjets, etc. I could probably do this using GDOS, but I dislike using this, and I could not distribute it with my program anyway.

I can understand the basic translation table printer driver method used in programs such as First Word Plus, etc., for text, but I cannot seem to grasp how one printer driver format can be used to drive all types of printer (i.e. not dot matrix) for graphic printing. Calamus is a good example of the type of thing I am after. I can find very little information to help with this problem, and so

I hope you can give some advice, even if it is just a list of books to consult.

Advice is what the column is here for, and I think we can come up with something a little more substantial than a book list. There is no universal way to print graphics on printers - the program simply has to know about the specific requirements of each type of printer to be supported. However, given the widespread provision of either Epson- or PCL-compatibility, supporting both of these protocols seems a decent start.

The key to solving this problem is to remember that at the fundamental level, all graphics printing routines are much the same: first the printer's graphics mode is activated by sending appropriate control codes, and then the bit image data is transferred, usually in horizontal strips. The names may change, but the underlying operations remain the same.

Listing 2 contains Lattice C source code for a suite of routines that allow an arbitrary rectangle of logical screen memory to be printed to either a DeskJet or an Epson-compatible 9-pin dot-matrix printer. Printing to either the serial or parallel ports is possible. The package will handle screens of arbitrary size (though the present code assumes a maximum width of 4096 pixels), but is limited to monochrome (monochrome) screens. Supporting colour screens raises complications such as how to match screen colours to either a monochrome or a chromatically-limited printer.

Taking each major function of the program in turn; main() and initialise_GEM() provide housekeeping support to make the program runnable. The top-level functions in the package are dump_block() and the more approachable dump_screen(). dump_block() accepts as its principal argument a pointer to a structure which describes the block of screen to be printed. dump_screen() creates such a structure suitably initialised to print the whole screen.

dump_block() steps through the screen a strip of 8 lines at a time, calling lower level functions to print the bit-image on the specified printer. Before starting printing, various control sequences are sent to configure the printer. In the case of the Epson-compatible printer, the line spacing is altered to ensure that there are no gaps between strips of data. The DeskJet control code sets the printer resolution and graphics transfer mode (more on this later). For a briefing on the DeskJet command language, PCL, see the Box.

To actually print the graphics data, printer-specific functions are used to dump the 8-line strips. The structure of these functions (ep9_strip8() and dj_strip8()) is determined by the way in which the printer requires its graphics data to be formatted.

Epson-compatible printers approach the task of printing graphics data by taking a vertical column of 8 pixels and treating this as one byte of graphics data. After a number of columns equal to the number of pixels per line has been sent, a whole strip of 8 lines will have been printed in one pass of the print head. The code in ep9_strip8() handles the

rotation of the horizontally-organised screen data into the required format and sends the appropriate control codes.

The DeskJet adopts a different strategy which is much easier to code. Each byte of graphics data corresponds to eight horizontal pixels, just as it does on the ST's monochrome screen. This allows dj_strip8() simply to copy out the graphics data straight from the screen memory, flanked by the appropriate control codes. Repeating the process for each of the 8 lines gives us a strip of data equivalent to the single pass of the Epson print head.

By using this package, Darren's program can offer the user a choice of output formats, without having to worry about the details of each printer. New printers can be added by extending the code: all that needs to be added are new configuration strings and a function to print a strip of 8 lines. One caveat, though, concerning the code in Listing 2: the Epson output code was largely written about six years ago. I think it worked properly then, but I no longer have an Epson-compatible printer to check it on!

Packing it in

In addition to the simple data format described above, the DeskJet can also cope with a

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.

Jon Ellis
Programmers' Forum
29 Ashridge Drive
Bricket Wood
St Albans
Hertfordshire AL2 3SR

Email:

jonellis@cix.compulink.co.uk

compressed format. This excellent feature can dramatically reduce the amount of data that has to be downloaded to the printer. A full screen dump can be reduced to a few Kbytes of data. Given the inefficiencies of the TOS BIOS output mechanism, this can lead to a substantial increase in printing speed. To utilise this mode requires a little more work in encoding the data before sending it, but the results thoroughly justify the effort.

The data compression is selected by choosing transfer mode 2 using the control sequence ESC*b2M instead of mode 0 (ESC*b0M), which specifies uncompressed data. Data compression is not a PCL level III function. To see this feature in action, simply do the following:

- append the code in Listing 3 to Listing 2.
- edit dump_block() to call dj_strip8_compressed() instead of dj_strip8().
- Change the preamble string so that it reads:
`"\N033*rB\N033*t%03dR\N033*b2M\N033*r0A"`
 The change is underlined: this alters the data transfer mode from mode 0 to mode 2.

The strip printing code works on the same principle as the uncompressed version, in that it processes the image horizontally, one scan-line at a time. The extra code is required to compress the image data prior to transfer. For those who want to work through the code, the compression format works like this:

- A line is made up of one or more blocks.
- A block comprises a signed eight-bit control byte, followed by one or more bytes of data.
- A run of N identical bytes is encoded by a control byte of -(N-1) followed by the byte to be repeated. Example: \$FE,\$64 represents a run of 3 bytes of value \$64. Control byte values may range from -1 to -127.
- A block of N dissimilar bytes is encoded by a control byte of N-1 followed by the data bytes in the block. Example: \$03,\$64,\$65,\$66,\$67 encodes four bytes of data, \$64,\$65 etc. Control byte values may range from 0 to 127.
- A control byte value of -128 (\$80) is illegal and will be ignored. Long runs of data have to be split over several blocks to keep the control code values in range.

Listing 1

```

*****
** Listing 1.
** Programmers' Forum STA 40 (April 1994)
**
** Program illustrating how to use a modified version of the trap #2
** grabbing method described in 'A Programmer's Eleven Commandments
** for Coexistent Vector Stealing' by C F Johnson and J Eidsvoog.
** The program attempts to suppress the 'zoom boxes' that accompany opening
** and closing of some programs' windows/dialogue boxes. Note that this does
** not affect the zoom boxes used by the Desktop on TOS <= 1.4 when windows
** are opened: TOS does not use trap #2 to do these!
**
** Assembler system: MCC ASSEM v12
** Written on 4th November 1993
**
TEXT
** Define some symbols for readable code...
    
```

PCL Basics

PCL was designed by Hewlett-Packard to allow continuing compatibility between present and future printers that support the protocol. As printers have developed and grown more powerful, so the language has had to expand to allow the new features to be controlled. The DeskJet implements a subset of PCL functions termed PCL level III, plus some unique functions. More sophisticated PCL-compatible laser printers use a more extensive version of the language, but are still downward compatible with PCL level III.

This means that if a program talks to a DeskJet in pure PCL III, the output should be compatible with the latest LaserJet 4, and all printers in between. Of course, compatibility has its price, and in this instance the price is efficiency. The chances are that a standard PCL level III driver will be less efficient than a dedicated DeskJet or LaserJet 4 driver which is able to utilise special features of each printer such as data compression.

Moving on to the practicalities, the DeskJet requires at most the following commands to be sent in order to produce graphics (ESC indicates ESCAPE, \$1B; spaces between characters are shown only for clarity):

Code	Meaning	PCL III
ESC * r B	End graphics	Y
ESC * t # R	Set graphics resolution to # dpi	N
ESC * r # S	Set raster width to # dots	N
ESC * b # M	Data transfer mode #	N
ESC * r 0 A	Start graphics mode	Y
ESC * b # W	Transfer # bytes of graphics data	Y
ESC * r B	End graphics	Y

Where a number is required, as signified above by #, the number must be sent as ASCII digits. Therefore, to set the graphics resolution to 300 dpi, the control sequence would be ESC*t300R. For those used to the compact world of Epson-compatible escape codes, this may seem a little verbose. However, it does have the advantage that, apart from the ESC character itself, all of the command is made up of printable characters, making debugging easier.

Also, PCL does offer a shorthand facility. If two control commands beginning with the same three characters are to be sent consecutively to the printer, they can be combined. To do this, the three characters are sent only once, followed by the remainder of the first command, but with the last letter in lower-case. Subsequent commands are sent without the common three characters, also with the final letter in lower case, apart from the last command, when the letter is in upper case to indicate the end of the string.

As always, the process sounds more complex when written out. An example should help make things clearer. The commands to end graphics, set the raster width to 640 dots and then engage graphics mode are:

```

ESC * r B
ESC * r 6 4 0 S
ESC * r 0 A
    
```

Since there are three common characters at the start of each command, these can be concatenated to form the composite command:

```

ESC*rb640s0A
    
```

Not all of the commands in the list above are PCL level III commands - some are DeskJet-specific. To write a generic PCL III printer driver, these would be omitted resulting in the default resolution, raster width, etc., being used. Such a printer driver would probably suffice for all relatively modern HP printers.

