Price: £2.50

ST APPLICATIONS

The Magazine for Users of Atari ST, STE, Falcon and TT Computers — *Issue No. 41, May 1994*

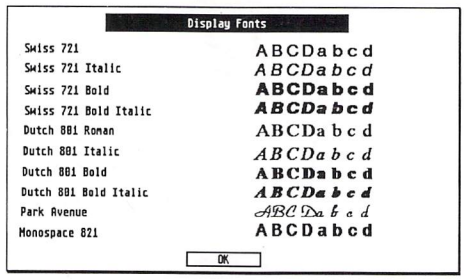
THIS MONTH

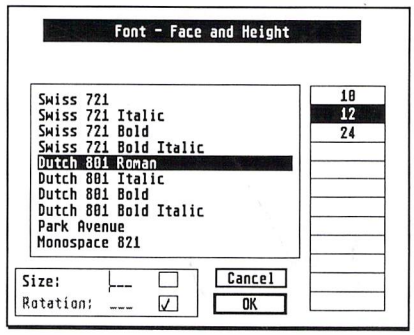
Reviews

Articles

Regulars

Easy Text Pro Vector

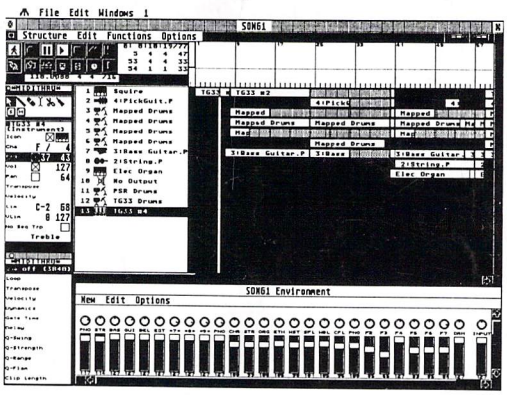




Steve Delaney reviews the latest incarnation of the budget-priced DTP package Easy Text Professional from zzSoft. ETP Vector uses Speedo GDOS and BitStream fonts, with text rotation (see above), giving a much improved print quality.

Notator Logic

Tim Finch gets excited about Emagic's Notator Logic v1.7, a revamped and re-designed Notator SL - at a price! Is it worth the extra? Tim Finch hopes to convince you that it is...



T28 Accelerator

David Hornsby tests the T28 accelerator board for STFM and Mega computers. With a 68000 processor running at 28MHz, how well does it operate, what kind of software does it run, and is it worth the expense? Answers inside.

HP LaserJet 4P

The Hewlett Packard LaserJet 4 was released some time ago to great acclaim. It is now joined by the "personal" version, the 4P. More compact and slightly slower than its senior sibling, it is also less expensive and thus better suited for environments where space and budgetary considerations are really important, such as in a home office. Chris Gray reviews this new addition to the HP family in this issue.

Printed in the U.K.

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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*
Grotesk 102 (medium, italic, bold, bold italic, condensed medium, condensed italic, condensed bold, condensed bold italic) *Helvetica*
Grotesk 125 (medium, italic, bold) *News Gothic*
Grotesk 704 (condensed light, condensed, condensed bold, condensd 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*

Set 2

Brush 119 *Forte*
Brush 200 *Brush Script*
Brush 205 *Impress*
Brush 403 *Dom Casual*
Brush 504 *Bison*
Brush 52 *New Berolina*
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*
Transitional 117 (book, italic, semi-bold, semi-bold italic, bold, bold italic) *Baskerville*

Set 3

Display 124 *Hobo*
Display 165 (regular, italic) *Poster Bodini*
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*
Display 811 *Castellar*
Display 812 (condensed, bold condensed) *Placcard*
Display 828 *20th Century Ultra Bold Condensed*
Display 837 *Old Style Bold Outline*

Set 4

Old Style 107 (roman, italic, bold, bold italic, extra bold) *Times New Roman*
Old Style 112 (roman, italic, bold, bold italic) *Palatino*
Old Style 139 (roman, italic, bold, bold italic) *Bookman*
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

Venetian (book, italic, bold, bold italic) *Centaur*
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*

Set 6

Blackletter 592 *Fraktur*
Blackletter 207 *Engravers Old English*
Egyptian 344 (light, light italic, medium, italic, bold, bold italic, ultra bold) *Rockwell*
Monopitch 311 (medium, italic, bold) *Courier*
Script 282 *Zapf Chancery*
Script 324 *Corsiva*
Script 395 *Embassy*
Script 521 *Englische Screibeschrift*
Script 591 *Nuptial*

Key: STC font family reference is given first in bold, followed by the weights supplied (in brackets), then the industry standard name for this face.