GEMDOS	equ	1
Cconws	equ	\$09
Ptermres	equ	\$31
GEM	equ	2
BIOS	equ	13
Setexc	equ	5
XBIOS	equ	14
Supexec	equ	38
VDI_MAGIC	equ	\$73
AES_MAGIC	equ	\$C8
FORM_DIAL	equ	51
FMD_GROW	equ	1
FMD_SHRINK	equ	2
GRAF_GROW	equ	73
GRAF_SHRINK	equ	74
XBRA_MAGIC	equ	'XBRA'
XBRA_ID	equ	'NO2M'


```

** The system variables referred to...

GEMvec      equ      $0088    The trap #2 vector (GEM)
BIOSvec     equ      $00B4    The trap #13 vector (BIOS)
_sysbase    equ      $04F2    Pointer to OS header structure
_longframe  equ      $059E    Non-zero if long stack frames used.

;=====
**
** The program starts here...
**

        bra        install    Jump to installation code.

**
** The new BIOS trap handler. This watches out for the Setexc() call made
** by the OS immediately after it overwrites the trap #2 vector.
** This is spotted by conjunction of three conditions:
** 1) Setexc() call on critical error vector
** 2) New value written to vector is within TOS
** 3) Trap is done from supervisor mode
** Only if all three are true is the trap #2 replacement code activated.

        dc.l      XBRA_MAGIC
        dc.l      XBRA_ID
oldBIOS   dc.l      0

BIOShook  move.l   oldBIOS(pc),handoff Default exit destination.
          bst.b   #5,(sp)          Call from user mode ?
          beq.s   go_old          Yes, condition 3 false, so ignore.
          lea    6(sp),a0        Point to arguments on supervisor
          tst.w   _longframe.w   stack. Adjust for long stack
          beq.s   l$            frame (eg 68030) if needed.
l$        addq.l  #2,a0
          cmp.l  #$00050101,(a0) Setexc call on critical error ?
          bne.s  go_old          No, condition 1 false, so ignore.
          tst.l  oldGEM          Is this the first attempt to grab ?
          bne.s  backhook       No, just grab straightaway.
          move.l 4(a0),d0        Fetch the proposed new vector.
          cmp.l  #-1,d0         Read or write the vector ?
          beq.s  go_old         Exit if just reading.
          move.l _sysbase.w,a0   Fetch pointer to OS header.
          move.l 8(a0),a0       Indirect again to ROM header.
          cmp.l  a0,d0          Proposed critical error handler
          bcs.s  go_old         below TOS ? Exit if so (condition
2).      cmp.l  20(a0),d0       Approximate end of TOS space.
          bhi.s  go_old         Is it within TOS ? Skip out if not.
          move.l 2(sp),handoff   We will return to the caller,
          move.l #backhook,2(sp) after we have gone to the BIOS.
          move.l oldBIOS(pc),-(sp) Jump through old BIOS vector now.
          rts

backhook  bsr.s   grab_GEM      We end up here. Grab trap 2 and
return.
go_old    move.l  handoff(pc),-(sp) Jump on to handoff target - either
          rts                  old BIOS or caller's return address.

handoff   dc.l    0

**
** Subroutine to handle the grabbing of the GEM trap #2 vector.
** Inputs:      ** SUPERVISOR MODE **
** Outputs:    None
** Destroys:   None
**

grab_GEM  tst.l   oldGEM        Already got old vector ?
          bne.s  l$            Yes, so just do insert.
          move.l GEMvec.w,oldGEM Grab the old vector.
l$        move.l  #GEMhook,GEMvec.w Insert our handler.
          rts                  That's all !

;=====
**
** The new trap #2 handler. This is the point of all the mucking around!
** You can now fiddle with the GEM call's as needed. This example code
** watches for graf_growbox(), graf_shrinkbox(), form dial(FMD_GROW...)
** and form dial(FMD_SHRINK...) calls and suppresses them, so disabling
** zoom boxes.
**

        dc.l      XBRA_MAGIC
        dc.l      XBRA_ID
oldGEM    dc.l      0

GEMhook   cmp.w   #AES_MAGIC,d0   Is it an AES call ?
          bne.s  go_GEM          No, so pass it on.
          movem.l a0/a1,saveregs Give ourselves some workspace.
          move.l dl,a0           Get the AES parameter block.
          move.l (a0),a1        Indirect to the control array.
          cmp.w  #GRAF_GROW,(a1) Call to graf_growbox() ?
          beq.s  chasm          Lose it if so.
          cmp.w  #GRAF_SHRINK,(a1) Call to graf_shrinkbox() ?
          beq.s  chasm          Lose it if so.
          cmp.w  #FORM_DIAL,(a1) Call to form_dial() ?
          bne.s  go_GEM1        If not, pass it on.
          move.l 8(a0),a1        Indirect to the intin array.
          cmp.w  #FMD_GROW,(a1) Call to expand zoom box ?
          beq.s  chasm          Swallow it if so.
          cmp.w  #FMD_SHRINK,(a1) Call to shrink zoom box ?

```

```

          bne.s  go_GEM1        Hand it off if not.
chasm     move.l  12(a0),a1     Indirect to the intout array.
          move.w  #1,(a1)      Return a dummy 'all well' result.
          movem.l saveregs(pc),a0/a1 Recover the working registers.
          rte                  Kill the call now - all done.

go_GEM1   movem.l saveregs(pc),a0/a1 Recover the working registers.
go_GEM    move.l  oldGEM(pc),-(sp) Stack the previous vector value,
          rts                  and jump to it now.

saveregs  ds.l    2            Enough for 2 registers.

;=====
**
** This section of code deals with displaying a sign-on message (if run
** from the AUTO folder), or an alert box (if run from the Desktop).
** It hooks into the vectors, and then terminates the program keeping
** the core routines only resident.
**

install   lea    install(pc),a6    Only need to keep the essential part
          sub.l  4(sp),a6         of the program resident.
          bsr.s  sign_on         Display alert box or text message.
          bpl.s  l$             Skip on if user has not cancelled.
          clr.w  -(sp)          On cancellation, terminate
          trap  #GEMDOS         immediately (Pterm0).
l$        pea   hook_up(pc)     Insert our vector hooks.
          move.w #Supexec,-(sp) This must be done in supervisor
mode.     trap  #XBIOS
          addq.l #6,sp
          clr.w  -(sp)          Go resident. Return code of 0.
          move.l a6,-(sp)       Amount of memory to keep.
          move.w #Ptermres,-(sp) Return everything else to system.
          trap  #GEMDOS         All done now.

**
** Subroutine to display some form of sign-on banner to the user. If the
** program is run from the Desktop, this takes the form of an alert box.
** Execution from the AUTO folder produces a text message. The variable
** 'intout' is set to 0 for AUTO folder, 1 for Desktop.
** Inputs:      None
** Outputs:    EQ = AUTO folder execution
              MI = Cancelled desktop execution
** Destroys:   d0-d2/a0-a2

sign_on   move.l  #formalert,d1   Get address of our AES arrays which
          move.w  #$C8,d0         are preset for the form_alert()

call.     trap  #GEM            Call the AES.
          move.w intout,d0       Did function call succeed ?
          beq.s  do_text        No, so we must be in AUTO folder.
          cmp.w  #1,d0          OK button clicked ?
          beq.s  l$            Yes, so return with all well.
          moveq  #-1,d0         Force setting of MI for
cancellation.
l$        rts                  Return to the caller.

do_text   pea   textmsg         Print the simple text message.
          move.w #Cconvs,-(sp)
          trap  #GEMDOS
          addq.l #6,sp
          clr.w  d0            Ensure EQ flag set.
          rts

**
** Subroutine to install the hooks into the system variables. The BIOS trap
** #13 vector is taken, and if the program has been started from the
** Desktop, so is the trap #2 vector.
** Inputs:      ** SUPERVISOR MODE **
** Outputs:    None
** Destroys:   None
**

hook_up   move.l  BIOSvec.w,oldBIOS Copy the BIOS vector.
          move.l  #BIOShook,BIOSvec.w Insert the handler.
          tst.w  intout         Running from AUTO folder ?
          beq.s  l$            Yes, so skip on.
          bsr   grab_GEM       Else grab the GEM vector.
l$        rts

;=====
**
** Installation code data area.
**

        DATA

formalert dc.l    formctrl,global,intin,intout,addrin,addrout
formctrl  dc.w    52,1,1,1,0
global    ds.w    15
intin     dc.w    1
intout    dc.w    0
addrin    dc.l    alertstr
addrout   dc.l    0
alertstr  dc.b    '[1][Zoom box disabler.|A demonstration of how|
          dc.b    'to intercept trap #2|][OK|Cancel]',0

textmsg   dc.b    13,10,'Zoom box disabler by Jon Ellis.',13,10
          dc.b    'A demonstration of how to intercept trap #2.',13,10
          dc.b    13,10,0

        END