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CREDITS

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Contributions

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

Atari Posts More Losses

Despite reports of the Jaguar selling well, Atari continued to lose money during 1993. Their turnover for year ended 31/12/93 was $28.8 million, a drop of $98.5 million on the previous year. On this they made a net loss of $48.9 million, compared to a loss of $73.6 million in 1992! However, it is not all doom and gloom at Atari because they have recently settled a long running dispute with Nintendo whom they alleged infringed one of their patents concerning horizontal scrolling in video games. Nintendo have settled out of court and purchased a licence for continued use of the technology from Atari. This will not, however, give Nintendo any sort of an advantage as the deal does not cover the techniques used in the Lynx and Jaguar which are protected by separate patents. Atari allege that Sega are currently in breach of the same patent and plan to raise an action against them in due course. Another reason for the Tramiels to be cheerful is that Time Warner are to increase their minority shareholding in the company from 25% to 27%, bringing in an extra $12.8 million in investment.

Jaguar Support Increases

ATARI have signed up close on 100 developers, publishers and licencees for the *Jaguar* since the console was announced last November. Some of the new names include *ReadySoft* (Dragon's Lair I & II and Space Ace), *Sculptured Software* (developers of Mortal Kombat, which regrettably failed to appear on the ST), *Jaleco* (arcade game specialists), *Bullfrog Productions* (Populous, Powermonger and others) and *Imagineer* (publisher of Wolfstein 3D on the SNES). Another signing is *V-Reel*, a leading video game consulting firm, who are to develop **Arena Football League** (an arcade conversion), and **Horoscope** (a combat game based around the 12 characters of the Zodiac).

It is an interesting fact that there are only 33 licencees producing third party software for the Sega MegaDrive and Atari have almost treble this number signed up for the Jaguar. In fact many of the new signings are also Sega and Nintendo developers. Could the Jaguar be set to break their world domination in the console market?

Atari currently have four titles available for the Jaguar. These are *Cybermorph, Crescent Galaxy, Evolution Dino Dudes* and *Raiden. Tempest 2000* was released in the States recently but is being held back from the UK market until the Jaguar starts to appear in decent numbers. Talking of decent numbers, the Jaguar will not get an official European launch after all. The current trickle of machines will gradually increase during the next few months leading to full scale availability later in the year. Atari's Peter Walker talked of wider availability from June onwards. My interpretation of that remark is that the Jaguar will not be available in large numbers before June but even then it might be later than June! I stick by my original guestimate of September or October as being more realistic targets. Bob Gleadow, Atari Europe's MD, confirmed in a recent interview that there would not be a massive promotional drive for the Jaguar in the UK. From October until Christmas there will be a series of ten-second advertisements on television. Rather disappointing if you ask me, but then it is Atari we're talking about!

Atari are talking about having 8 to 10 titles available for the Jaguar by the middle of the year and over 50 in total before the end of the year. The have also confirmed the price rise to £229 which we announced in last month's issue. The latest on the Jaguar CD ROM unit is that it will appear in the middle of the year at a cost of $200 (£140 at today's exchange rates). A Jaguar with a built-in CD ROM drive looks likely for 1995.

The final piece of news on the beast comes from *Cross Products*. They are the developers of the highly acclaimed SNASM development system which allows Nintendo games to be developed on a PC. Their SNASM 2 system is a major upgrade of the original and is now available for the Jaguar. Atari's Bill Rehbock commented, "We are delighted that Jaguar developers will now have access to the best possible resources with which to produce first rate games. The availability of SNASM 2 for the Jaguar is another indication of Atari's presence as a major contender in the games market."

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 **STA41**, then your subscription has expired with this issue; if the information line reads "Complimentary Copy" you have been sent a free evaluation copy of *ST Applications*. Either way, you must take out a new subscription in order to receive further issues.

Information

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Advertising

There is a limited amount of space for commercial advertising in each issue of *ST Applications*. Contact Nicky Wilson on 0602-455250 for further details and to request a media-pack. Subscribers can place free classified advertisements - see page 57 for details.

Subscription Rates

United Kingdom:

12-issues : £24.00
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

We no longer use Worldwide Magazines. Overseas readers and retailers should contact us for details of new distribution arrangements.

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.41, will be dispatched with issue 42 of *ST Applications*.