```

Listing 2

```

*****
/*
** Listing 2.
** Programmers' Forum STA 40 (April 1994)
**
** Program showing how to do a screen dump of a single-bitplane ST screen
** to either a HP DeskJet- or an Epson-compatible printer. More printers
** could be supported, assuming that their command set is known.
**
** Compiler system: Lattice C v5.60
** Compile options: -cargfku
** Meaning: Enable ANSI mode, disable trigraphs, enable
** non-ANSI keywords, assume unsigned chars
** Link with C.O, LC.LIB and LCG.LIB
** Written on 3rd February 1994, with code cannibalised
** from something written on 3rd January 1988 !
*/

#include <aes.h>
#include <ctype.h>
#include <osbind.h>
#include <portab.h>
#include <stdio.h>
#include <string.h>
#include <vdi.h>

/*
** Define some manifest constants for the program.
*/

#define EPSON9      0
#define DESKJET    1

#define PARALLEL   0
#define SERIAL     1

#define EMPTY      ""
#define PIXELS_PER_BYTE 8

#define MONOWID    80
#define MONOCHROME 2
#define PRINTER    0
#define ESC        27
#define LF         10
#define FF         12
#define CR         13

#define MAXWIDTH   512 /* Enough buffer for screen 4096 pixels wide
*/

/*
** Declare the new types...
*/

typedef struct {
    int bl_x, bl_y; /* Coordinates of top-left corner
*/
    int bl_w, bl_h; /* and size of box to print
*/
    int bl_mode; /* Print mode to use
*/
    int bl_space; /* Left margin offset for dump
*/
    char *bl_header; /* Header text for dump
*/
    char *bl_footer; /* Footer text for dump
*/
    int bl_scrwidth; /* Width of screen in pixels
*/
    int bl_scrheight; /* Height of screen in pixels
*/
    /* These are internal working vars for package */
    char bl_mask1, bl_mask2; /* Bit masks for ends of block
*/
    int bl_skip; /* Size of scan line in bytes
*/
} BLOCK;

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

int main(int,char **,char **);
int initialise_GEM(void);
void dump_screen(int,int,int);
void dump_block(int,int,BLOCK *);
void dj_strip8(int,BLOCK *,unsigned char *,int);
void dj_strip8 compressed(int,BLOCK *,unsigned char *,int);
void ep9_strip8(int,BLOCK *,unsigned char *,int);
void print_string(int,char *);

/*
** Declare the global variables...
*/

short ap_id; /* AES application identifier
*/
short handle; /* VDI virtual workstation handle
*/

```

```

short char_width, char_height; /* Default font dimensions
*/
short screen_width, screen_height; /* Screen dimensions in pixels
*/
short screen_planes; /* Number of colour planes
*/

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

int main(argc,argv,envp)

int argc;
char **argv, **envp;

{
    int printer;

    if (initialise_GEM() == FALSE)
        return(0);
    printf("\nMonoplane screen dump\n");
    if (screen_planes == 1)
    {
        do
        {
            printf("Output to Epson 9-pin or DeskJet (E/D): ");
            printer = toupper(getchar());
        }
        while (printer != 'E' && printer != 'D');
        if (printer == 'E')
            dump_screen(EPSON9,PARALLEL,TRUE);
        else dump_screen(DESKJET,PARALLEL,TRUE);
    }
    else
    {
        printf("Can only dump monochrome screens !\n");
        printf("Press RETURN to abort: ");
        getchar();
    }
    v_clsvwk(handle);
    appl_exit();
    return(0);
}

/*
** Function to initialise the GEM system for the program. The application
** is registered with the AES, and a VDI virtual workstation is opened.
** The function returns TRUE if all is OK, or FALSE if not, in which case
** the program should terminate immediately.
**
** Usage: success = initialise_GEM();
**
** int initialise_GEM(void);
*/

int initialise_GEM(void)

{
    short physical_handle, dummy;
    short work_out[57];
    short work_in[11] = {1,1,1,1,1,1,1,1,1,1,2};

    if ((ap_id = appl_init()) == -1)
        return(FALSE);
    physical_handle = graf_handle(&char_width,&char_height,&dummy,&dummy);
    handle = physical_handle;
    v_opnvwk(work_in,&handle,work_out);
    if (handle == 0)
        return(FALSE);
    screen_width = work_out[0] + 1;
    screen_height = work_out[1] + 1;
    vq_extnd(handle,1,work_out);
    screen_planes = work_out[4];
    graf_mouse(ARROW,0);
    return(TRUE);
}

/*
** Function to dump a whole screen to the printer. The arguments are the
** printer type (EPSON9 or DESKJET), the port to use (SERIAL or PARALLEL)
** and a flag to indicate whether the dump should be followed by a
** formfeed (TRUE) or not (FALSE). There are no return values.
**
** Usage: dump_screen(type,port,fflag);
**
** void dump_screen(int,int,int);
*/

void dump_screen(printer,port,formfeed)

int printer, port, formfeed;

{
    BLOCK spec;

    spec.bl_x = spec.bl_y = 0;
    spec.bl_w = spec.bl_scrwidth = screen_width;
    spec.bl_h = spec.bl_scrheight = screen_height;
    if (printer == DESKJET)
    {
        spec.bl_mode = (screen_width < 768) ? 100 : 150;
        if (screen_width/8 > MAXWIDTH)

```

```

    {
        printf("Cannot compress data: line buffer too small !\n");
        return;
    }
}

else if (printer == EPSON9)
    spec.bl_mode = 5;
spec.bl_space = 0;
spec.bl_header = spec.bl_footer = NULL;

dump_block(printer,port,&spec);

if (formfeed)
    Bconout(port,FF);
}

/*
** Function to dump a rectangular part of a monoplane screen to the printer.
** This should work on all ST/TT/Falcon030 monochrome screens, regardless of
** dimension (as long as the screen width is an integral multiple of 8).
** It will however have problems with add-on graphics cards. The arguments
** are the type of printer to use (EPSON9 or DESKJET), the port to use for
** printing (PARALLEL or SERIAL), and a pointer for the block descriptor
** to use. There are no return values.
** Usage:  dump_block(printer,port,spec);
** void dump_block(int,int,BLOCK *);
*/

void dump_block(printer,port,bptr)

int printer, port;
register BLOCK *bptr;

{
    int f, line;
    unsigned char *t, *addr;
    char buffer[200];
    static char *preamble[] =
{"\033A\010", "\033*rB\033*t&\03dR\033*b0M\033*r0A"};
    static char *postscript[] = {"\0332", "\033*rB"};

    if (bptr == NULL || !bptr->bl_w || !bptr->bl_h)
        return;
    addr = (unsigned char *) Logbase();
    bptr->bl_skip = bptr->bl_scrwidth / PIXELS_PER_BYTE;
    addr += (bptr->bl_skip * bptr->bl_y) + bptr->bl_x / PIXELS_PER_BYTE;
    bptr->bl_mask1 = (1 << (PIXELS_PER_BYTE - bptr->bl_x % PIXELS_PER_BYTE))
- 1;
    bptr->bl_mask2 = 0xFF ^ ((1 << (PIXELS_PER_BYTE -
        (bptr->bl_x + bptr->bl_w) % PIXELS_PER_BYTE)) - 1);

    if (bptr->bl_header != NULL)
        print_string(port,bptr->bl_header);
    if (preamble[printer][0] == '\0')
    {
        sprintf(buffer, &preamble[printer][1], bptr->bl_mode);
        print_string(port,buffer);
    }
    else print_string(port,preamble[printer]);

    for (line=bptr->bl_h; line>0; line--8)
    {
        for (f=0; f<bptr->bl_space; f++)
            Bconout(port, ' ');
        if (printer == EPSON9)
            ep9_strip8(port,bptr,addr,line);
        else if (printer == DESKJET)
            dj_strip8(port,bptr,addr,line);
        addr += (bptr->bl_skip * 8);
    }

    for (t=postscript[printer]; *t; t++)
        Bconout(port,*t);
    if (bptr->bl_footer != NULL)
        print_string(port,bptr->bl_footer);
}

/*
** Function to print a strip of 8 lines from the block on a 9-pin
** Epson-compatible printer. The arguments are the output device number,
** a pointer to the block specifier, a pointer to the start of the strip
** in memory, and the number of the line at the top of the strip.
** There are no return values.
** Usage:  ep9_strip8(port,spec,addr,line);
** void ep9_strip8(int,BLOCK *,unsigned char *,int);
*/

void ep9_strip8(port,bptr,addr,line)

int port, line;
register BLOCK *bptr;
register unsigned char *addr;

{
    register int j, f, g;
    unsigned char *t, byte, *temp;
    unsigned char block[8];

    Bconout(port,ESC);
    Bconout(port, '*');