Master Of Games

Middlesex University are to lead the way with Master of Arts and Bachelor of Arts degree courses in Design and Production of Interactive Games. The MA is a one-year course and its first intake will be in September this year. The three-year BA course starts in September 1995. These courses will be unique in that all students will be sponsored by a software house and there will be a great deal of interaction between the course organisers and the software houses throughout their duration.

Much of the equipment needed will be supplied by the software houses, who will also offer work experience and potential job offers for those who complete the course. The emphasis will be on games design rather than concentrating on specific hardware platforms and will cover software engineering, graphics, music, audio and all other aspects of game design.

The initiative is being supported by Domark, Ocean, Electronic Arts and a number of others. Similar courses in other universities up and down the country are expected to get underway next year. For details of the courses at Middlesex University, contact *Julian Saunderson*, Programme Leader for the MA course or *Huw D Jones*, Programme Leader for the BA course, at the Faculty of Art, Design and Performing Arts.

ELSPA Breaks From FAST

ELSPA *(European Leisure Software Publishers Association)* have ended their close association with anti-piracy body **FAST** *(Federation Against Software Theft)*. ELSPA have been paying considerable fees to FAST on behalf of its membership and John Loader has been working on their behalf within FAST. They felt that FAST were more concerned with large scale piracy of business software, whereas their interest lay more in the field of leisure software and its sale through market stalls and car boot sales.

Since John Loader started representing ELSPA, successful prosecutions have increased dramatically and and the law has been clarified on many key points. As a result of this, ELSPA are to employ him directly as chief investigator of their own newly formed Piracy Prevention Unit. Recent raids have focused on market traders and bulletin boards but ELSPA intend to step up action in other areas too, now that they have the resources directly at hand. Both ELSPA and FAST insist that the split was a mutual decision and that they will continue to keep each other informed on leads which arise in each other's respective areas of interest.

The first raid by ELSPA's newly formed Anti-Piracy Unit was on 'The Krypt' BBS in Birmingham in April. Around 2,000 disks of illegal software as well as a substantial amount of hardware was seized in the raid. At the end of last year, there were believed to be about 40 bulletin boards distributing illegal software in the UK. As a result of the last couple of raids, the number is estimated to have dropped to around 25. More raids on bulletin boards are expected in the near future.

More Support From Harman

Harman Audio have just announced that authorised dealers are to be able to offer upgrades to Cubase. As well as being able to obtain the latest version directly from your dealer, users can also 'trade in' their copy of Cubase when they change computers to the version of Cubase relevant to their new machine. Full details from any Steinberg dealer or directly from Harman Audio.

Steinberg recently announced that its complete range of Synthworks editors have been upgraded for Falcon compatibility. The range includes editors for the most popular synthesisers from Yamaha, E-mu, Korg, Roland and Kawai. Any Falcon owner who already has the ST version of Synthworks can obtain a free upgrade to the Falcon version by returning their original program disk to Robin Pearce at Harman Audio and requesting the Falcon version. Contact *Harman Audio*, Unit 2, Borehamwood, Herts. WD6 5PZ; Tel: 081 207 5050; Fax: 081 207 4572.

Subscriber Specials

From Gasteiner

200dpi Mouse	£ 6.00
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That's Write v1	£10.00
That's Funface	£ 6.00

These goods available only direct from Gasteiner, please do not send orders to FaST Club. Contact Gasteiner on 081-345-6000
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London
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All subject to availability. E&OE.

Free Spotlight 94 tickets - see page 6

All these offers must expire on 24th May 1994
Look out for the next set of Subscriber Specials in issue 42

Subscriber Benefits include:

* Exclusive opportunities to make huge savings on software, accessories and hardware
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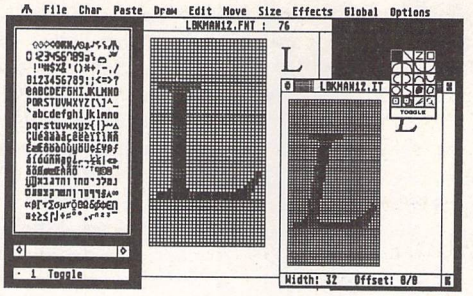
Fontkit Plus 4.1



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
pdrivers - Fontswitch printer drivers
protext - Protext 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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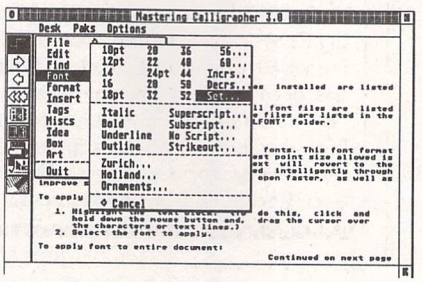
Mastering Calligrapher

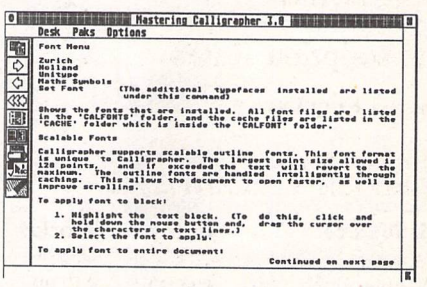
The Hypertext Personal Guide for Calligrapher that offers quick referencing to all commands with concise screen summaries and tutorials, including tips and tricks.

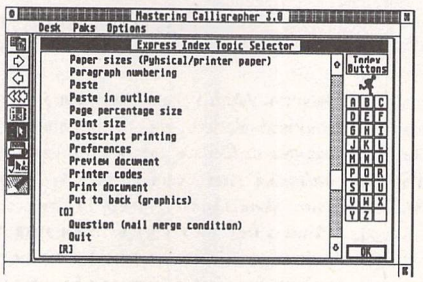
Mastering Calligrapher is ideal for both novice and advanced users alike. Novice users will find the simple step-by-step approach an easy way to lessen the learning curve, while advanced users will benefit from the referencing feature.

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.
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News In Brief

More For Less

The ageing STFM has been given a new lease of life by Silica Systems. With immediate effect, the 520 STFM Discovery Pack will include a 1 Mb upgrade at no extra charge. What you get is a 520 STFM upgraded to 1 Megabyte, STOS Basic, NEOChrome, First Basic, ST Tour, the book - Discover The Atari ST, and a few games. In addition, Silica Systems are throwing in the Tenstar Pack (a selection of 10 top selling games) and the Productivity Pack (1st Word, Spell It and ST Basic) at no extra charge. The STFM Discovery Pack costs £149. Contact Silica Systems, 1-4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX; Tel: 081 309 1111; Fax: 081 308 0608.

Two Shows For September

The second Virtual Reality User Show will take place at the Novotel, Hammersmith, London from 13th to 15th September. The event is to concentrate on VR in design, entertainment and medicine and will feature a number of seminars on the potential uses of VR within various industries.

Live '94, the UK's only consumer electronics show, is set to take place at Earls Court 2, London from 20th to 25th September. The organisers have teamed up with Capital Radio to provide live entertainment 10 hours a day at the event, including a live broadcast from the show each afternoon. Live '94 is an event which covers all areas of consumer electronics but with a particular emphasis on computers and computer related technology.

Downward Trend Continues

Future Publishing were first to publish their ABC (Audit Bureau of Circulation) figures for the period from July to December 1993. Regrettably, it is now becoming a case of watching which magazines drop the least in sales, rather than which ones increase the most. There is no doubt that sales of all Atari based magazines are on the slippery slope and Future's figures show no signs of things evening out. Their only ST title, ST Format, dropped to 43,469 copies per month, 9,347 down on the January to June 1993 figure. This represents a decrease in sales of over 17% in the past six months and 30% over the past year. However, ST Format is expected to remain in front of its two rivals, ST Review and ST User, when their figures are published in the next few weeks.

Spotlight 1994

Gasteiner Technologies and *Europress Enterprise* (publishers of ST User and ST Review) are joint organisers of Spotlight 1994, a combined Atari and Amiga show which is to be held later this month. Last year's event was a one-day Amiga only show and attracted 1800 visitors. Spotlight 1994 will cover both computers and will run for two days.

Although all aspects of computing will be covered, the event promises great things for the serious user. A number of leading software and hardware producers will be demonstrating their latest wares and experts will be on hand to answer questions. You can expect to see the latest scanners, digitisers, hard drives, video equipment and other peripherals demonstrated. In addition to product demonstrations, there will of course be the usual myriad of bargains in all things computing.

Exhibitors announced as we go to press include Power Computing, Golden Image (UK), Alpha Data Benelux, 16/32 PDL, Gasteiner, First Computer Centre and HiSoft. Spotlight 1994 runs from 28th to 29th May at The Novotel, Hammersmith, London. The doors open at 10am on both days and admission costs £5 at the door or £3.50 for advance bookings. The organisers are offering free tickets to the first 200 callers quoting ST Applications. Contact *Gasteiner Technologies*, 126 Fore Street, London N18 2XA; Tel: 081 345 6573; Fax: 081 345 6868.