```

```

    Bconout(port,bptr->bl_mode);
    Bconout(port,bptr->bl_w % 256);
    Bconout(port,bptr->bl_w / 256);

    for (j=bptr->bl_w; j>0; j--8)
    {
        t = block;
        for (f=0; f<8; f++)
            *(t+f) = 0;
        temp = addr + (bptr->bl_w - j) / 8;
        for (f=7; f>=0; f--)
        {
            if (line-f < 1)
                continue;
            byte = *(temp + f * bptr->bl_skip);
            if (j == bptr->bl_w)
                byte &= bptr->bl_mask1;
            if (j < 8)
                byte &= bptr->bl_mask2;
            for (g=7; g>=0; g--)
            {
                *(t+g) >= 1;
                *(t+g) |= (0x80 * ((byte & (1<<g)) != 0) );
            }
        }
        for (f=0; f<8; f++)
            Bconout(port,block[7-f]);
    }
    Bconout(port,LF);
    Bconout(port,CR);
}

/*
** Function to print a strip of 8 lines from the block on a DeskJet-
** compatible printer. The arguments are the output device number,
** a pointer to the block specifier, a pointer to the start of the strip
** in memory, and the number of the line at the top of the strip.
** This version of the function uses the uncompressed graphics mode
** (mode 0). There are no return values.
** Usage:  dj_strip8(port,spec,addr,line);
** void dj_strip8(int,BLOCK *,unsigned char *,int);
*/

void dj_strip8(port,bptr,addr,line)

int port, line;
register BLOCK *bptr;
register unsigned char *addr;

{
    int f, g, limit, byte;
    register unsigned char *temp;
    char buffer[32];

    limit = bptr->bl_w / PIXELS_PER_BYTE;
    if (bptr->bl_w % PIXELS_PER_BYTE)
        limit++;
    sprintf(buffer, "\033*b&dW", limit);
    for (f=0; f<8; f++)
    {
        if (line - f < 1)
            break;
        temp = addr + f * bptr->bl_skip + bptr->bl_x / PIXELS_PER_BYTE;
        print_string(port,buffer);
        for (g=0; g<limit; g++)
        {
            byte = *temp++;
            if (g == 0)
                byte &= bptr->bl_mask1;
            if (g == limit-1 && bptr->bl_mask2)
                byte &= bptr->bl_mask2;
            Bconout(port,byte);
        }
    }
}

/*
** Function to write out a null-terminated string of characters to a
** Bconout() device. The arguments are the device number and the string
** pointer. There are no return values.
** Usage:  print_string(port,string);
** void print_string(int,char *);
*/

void print_string(port,str)

int port;
char *str;

{
    while (*str)
        Bconout(port,*str++);
}

Listing 3
=====

/*
** Listing 3.
** Programmers' Forum STA 40 (April 1994)

```

```

**
** Code fragment to use in Listing 2 to make use of the compressed graphics
** mode dump of the Deskjet. Simply add the code to Listing 2, and then
** change the line in dump_block() to invoke dj_strip8_compressed()
** instead of the uncompressed version dj_strip8().
**
** Compiler system: Lattice C v5.60
** Compile options: -cargfku
** Meaning: Enable ANSI mode, disable trigraphs, enable
** non-ANSI keywords, assume unsigned chars
** Link with C.O, LC.LIB and LCG.LIB
** Written on 8th February 1994
**
/*
** Function to print a strip of 8 lines from the block on a DeskJet-
** compatible printer. The arguments are the output device number,
** a pointer to the block specifier, a pointer to the start of the strip
** in memory, and the number of the line at the top of the strip.
** This version of the program uses the compressed graphics mode 2 of the
** DeskJet. There are no return values.
**
** Usage: dj_strip8_compressed(port,spec,addr,line);
**
void dj_strip8_compressed(int,BLOCK *,unsigned char *,int);
*/

void dj_strip8_compressed(port,bptr,addr,line)

int port, line;
register BLOCK *bptr;
unsigned char *addr;

{
int f, g, h, limit, byte, next_byte, len;
register unsigned char *temp, *sptr;
signed char *counter;
char buffer[32], scan[MAXWIDTH+12];

limit = bptr->bl_w / PIXELS_PER_BYTE;
if (bptr->bl_w % PIXELS_PER_BYTE)
limit++;
for (f=0; f<8; f++)
{
if (line - f < 1)
break;
temp = addr + f * bptr->bl_skip + bptr->bl_x / PIXELS_PER_BYTE;

sptr = counter = scan;
*sptr++ = -128;

```

```

for (g=0; g<limit; g++)
{
byte = *(temp+g);
if (g == 0)
byte &= bptr->bl_mask1;
else if (g == limit-1 && bptr->bl_mask2)
byte &= bptr->bl_mask2;
for (h=g+1; h<limit; h++)
{
next_byte = *(temp+h);
if (h == limit-1 && bptr->bl_mask2)
next_byte &= bptr->bl_mask2;
if (next_byte != byte)
break;
}
if (h == g+1)
{
if (*counter == -128)
*counter = 0;
else if (*counter == 127)
{
counter = sptr++;
*counter = 0;
}
else (*counter)++;
*sptr++ = byte;
}
else
{
if (*counter != -128)
counter = sptr++;
for (len=g-h+1; len<0; len+=127)
{
*counter = (len < -127) ? -127 : len;
*sptr++ = byte;
counter = sptr++;
*counter = -128;
}
}
g = h-1;
}
}
if (*counter == -128)
sptr = counter;
sprintf(buffer, "\033*b%dW", sptr-scan);
print_string(port,buffer);
for (g=0; g<sptr-scan; g++)
Bconout(port,scan[g]);
}
}

```

ALL FORMATS COMPUTER FAIRS

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	13	West Midlands	National Motorcycle Museum J6 M42
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	27	Glasgow	Woodside Hall, St. Georges Cross
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	19	North West	Haydock Park Racecourse J23 M6
	20	West Midlands	National Motorcycle Museum J6 M42
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	27	Glasgow	Woodside Hall, St. Georges Cross
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	23	North East	Washington Leisure Centre, District 1
May	24	West Midlands	National Motorcycle Museum J6 M42
	15	West	Brunel Centre, Temple Meads, Bristol
	21	North West	Haydock Park Racecourse J23 M6
	22	West Midlands	National Motorcycle Museum J6 M42
	28	North East	Northumbria Centre, Washington, Dist 12
	29	Glasgow	Woodside Hall, St. Georges Cross
June	11	North West	Haydock Park Racecourse J23 M6
	25	North East	Washington Leisure Centre District 1
	26	West Midlands	National Motorcycle Museum J6 M42
July	16	North West	Haydock Park Racecourse J23 M6
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Shareware Column

This month Joe Connor invites you to try Two-in-One, an archive manager designed as a complete solution to handling archive files...

I managed to avoid archive formats until the FaST Club (or ST Club as it was then) decided to cram even more than a diskful of goodies on to a disk using the mysterious ARC format and I was forced to figure it all out. The learning process resulted in some gaps which still remain in my disk magazine collection to this day. I looked around for utilities to cushion me from the evil command line, after all, if I'd wanted a command line I'd have bought a PC, right? ArcShell came to the rescue and I remember sending my brother large, impossible-to-extract archives because he couldn't create a large enough RAM disk - those were the days! Shortly after I got ARC under control the ST Club changed to LZH format and I was back to square one without the benefit of a Shell until the PRG version came along.

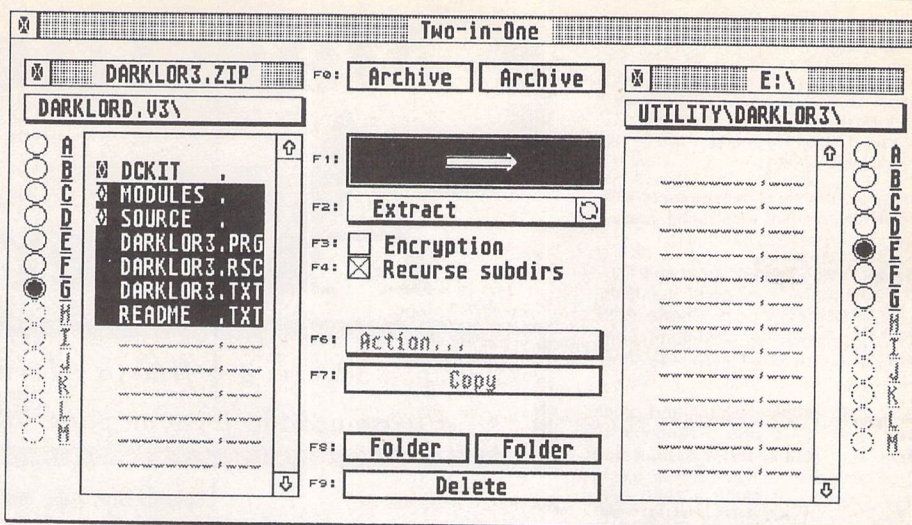
After my experience with ARC it didn't take so long to get the hang of LZH but I've never been comfortable with the TTP version.