More Solutions

System Solutions are now shipping an updated version of HD Drive, their alternative to Atari and ICD's hard drive software. This latest revision allows high capacity drives of up to 2 gigabytes to be connected to your Atari. It also allows partition sizes up to a maximum of 1 gigabyte. In addition, it supports two IDE drives connected to a Falcon. HD Drive costs £19.95. CD ROM drives are the latest craze, with System Solutions having sold out of their first batch of CD ROM drives for the Atari. They are currently stocking three CD titles for the ST and a number of others which are not machine specific. Finally, *Mag!X* is now available at a cost of £69.95. It is an ultra-fast multi-tasking environment which is actually supposed to speed up your machine rather than slow it down! For further details on any of the above, contact *System Solutions*, 17-19 Blackwater Street, East Dulwich, London SE22 8RS; Tel: 081 693 3355; Fax: 081 693 6936.

More Trouble Over Classification

Following last month's report on the forthcoming classification of computer games, opposition to the proposed scheme is now coming from the retail trade itself. The general consensus is that retailers should have been consulted about the proposals since they are the ones expected to implement the guidelines with regard to their customers. It is almost universally agreed that a simpler system system such as the age rating used on videos and films would have been more easily identified with by the general public. However, the problem here seems to be that British Board of Film Classification forbid the use of their symbols on any other products. Their objection stems from the fact that their symbols relate to a mandatory requirement enforceable by law and cannot be used on a voluntary system because of the confusion it may cause to both retailers and consumers!

The current state of play is that a number of retailers have written to ELSPA suggesting modifications to the proposed system to make it more acceptable to them. All agree with the idea of implementing a voluntary code - it just seems that no-one can come up with a satisfactory compromise which keeps everyone happy.

You may remember that several of the larger software producers indicated that they would not be complying with the requirements of ELSPA's new scheme, preferring instead to wait for a US standard classification to emerge which could be applied worldwide. The latest news from The States is that the US computer games industry are to have their voluntary code of practice in force by Christmas. The intention is that games released in The States will have a small description of the reason for the appropriate age classification as well as the age bracket itself. This would also have to appear on all advertisements for the games.

The ELSPA scheme was due to start on 1st May but looks likely to fall at the first fence owing to certain influential members refusing to implement it, others implementing it with reservations, and the retail trade itself asking for a rethink. Personally I see it coming into force as announced but being replaced within months by a more universally acceptable system which addresses many of the concerns which have been raised throughout the industry.

Ladbroke's Latest

Ladbroke Computing have recently announced the addition of a number of new products to their line up. The first is the *Microvitec 1438* multi-sync monitor at £289.99. It can be used on the ST to display all three resolutions when used in conjunction with a customised switchbox which costs £19.99. The Microvitec can also be used with the Falcon to display all RGB and VGA resolutions. The necessary adaptor for the Falcon costs £9.99. The final mention while on the subject of monitors goes to Ladbroke's high resolution mono monitor which has been reduced to £109.99.

In my opinion, the most impressive product of the month has to Ladbroke's latest addition to the *Datapulse* range. It is a 230MB re-writable optical drive. The drive is fully compatible with the entire Atari range, requiring an ICD LINK adaptor for the ST (£79.99) or a SCSI II cable (£39.99) for the Falcon to get you up and running. The unit uses removable 3.5" 'floppies' and comes supplied with your first blank disk. Additional 230 Mb disks cost £69.99 each. The drive is fully compatible with the 128Mb version and users have the option of two cases for the unit. The first is the 'original' case which lies flat on your desk and can be used as a monitor stand. The second stands on its end and features a carrying handle. The price for either variant is £840. A third option allows the SCSI mechanism to be plugged in and out of the case, permitting mechanisms to be swapped or replaced easily. This model costs an additional £40.

Another interesting product is Ladbroke's single speed CD ROM unit at a very competitive £180. The unit is fully compatible with all Atari machines but requires the ICD LINK adaptor for the ST or the SCSI II cable and ICD Pro Utilities (£39.99) for the Falcon. Finally, Ladbroke have re-introduced the Voyager 2400 modem at £69.99 and have added a 14400 Fax modem to their range for £159.99. For further details on any of the above, contact *Ladbroke Computing Ltd*, 33 Ormskirk Road, Preston, Lancs. PR1 2QP; Tel: 0772 203166; Fax: 0772 561071.

The BEST Of The Rest

Atari specialists *Best Electronics* made another trip across the Atlantic last month for the Newcastle and Birmingham Atari Shows. Best specialise in hardware add-ons and spare parts for Atari computers and have been attending UK shows for some years now. This was their first visit to one of the new Atari Shows and their products included TT Touch (replacement keyboard contacts for the ST, STE and Falcon), the Deka II improved IBM keyboard interface boxes for the ST, STE and Falcon, and last but not least, a 68040 plug in processor upgrade for the Falcon!

Best Electronics are currently updating their UK mailing list in preparation for the release of their new catalogue. Even if you are on their current mailing list, you are requested to re-register in order to receive the latest catalogue. Contact *Best Electronics*, 2021 The Alameda, Suite 290, San José, CA 95126; Tel: 010 1 408 243 6950 1pm-5pm Mon-Fri (9pm-1am UK time); Fax: 010 1 408 243 8274.

The Computer Shopper Show

You could be forgiven for thinking that the computer revolution had ended if you visited the Computer Shopper Show at the end of March. I didn't even plan to go, having given up hope of finding ST-related stands some years ago. I was at the NEC with my wife who had won second prize for designing buttons in a national competition. The Stitch & Knit show was in the hall opposite the Computer Shopper Show, and took up rather more space. It was full of creative works and kits of parts for enthusiasts to do their own thing.

After seeing my wife's efforts on show, I slunk off to the computer show next door in the hope that it would be more interesting. At 11:30 the small show area was already filling up with browsers, but ticket queues were rather tame compared with the old Personal Computer World shows. It is strange how people will still pay £7 to visit what is a glorified market. Brisk trade seemed to be going on, but I couldn't see any of the familiar names such as Evesham Micros or Silica Shop, or any bargains that couldn't be had from the pages of Shopper or Micromart.

1994 definitely seems to be the year of the CD ROM and the prices of drives and disks are rocketing downwards at the moment. A single speed Sony drive could be had for £75 with state of the art Toshiba and NEC drives in the £250-300 bracket. PC software compilations on CD could be had for as little as £10.

KRCS (0800 889944) had two interesting Apple stand-alone devices on show. The double-speed CD300 comes in its own nice casing with a pair of 50-way Centronics connectors on the back. Also provided is a pair of phono jacks for audio output. At £199 plus VAT it looks a really good buy.

The real gem though is Apple's multi-purpose PowerCD which can operate as a computer peripheral, an audio CD player or as a photo CD player which can be connected directly to your telly. Now there's a universal bit of kit! The asking price was £321 plus VAT but reports in Computer Shopper suggest a price drop to £199. Both Apple drives come with SCSI connectors as standard, and so it should be simple to connect one to Falcon or ST.

It is strange after all these years that computer technology is arriving at standards which are usable across many machines. It means that using an ST or Falcon does not leave you completely out in the cold. CD-ROMs, VGA monitors, SCSI drives and modems are all made in vast quantities for the hungry PC and Apple markets. It is somehow satisfying to enjoy strengths of Atari ownership and still share the benefits of the global box-shifting PC market.

Modems, of course, have never suffered the problem of compatibility and will speak to anything with an RS232 port. At the cheap end of the spectrum there was an abundance of the now ubiquitous cheap fax modem offering 9600 bps fax and 2400 bps data. At £50-70 these look like a bargain and nearly always offer free PC fax and terminal software. If you have to add a copy of STraight fax at £80 odd though, the budget price tag loses a little of its appeal.

Further up the scale, we get the 14400 bps fax/data modem at £169 from Simply Computers (081 523 4020) or a 19200 version at £199. Again with free PC software. The above firm had also got some nice Fujitsi hard drives at £419 for 520Mb and £659 for a whopping 1Gb. You could lose a few minutes of Falcon D2D sound on those!