Since I've been using a modem I've become comfortable with any archive format and noticed different platforms prefer different formats. The current favourites on the Atari platform are, in joint first place, ZIP and LZH, with minority support for ZOO, ARC and ARJ. The PC filelists are dominated by ZIP files with strong support for the ARJ format and minority support for ARC and LZH. The Mac is still in its own cosy little world with SEA and CPT as the popular formats, although there are incarnations of ARC and ZIP if you look hard enough.

In contrast to the archive formats designed to minimise the space occupied there's another interesting option to consider which actually increases file sizes! The UUENCODE format converts binary files into ASCII format which makes it possible to send program files as ASCII text using the Email facility of BBSs or the Internet. Commonly UUENCODED files are archived before conversion, and so these present a double whammy for the uninitiated.

Another recent development is PFXPAK. This technique creates compressed executable files which auto extract and execute when you run them. You're probably using PFXPAKed software without realising it as most cover disk software is packed! Without a suitable utility you can't easily tell the difference.

The increasing sophistication and diversity of tools



Two-In-One Archive Management

employed to minimise the disk space occupied by applications are crying out for a utility to manage these tasks.

Two-In-One is designed to cope with all these tasks and whether you're on-line or not this archive manager is an excellent utility to have around.

What you need

Apart from the Two-In-One archive manager you'll need recent versions of each of the archive formats you want to work with. Most of the utilities are freely available from PD/Shareware libraries and you don't need a complete suite of utilities before using Two-In-One: you can extend Two-In-One when and if your needs change.

Two-In-One and the archive utilities are available on separate disks from the FaST club:

Two-In-One order disk: DM.40

Archive utilities order disk: UTI.324

Advantages

Without leaving Two-In-One it's possible to:

- Create archives
- Extract archives
- Extract individual or groups of files from archives
- View text and image files inside archives; I use this feature before I decide whether to extract loads of files for a program I don't have a use for, and this feature alone saves a lot of wasted time and disk wear and tear!
- Create self extracting archives in ZIP or LZH format
- Create PFXPAKed executables
- Virus check files and archive
- UUENCODE or UUENCODE file and archive

Two-in-One can be started normally from the desktop or alternatively installed on the desktop where archive

files can be dragged and dropped onto the icon for auto extraction.

UK Support & Registration

Two-In-One is Shareware and may be freely distributed for non-commercial purposes. You can register in the UK as follows:

- a) Make a cheque for £9.00 payable to J Connor.
- b) Include your name in the form you wish it to appear in the Registered user dialog.
- c) Enclose unlabelled floppy disk.
- d) Send to: 65 Mill Road, Colchester, Essex CO4 5LJ, England.

Please do NOT send cheques to the FaST Club as this causes unnecessary delay and expense.

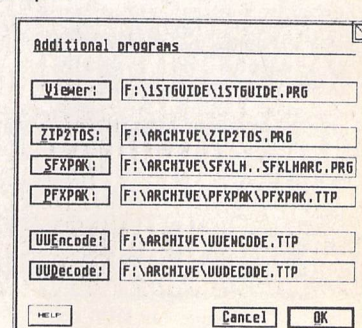
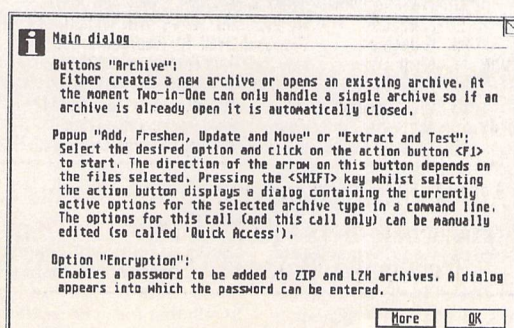
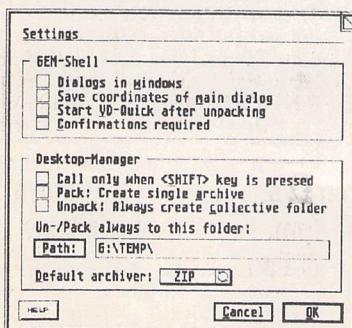
After registration you will be Emailed or posted your personal 'Key' which you'll need to keep safe to update future versions.

Registered users can obtain the latest English Version at any time, free of charge, by sending a Stamped Addressed Envelope enclosing an unlabelled floppy disk.

A support disk containing the latest versions of all supported utilities is available for the convenience of registered users on receipt of a blank unlabelled floppy disk and SAE.

Shareware report

Owing partly to cover disk appearances for Kandinsky and Selectric, registrations for these two programs are going well. The first release of the Kandinsky on-disk manual is now available to registered users on receipt of an unlabelled floppy and SAE and your disks should arrive in time to coincide with a later release version of Kandinsky. I'm currently testing Kandinsky 1.58 Beta and there are lots of improvements in the pipeline - watch this space!



For Sale

2MB STE one year old as new with second disk drive and over 70 mags (most with cover disks) £225. Warp 9 £10, Timeworks 2.1 £30, Neodesk £10, PFM+ £8, all with manuals. Phone 0993 771179 (Oxon). (41)

Passport Mastertracks sequencer v2.5, powerful and has most lucid manual £60. Call on 081 883 5744. (41)

Golden Image hand scanner and TouchUp software, very good condition, boxed: £60 plus post. Phone 0384 265510 (between 4pm and 8pm). Consider swap for small hard disk drive. (40)

STE 2MB, mono monitor and clock cartridge - £265 ono. Reference 40 hard drive - £165 ono. Protar DC II hard drive with twin Seagate drives giving total capacity of 93MB - £260 ono. Crazy Dots 32K card for Mega STE, NVDI (Crazy Dots version) and almost new Tatung SVGA monitor, complete with manuals, cables, etc. - £360 ono. All equipment lovingly cared for and in excellent condition. PageStream v2.2b - £75. Superbase Professional - £35, Calligrapher Pro - £35, Data Manager Pro - £15 (two copies), Calamus 1.09n and Outline Art - £90. OCR software - £25. Neodesk - £10. Three boxed Atari packages (database, finance and spreadsheet) - £10 each. All software boxed with manuals, etc. Tel Chris on Bolton (0204) 24802 (office hours) or 397711 (home). Sorry chaps! Deserting the ST for the PC. If Sam Tramiel doesn't give a hoot, why should I suffer any more? (41)

Philips 11342 colour monitor hardly used, extended warranty £150 ono. Atari SLM 804 laser printer; needs attention, so silly price. Ring to discuss.

Classified Adverts

*Classified adverts are free to subscribers.
Please use the form on page 58.*

Russell 081 850 6805. (40)

ST 520FM with mouse/joystick plus software. Phone lain on 081 646 0028 - leave name and no. (40)

Atari colour monitor SC1435 £80, Atari SLM605 laser printer £300, Alfa Data Trackball, Touch with scanner, various software - Calligrapher with lots of fonts, Calamus 1.09, Silhouette, etc., also games Silent Service 2, Flying Fortress, Knights of the Sky, No Second Prize, offers - everything must go. (Upgrading to PC.) Bill on 0202 515674. (40)

Outline Art v1 £45; Calassist SL, Warp 9 v3.8, diamond Back 2, Deluxe Paint - £20 each; Diamond Edge £30; Multi-Print £6; Fun School 3 (under fives, fives to sevens, over sevens) £8 each; Imprint Col £8. All complete and original. P&P included in price. Tel: 0524 381581. (40)

Spectre GCR (Mac emulator for Atari ST, inc. software) £100. Golden Image scanner inc. TouchUp software £65. Philips 80 green screen monitor inc. cable £15. Tel: 0902 451819 (Paul). (40)

Cambridge Z88 computer for sale with built in WP/spreadsheet/DBC Basic RAM/EPROM, printer and Atari leads. Lots of extras. £75. Tel Mike 0953 883879. (40)

Star LC24-10 24-pin printer complete with manual, paper and spare ribbon, boxed: £100. Also a colour stereo monitor, 14-inch, Protar C14M, similar to Philips CM8833 MK2, £120. Russell on 0277 373823, (41)

Kick Off 2 for Atari ST (not STE), complete with instruction manual. £5 plus p&p. Phone Paul 081 542 8350 evening or weekends. (40)

Atari STE 2MB, new DMA chip, Atari SM125 monitor, Supra Hard Drive

80MB, Power External 3.5" drive, Philips CM8833-II colour monitor, Microtext Teletext adaptor, Canon BJ20 bubblejet printer, leads, switches and software, etc. All boxed and in mint condition. To be sold as one lot. Buyer collects. Please no time wasters or requests to split. This system will be sold to the highest offer. David Bradley on Brighton (0273) 730448. (40)