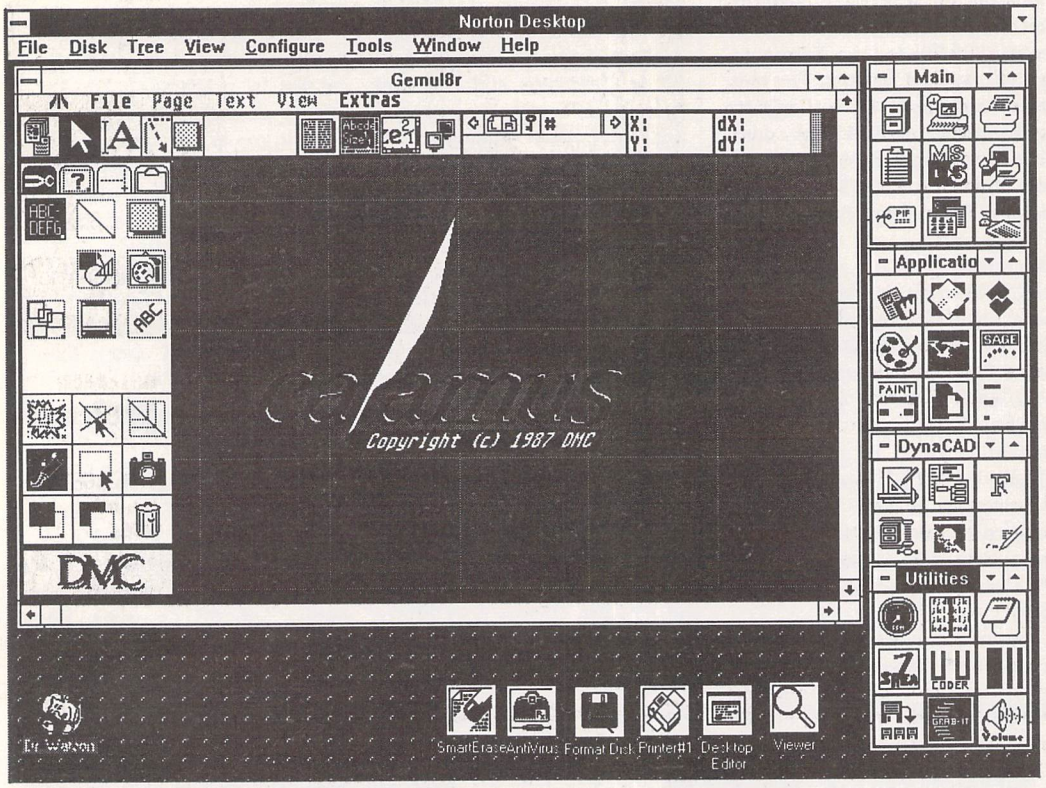
Despite the predominance of 'pile 'em high sell 'em cheap' merchants there were one or two interesting (read uncrowded) stands with unusual items to look at. One (Calligraphia Systems 0799 586453) was offering equipment for vinyl sign making. The machines were a variation on the Roland pen-plotter but came fitted with a cutter to fashion the lettering from vinyl sheet. At £2000-4000 the machines were not cheap, but it is an interesting twist on setting up your own DTP bureau. I could not find out whether these will run from an ST using a simple plotter driver or whether they really do need expensive PC software.

Pegastar UK Ltd were offering the opportunity to 'Turn Your Computer into Gold!' Real Exchange & Mart material this. A package of 12 different horoscopes allows you to make your fortune as a computerised Madame Zsa Zsa. Just cross my mouse with silver, dearie.....

All in all the show was the equivalent of flicking through the pages of Computer Shopper while standing on a crowded tube train. I spent £5 on the ticket and another £1 supporting Birmingham's special care baby unit (I think). Perhaps I am just getting old and cynical, but I prefer reading the catalogues at home and letting Postman Pat do the donkey work. It does seem though that the voracious PC consumers are doing us all a favour by bring the prices of peripherals down. Keep up the good work chaps, but wake me up when I can have a good fast £100 fax modem and a £150 Apple multi-media CD-ROM drive.

Graham Curtis

Gemulator 3



Gemulator running Calamus under Windows using the Norton Desktop.

Following last month's introduction Joe Connor takes an in-depth look at getting the best out of the Gemulator...

Installation

The Gemulator ROM card is a standard 8-bit PC expansion card and fitting it to a PC is straightforward. Disconnect the PC from the power, open it up, plug the board into any free expansion slot and reverse the process. The tricky bit is getting a handful of different expansion cards to work together. It's important to check the default memory address is not already in use by another card and if necessary change the address using the on-board DIP switch. Using this method it's feasible to install several Gemulator ROM boards but I've only got one and I'm struggling to come up with a good reason for adding more than one!

To installing the software copy the 'GEMUL8R3' folder from the Master disk on to hard disk then run 'GINSTALL.EXE' which self-extracts into a working Gemulator set-up as shown in Fig 6. From v3.02 onwards the software can also be installed entirely on floppy if preferred.