STFM 4MB Ram; 90MB hard disk with ICD interface; TOS 1.41 all in Lighthouse Tower case. SM124 monitor. Software inc. Timeworks Publisher 2, Superbase Personal, Protex 4.3. All supplied with manuals. Ring Adrian on Oxford (0865) 244332 with an offer around £400. (41)

The ultimate STFM Pro system: 4MB Ram, 65MB hard drive plus uninstalled 35MB hard drive, ICD processor AdSpeed upgrade to 16MHz. Daatascan 400dpi hand scanner. Vidi-ST video digitizer. SM125 swivel-stand mono monitor. Lockable tower case with separate keyboard. Over 500 disks PD software. Over £1000 commercial software (Calligrapher Gold, Timeworks 2, Megapaint Pro, Prospero Fortran, Harlekin 2, NeoDesk 3 and loads more). Over 100 mags (inc. STApp from issue 1). Compatibility with work requires downgrade to PC, hence sale. Best offer over £600 secures. Free delivery in Essex, Herts. or N. London. Tel Frank Hollis on 0279 434168 (home) or 0438 782551 (work). (42)

Atari Megafile 20 £80; Zydec hand scanner c/w Daatascan Pro software £75; Psion Printer II £100. Tel: Huddersfield 0484 651687 weekday eves. (40)

STE 1040 upgraded to 4MB with PC Speed chip for PC DOS. Excellent machine in good condition, only £230. Tel: 081 553 3780. (41)

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.

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.

Clip Art

Clip Art specifically for Christian and Community Magazines. Seven disks of IMG images for DTP pro-

grams 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.

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.

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, Chelmsford, 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 Peckarman's 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.

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 first class stamps OR s.a.e. + disk.

STTrack

Use up to four light beams with your ST. Measure speed and acceleration. Write data to disk for spreadsheet. Invaluable for science National Cur-

riculum 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.

Graph, Euclid and Stack

GRAPH can draw simple functions, implicit functions, parametric and polar functions and display the gradient functions of any of these. It will also display the solutions to first order differential equations and do a simple plot of complex functions. The zoom facility can also be used to find accurate solutions to equations. EUCLID enables you to draw any geometrical configuration including conics, circles, perpendiculars, bisectors, etc.

Both these programs can save, reload, and print the drawing made by them.

STACK is an arithmetic calculator (Hewlett Packard type) for use with very large whole numbers. It will factorise smallish numbers (up to 15 figures) quite quickly.

Cost: £10 for a disk containing the programs, documentation and some examples. Michael Girling, Camel

A Meico 200w power supply suitable for powering hard disks and other peripherals £40 plus postage. 081 553 3780. (41)

36 issues of ST World from 1987-1990, 17 issues of ST User from 1989-1991, 5 issues of ST Format no.'s 3, 8, 26, 35, 36. All magazines for £40 (postage extra). Phone M. Tariq on 021 773 2203 after 6pm. (B'ham area.) (40)

Atari STFM 2.5MB, Megafile 30 hard drive, SM124 monitor, external drive, modem, hand scanner, NeoDesk, Home Accounts and lots more (PD and licensed): £400. Star SJ48 Bubblejet printer plus process colour cartridges £100. Call Pete on 0705 527369 (pm). (41)

Atari Mega STE 16MHz computer with separate keyboard. 4MB RAM. Quantum LPS 52MB hard drive, built-in cache, very fast. External 1.44MB floppy. Atari SM125 hi-res monitor. 200+ disks of software incl. Calamus fonts, clipart, FWP, LDW, utilities, games, magazines, etc. £850 ono. 041 639 3863. (40)

Amstrad FX6000AT Fax/answer-machine, approved for connection to telecommunication system. Facsimile Modem Group III. Automatically detects whether to accept a fax or initiate the answer machine. Numerous functions, too many to list here. Will accept offer around £225 or may swap for a hard disk drive (minimum 80meg) or Multisync monitor that can be connected to my Atari STE computer. Hyperdraw from Atari with GDOS disk £10 inc. postage. Timeworks Swiftcalc v1 with graphs and sideways printing facility: two-disk set with manual for £20 inc. postage. HiSoft Knife ST, the disk editor for the ST, £15 inc. postage. All software are original copies, boxed, with manuals. Why not try these instead of the PD software you were considering? Call 031 334 5799 after 6pm if you are interested in any of the above. (43)

Protex v5.01 £25, Protex v5.53 £40, Taxan Supervision colour monitor £190, Star LC10 colour printer £95; all plus p&p. Tel. 081 553 3780. (40)

Atari ST User magazines, May 87-Aug 91. 50p each + p & P. Tel (0827) 330427. (40)

Atari STFM 4MB, fitted with AT-Speed, MS-DOS emulator £250, SM124 mono monitor £60, Signum 2 £25, Protex 5 £25, Harlequin 2 £25, NeoDesk 3 £20, all original software, boxed with manuals, all above for £350. Tel: Tony on 0532 531960 after 4pm. (40)

Dual 5.25" and 3.5" Cumana external disk drive £40 plus postage, Master-sound sampler £8, Playback stereo cartridge £8, games £5: Maniac Mansion, Leisure Larry Lounge Lizard, Leader-board 3D golf, Pictionary, Fun School 2, Steve Davis Snooker; or any 3 for £12. NeoDesk 3 new, unused, unregistered £8, Blitz Copier £5. Tel John 0323 500910. (40)

Flexidump Plus £5, UIS III £3, Blitz Copier £5, games £3 each: Star Wars, Wizball, Vampires, Empire, Backlash. Mi-print £2. All originals with manuals. Tel: 0323 500910. (40)

STM 2.5MB, TOS 2.06. Twin floppies, SM124 and colour monitors. Forget Me Clock, Fast Basic cartridge, Micro Prose golf, Railroad Tycoon, Civilisation, Fontkit, Calligrapher Pro v3, Werccs, Populous, Degas, F16, Falcon. ST Apps (most issues), books, Concise guide, ST Internals, etc. Lots of PD and cover disks (ST Format/Review). Also Citizen 120D 9-pin printer. Will split. Phone Ian on 0753 867595 (Berks.) with offers. (40)

Golden Image scanner with TouchUp; Timeworks v2; Lattice C v5; Rombo complete colour solution; Devpac 3 and Devpac 2; SpeedoGDOS; Super Conductor; Quartet; Replay; Art Director; Film Director; Forget Me Clock II. Boxed with manuals, low prices. 081-529 3463. (40)

Gemulator board TOS 2.06 fitted. V3 software £150. Run ST software on your PC. 0703 867640. (40)

Tweety board stereo card £5, games all £2 each: the Karate Kid Part 2; Cards; International Soccer; Defender of the Crown. Phone Andrew More on 081 651 2529 (eves). (40)

1040 STF 4MB Ram TOS 2.06 £200, SM124 mono monitor £60, Spectre GCR v3 £150, 4-way serial switchbox £15, 2-way printer switchbox £10, 2-way auto printer switch £30. Tel Chris on 0530 244653. (40)

Atari ST games £7 each or nearest offer: Graham Taylor's Management, Speedball 2, Lemmings, Mercenary 3, Storm Master. £8 or nearest offer for Football Crazy (Kick Off 2, Player Manager and Final Whistle); £5 each or nearest offer: Blood Money or Puzznil; £3 ono: First Division Manager, North and South, Flip It and Magnose, Onslaught and Asterix. Phone 021 351 4909 eves only. (48)

Atari ST Tricks and Tips book £7, ST Disk Drives Inside and Out £8, Your First ST Basic Manual £6, Korg Wave-station Performance Library for ST High Resolution £10, ST Partner multi accessory £10, NeoDesk 3 £10. Fred 0633 266647 evenings. (40)

Desktop publishing, Atari 1040 STE computer, Atari SM124 mono monitor, Atari Megafile 30 hard disk, Gasteiner Speed Mouse. Already loaded with Fleet Street Publisher and Timeworks, full manual and disks, all in original packing; and quantity of other programs. Just add your printer to start producing. £500 for quick sale. Ring Brian Martin on 051 489 9733 after six. (40)

SM 144 mono monitor £80, Phonic Faxmodem and software (9600 fax, 2400 modem) £80; Forget Me Clock £5; Rossiter DeskJet buffer £10; Lattice C v5.5 £20, plus others. Phone 0489 577860. (40)

Mega STE 4 50MB hard drive with PC emulator fitted, VGA monitor, hand scanner, second floppy drive, all boxed. £750. Progate 50MB hard drive Series II boxed £200. Canon BJ-300 boxed £200. Some serious software and games. Phone 0737 761861 after 7pm or weekends (Surrey). (40)

HiSoft C Interpreter £25, HyperPaint £6, VID1-ST (mono) £35. Tel 0709 895707. (41)

Compute! Tech. Reference vols 2 & 3: Programmers' Reference Guide (Peel):

Programming the 68000 (Williams) £5 each. Tel: 0363 772599. (40)

ST Internals, Atari ST Machine Language, Introducing ST Machine Code, Real Time 3D graphics for the Atari ST, Computers and Chaos - ST edition. All books in excellent condition. £60 ono. Tel Chris on 061 344 0684 after 5pm. (40)

EVS-1 synthesiser module £100; Quantum Paint £4, HyperDraw £4, Band in a Box v4 £10. Call Steve 0633 892749 eves. (42)

Canon BJ-200 printer, cables, switch box £185; Star LC24-200 Colour printer, ribbons, cables, Flexidump 2 £130; Migraph 400dpi H-scanner, OCR & Touchup £85; Kempston scanner, Super charged Easydraw + Tools, Hyperpaint, Art Studio, MasterCad (all boxed with manuals) £80, Spectre GCR ROMs, extra drive cable, Apple System disks, GDT Printlink (Epson, etc.) Drivers, Ghostscript £100, Vortex HD+ 40mb autopark hard disk + cables & FMN clock cartridge £110; Vortex HD (as above - can be chained), Neodesk 3, Knife ST, Superbase, Word+, acc PS driver £150; Cyber:- Studio, Paint, Control, Sculpt, HQ Renderer (all with BIG manuals) £50; Hisoft PowerBasic, Modula-2, Werccs, GFA basic, compiler, GEM book £35; all Microprose sims (all in boxes - excellent condition), F29, Falcon, Flight Sim, Vroom etc.; Please call DAVID on 0604 586387 (after 6:00pm). (41)

Wanted

Portlink or serial interface for Atari Portfolio computer and/or any other items for swap or cash. Phone Paul on 081 542 8350 evenings or weekend. (45)

4/40 Stacy. Tel 0738 37165 eves. (40)

A4 or flatbed scanner and suitable software for use on Mega STE 4, preferably 600dpi but anything considered. Cash waiting. Tel: Steve (0276) 21469 at 67 The Avenue, Camberley, Surrey GU15 3NF. (40)

PageStream v2.2 with Page Assistant. Also That's Write v2.07 or better. Ring

Quarry House, Wadebridge, Cornwall PL27 7HZ.

DEGASART v2.0

Demo disk of the above compact tutorial is now available. Please send a cheque/P.O. for £1 or a blank DS disk and an SAE to Keith Markland, 15 Stourton Road, Ilkley, W. Yorkshire LS29 9BG.

Morse/RTTY Transceiver

Atari STE - Morse and RTTY transceiver. Morse automatically locks to signal including hand sent code and will send at 10, 20 and 40 wpm. Noise filter option. Adjustable mark-space ratio. RTTY automatically locks to incoming signal up to 100 bands and will send at 50 and 25 bands. Both programmes have split screen type ahead buffers and are extremely easy to use: just fire up and you live. These programmes are £5 each. Write: Mr. V. McClure, 43 Roman Way, Seaton, Devon EX12 2NT.

Music Tutor Part One

Teaches you to read music. This interactive course runs on any ST or Falcon in mono or colour, but a

MIDI keyboard is required. Costs only £10 including printed manual, postage and packing. From: A Graves, 81A Cambridge Road, Girton, Cambridge CB3 0PN.

MultiCAD

Vector-driven CAD/DTP program for the ST/STE. Design any kind of engineering drawing/posters/flyers/handbills/business cards/pattern design. Create your own library using the block save facility. Printout on Epson compatible printer 9- or 24-pin. Hi-res mono only. Large and enhanced screens supported. Excellent user support. Features include block cut/copy/paste/rotate/flip/scale, powerful auto repeat primitives and block paste, vector and bit-image text, units in mm/cm/mtr/Km/ins/ft/yds/pixels and user defined, snap-to-grid and snap-to-line, sixteen levels of drawing, landscape and portrait. Send cheque/P.O. for £24.95 payable to J.H.Taylor at: 12 West Drive, Cleadon, Sunderland, Tyne & Wear SR6 7SJ.

SciSet

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SciSet has been completely redrawn and now consists of 20 typefaces: serif, sans serif, italic, oblique, Greek, Greek italic and science symbols, all in three weights - light, medium and bold. The letterforms have been designed to be resistant to variations in the printing technology.

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Dr Graham McMaster,
Retsum Computing Solutions, 12 High Street,
Turriff, Aberdeenshire, AB53 7DS. (0888 62328)

Russell on 0277 373823. (41)

Help

I have a PC Supervision multisync monitor which produces excellent images with my ST in the low and medium resolutions. Can anybody please help with any suggestions as to what to do to use the monitor in the high resolution mode without recourse to emulator software? 081 553 3780. (41)

General

Exchange Honda C70 motorbike and/or four-cylinder motorbike (non-runner) for PC with HD disk drive, colour monitor, hard drive, 4MB RAM and spare slots or laser/inkjet printer. Phone Paul on 081 542 8350 week-end/evenings. (45)

Atari clearout: 700 disks plus manuals plus books, 1meg STFM Blitz copier, monitor, switchbox plus 8 disks of HAM radio £12 plus p&p. 0983 615987; 30 The Mall, Binstead, I.O.W. PO333SF. (40)

Full set of New Computer Express from issue 1 to final, plus part work (not bound) "The Home Computer

Course", published by Orbis (1983) - good reading for computer historians. Make a donation to Guide Dogs for the Blind and take them all away. Phone 0295 255081 (Banbury, N. Oxon). (41)

Calamus 1.09N/S (please include fonts) and That's Write/Write On files printed on HP LaserJet 4L for 25p (incl. p&p) per A4 side. State single/double-sided. Send disk, cheque/p.o. and contact no. to: K. Hornby, 33 Ingleton Drive, Lancaster LA1 4RA. (40)

Call the Fractal BBS. Loads of features and very friendly. 2400BPS after 9pm on 0305 266304.

The Bird Brain BBS - 0305 860245 10pm - 10am every night, all welcome. (43)

I'll Try That Once! ST Based BBS. Loads of File Area's, 60-70 Message Echo's. 10 Online Games. All speeds V326 V426. Give it a Go! on 0453 765378 8pm to 8am. (40)

Membership of the Cheshunt Computer Club is the essential accessory for your Atari. If you live within reach of Herts then give me, Derryck Croker, a ring on 0923 673719 with your name and address and I will send you details. (R)

Crystal Tower BBS 081-447-8244 24hrs 300-2400 Baud (Towernet System) Atari ST, PC, Languages, Comms etc + much more. All welcome. (R)

Guide Dogs for the Blind Appeal - Please send used postage stamps to help this worthy cause to: 19 Dunloy Gardens, Newton Abbey, Co. Antrim, BT37 9HZ. (R)

Professional typeset from 1st Word disks. Over 100 Faces. Output to high quality PMT. Much better than laser. Also cheap printing A5/A4 single colour. Contact: AZTRAL Games, PO Box 8, Lowestoft, Suffolk, NR32 2AS. (R)

The Confederation BBS - Support bbs for all "HITCHHIKER" software releases and GFA programmers. All the latest PD/Shareware from Europe and USA as well as Netmail message areas. On line each evening 10.00pm to 7.00a.m., at all speeds up to 2400. Give us a call today and you will not be disappointed as we are the most friendly BBS in the country - dedicated ST BBS only. 0533 413443.

'Alternatives' fanzine - Quarterly. £1 per issue. Issue 9 out now (Autumn), Issue 10 out soon. Send £1 (which includes p+p) and address to Alternatives,

39 Balfour Court, Station Road, Harpenden, Herts. AL5 4XT. Writers, visionaries, artists needed. Details to the above address.

DNA BBS. Ireland's first, only and best Atari BBS. On line specialist technical and MIDI help. High speed callers especially welcome. Instant access on first call. A Ratsoft/ST BBS. Call (24hrs) +353-1-549029 (V32BIS). (50)

Contacts

Atari contacts wanted in Surrey/South London. Ring Paul on 081 542 8350 evenings or weekend.

Falcon contacts wanted! Do you own one of these fantastic machines? If so, let me know. Write to: Frank Myrland, 3853 Vraadal, Norway. (40)

Are there any ST user groups in South-East London? If anyone is interested in forming a SE London ST DTP group (or could put me in touch with an existing group), please contact Ian Elvey, 30 Overhill Road, East Dulwich, London SE22 0PH; Tel: 081 693 1735. (40)

Please insert the following advert for Issues under the following classification: / ST Contacts / For Sale / Wanted / General / User Groups. Adverts are free to ST Applications subscribers and boxed classified adverts cost £3.50 per issue.

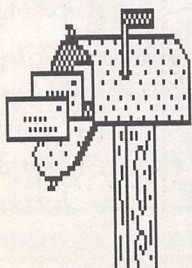
Warning: It is illegal to sell unauthorised copies of commercial software - All software offered for sale must be in the original packaging with manuals etc. Anyone found to be selling pirated software through the classified advert listings will be reported to the appropriate authorities. Software publishers do not normally offer user support or upgrades to users of software purchased second hand.

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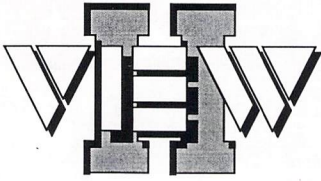
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AM.443	Transport #3
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AM.462	Work #2
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AM.655	Misc #5
AM.656	Misc #6

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AM.659	Misc #9
AM.660	Misc #10
AM.661	Misc #11
AM.662	Misc #12
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AM.614	Lise Bis Jensen Portfolio
AM.615	Panthersoft Smart Art
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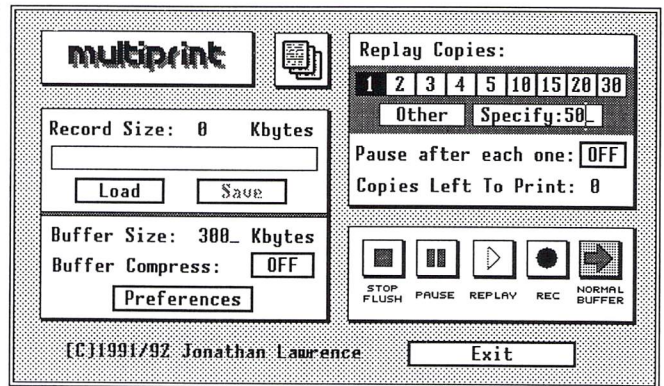
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X-Debug

Advanced Debugger for Atari ST/TT computers

X-Debug is an advanced debugger for the Atari range of computers. It is both a low-level debugger, showing memory dumps and register contents, and also a medium-level debugger, understanding about certain high-level languages and allowing source display single-step, and local variable access, for example.

The best support is for Lattice C, as that is the only compiled language that outputs full debug information, but it also supports line-number debug (as created by HiSoft Basic and Devpac 3), and symbol-only debug (usable with virtually all ST compilers).

Crucial to the whole debugger is the X-Debug language. This is a simple yet powerful script type language that allows complex operations to be built up from a sequence of standard operations. It supports a full expression evaluator, aliases, and procedures with parameters. It is also an important factor in customising the user interface, allowing specific commands to be attached to particular keypresses.

X-Debug runs on STs and TTs with any monitor type. One megabyte of RAM is recommended, and TOS 1.4 or later avoids problems with larger programs. Written by Andy Pennell, the creator of MonST.

£24.95

The ST Club
2 Broadway
Nottingham
NG1 1PS

```

00:000000 A0:00000000
01:000000 A1:00000000
02:000000 A2:00000000
03:000000 A3:00000000
04:000000 A4:00000000
05:000000 A5:00000000
06:000000 A6:00000000
07:000000 A7:00000000
SR:0000 010 xnZvc
PC:00E00030 A7:00000000
move.w #52700,sr
#2700

00000000 00E 0301 \,00
00000004 00C 0030 e 0
00000008 010 111E 0,2,1
0000000C 010 11C4 0,1,2
00000010 010 11C4 0,1,2
00000014 010 11C4 0,1,2

#2 Disassembly PC
e0001000 move.w #52700,sr
e0001004 rsrc
e0001008 cmp.l #5fa2235f,$fa0000
e000100c bne.s 5e0004c
e0001010 lea 5e0004c(pc),a6
e0001014 jmp $fa0004
e0001018 move.l #5808,d0
e000101c movec d0,cacr
e0001020 movec #0,d0
e0001024 movec d0,vbr
e0001028 movec 5e30e34,tc
e000102c movec 5e30e34,tt0
e0001030 pbrc
e0001034 bdst #0,$ffff009.M
e0001038 beq.s 5e000a0
e000103c lea 5e0004c(pc),a6
e0001040 bra 5e000fe
e0001044 bne.s 5e000a0
e0001048 move.b $424.M,$ffff0001.M

```

```

00:0100130A A0:00000000
01:01001370 A1:00000030
02:000000FF A2:010E0210
03:FFFFFFD4 A3:0110F650
04:00000000 A4:01117654
05:00000000 A5:0111386E
06:00000000 A6:01119750
07:00000001 A7:01119630
SR:2304 013 xnZvc
PC:010E005E A7:01117844
jsr .init_diss
$10f17ee 41FA FFD2

00000000 00E 0301 \,00
00000004 00C 0030 e 0
00000008 010F 0360 0A#
0000000C 010F 0206 0A#
00000010 010F 0206 0A#
00000014 010F 0206 0A#

#2 mon.c
1202: /* zoom (or unzoom) a window */
1203: word zoom_window(word num)
1204: {
1205: {
1206: word rx,ry,rw,rh;
1207: struct w; wptr;
1208: word err;
1209: word m;
1210:
1211: wptr=wlst[num];
1212: if (wptr->type==MTYPE_DEAD)
1213: return 0;
1214: if (wptr->zoomed==FALSE)
1215: {
1216: wptr->ox=wptr->x; wptr->oy=wptr->y;
1217: wptr->om=wptr->w; wptr->oh=wptr->h;
1218:
1219: w=rx;
1220: if (wptr->type==MTYPE_MENU)

```

```

00:0100130A A0:00000000
01:01001370 A1:00000030
02:000000FF A2:010E0210
03:FFFFFFD4 A3:0110F650
04:00000000 A4:01117654
05:00000000 A5:0111386E
06:00000000 A6:01119750
07:00000001 A7:01119630
SR:2304 013 xnZvc
PC:010E005E A7:01117844
jsr .init_diss
$10f17ee 41FA FFD2

00000000 00E 0301 \,00
00000004 00C 0030 e 0
00000008 010F 0360 0A#
0000000C 010F 0206 0A#
00000010 010F 0206 0A#
00000014 010F 0206 0A#

#2 mon.c
1800: res=open_window(1,0,0,30,14,NULL,MTY
1801:
1802: movec #1,d0

```

200

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Humanist 586 (medium, bold) *Adsans*
Humanist 801 (narrow, narrow italic, narrow bold, narrow bold italic, condensed light, condensed, condensed bold) *Arial*
Humanist 901 (light, light italic, medium, italic, bold, bold italic, black, black italic) *Arial*
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Grotesk 125 (medium, italic, bold) *News Gothic*
Grotesk 704 (condensed light, condensed, condensed bold, condensed extra bold) *Abadi*
Geometric 179 (medium, italic, bold, bold italic) *Avant Garde*
Geometric 361 (light, light italic, medium italic) *Metro*
Geometric 431 (medium, black, bold condensed, black condensed) *Neuzeit Grotesque*
Geometric 883 (medium, italic, bold, bold italic) *Century Gothic*

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Brush 205 *Impress*
Brush 403 *Dom Casual*
Brush 504 *Bison*
Brush 52 *New Berollina*
Brush 622 *Bingham Script*
Brush 624 *Jefferson*
Brush 677 *Staccato*
Brush 690 *Oz handicraft*
Brush 702 *Mercurius Bold Script*
Brush 822 *Swing Bold*
Brush 850 *Klang*
Brush 864 *Monoline Script*
Brush 92 *Biffo*
Brush 98 *Pepita*
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Display 166 *Broadway*
Display 198 *Davida Bold*
Display 405 *Ondine*
Display 416 *Cooper Black*
Display 458 *Handel Gothic*
Display 479 *Vag Rounded*
Display 522 *Lydian*
Display 534 *Lydian Cursive*
Display 638 *Umbra*
Display 658 (regular, bold) *Neuland*
Display 689 *Aldous Vertical*
Display 722 *Albertus*

Display 732 *Clearface Gothic Bold*
Display 743 *Colona*
Display 778 *Davison Americana*
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Display 812 (condensed, bold condensed) *Placcard*
Display 828 *20th Century Ultra Bold Condensed*
Display 837 *Old Style Bold Outline*

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Old Style 155 (roman, bold) *Goudy Old*
Old Style 157 (light, light italic, roman, italic, semi-bold, semi-bold italic, bold, bold italic) *Plantin*
Old Style 178 (roman, italic) *Goudy Old Style Catalogue*
Old Style 252 (roman, italic, bold, bold italic, semi-bold, semi-bold italic) *Bembo*
Old Style 277 (roman, italic, bold) *Imperial*
Old Style 635 (roman, italic, bold, bold italic) *Berling*
Old Style 779 (roman, italic, bold, bold italic, extra bold) *Ellington*
Old Style 881 (roman, italic, bold, bold italic) *Book Antiqua*

Set 5

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Clarendon 143 (book, italic, bold, bold italic) *Century Schoolbook*
Clarendon 753 (book, italic, bold, bold italic) *Photina*
Clarendon 784 (book, italic, bold) *Bell*
Modern 752 *Joanna*

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