To enter Atari emulation type 'GEMUL8R' and after a short delay the Gemulator main screen appears (Fig 5). All the defaults and options are configurable from this screen. The main ones are:

* ST RAM: Gemulator supports up to 8MB RAM and you can enter any value up to 8192K. If you specify more RAM than you have installed Gemulator automatically allocates the maximum RAM available in 1MB increments.
* Processor: Gemulator supports both 386 and 486 processors. By default this is set to 386 so 486 users should change this setting for improved performance.
* Emulation: a choice between 'Quick' or 'Slow' is available. Slow is more compatible, but quick works fine with most software.
* Monitor: Gemulator supports a wide range of colour and monochrome resolutions and you can switch between them without powering down your PC or changing monitors.
* Disks: each partition up to a maximum of four can be assigned as either real or virtual partitions (more details later).
* ROMs detected: the number of Gemulator ROM cards and ROMs installed is listed. Apart from support for all TOS versions up to TOS 2.06 the Magic Sac and Deskcart cartridges can also be installed by removing the ROMs from the original cartridge and plugging them into the Gemulator ROM board. Unfortunately Mac 128K ROMs and Spectre support is not available at the request of Gadgets by Small.

Gemulator runs happily under Windows in full screen mode and can even take advantage of Windows' virtual memory feature to create additional memory up to the 8MB Gemulator limit. It's also possible to run multiple Gemulator sessions effectively turning your PC into a several STs!

Maximum Performance

Gemulator runs fastest from DOS without a memory manager installed. Memory managers enable the memory paging feature of 386/486 processors which slightly slows access to most hardware components including the graphic card. This results in slower screen redraws. Windows normally uses a memory manager (HIMEM and EMM386) and so running Gemulator under Windows or with Smartdrive installed is slower, typically by around 10%. The choice is yours.

After the novelty of running Gemulator under Windows wore off I made a minimum DOS boot disk to boot straight into Gemulator, with the maximum free memory and without touching the keyboard.

How close to a real ST?

Using Mark Baines' excellent 'Profile' utility the Gemulator proved to be very close indeed. Fig 4 shows a summary of the results, and here are Mark's comments:

"I've just read the listing of results produced by PROFILE on a Gemulator and I'm impressed, partly with myself that Profile works and partly with Darek for Gemulator's obvious compatibility. All the system variables, exception vectors, OS_header, environment, cookies, pun_info, basepage, VBLs etc etc are all there and for intents and purposes I couldn't tell it apart from any other TOS 2.06 system with an accelerator and large screen (I'm envious of the screen size!)

"The only thing Profile didn't like was NEWDESK.INF's interpretation of the default resolution, which is perhaps understandable. Very interesting."

Screen accelerators

There can't be many ST users who don't use a screen accelerator so I was keen to investigate the options. Gemulator includes a built-in Quick emulation mode which works with most software and a software custom screen accelerator called QuickGEM. This Gemulator optimised solution is a development of the old QuickST code which Darek programmed before he moved on to Gemulator. QuickST development continues via Codehead who continue to develop it under the Warp9 title. I was interested to see how the various accelerators compared with each other and so I ran some benchmarks using Ofir Gal's GEMBench utility. The results are shown in Fig 2.

It's interesting that using Quick mode together with either QuickGEM or NVDI is slower than leaving them out but it's important to remember that these figures are overall averages. Quick mode effectively doubles the speed of normal and small VDI text which disproportionately affects the overall rating. Using NVDI in the more compatible Slow mode was the optimum solution for my set-up for reasons I'll explain later!

Mouse

Gemulator handles the mouse through the standard DOS mouse driver, so it's dependent on whatever driver software is installed. I used the standard Microsoft mouse driver which works well so long as you don't use a mouse accelera-

tor in ST mode. I suffered jerky mouse movement until I disabled the built-in NVDI mouse acceleration. It's worth adjusting your mouse sensitivity and acceleration via the DOS mouse driver before tinkering with the Atari mouse settings.

Hard disk

Gemulator can use normal DOS partitions so long as they are smaller than 32MB or 'virtual' partitions. Because most PC users don't partition their drives most users are unlikely to have a small PC partition they can use. Happily I have two seperate IDE drives in my PC, a Conner 170MB drive C and a Quantum 50Mb drive D so I partitioned my D drive into 2x25MB logical drives D and E and set these up as 'real' D and E partitions which Gemulator and DOS could both access.

Virtual partitions are single DOS files with a VHD extension (e.g. CDRIVE.VHD, DDRIVE.VHD, etc). However when Gemulator boots into ST emulation it feeds TOS a convincing tall story (Fig 7) and from then on TOS thinks it talking to real ASCI 30MB partitions. Up to four partitions can be assigned and the DOS VHD files automatically expand as files are added up to the maximum of around 30MB.

The downside of relying exclusively on virtual partitions is that data which could be usefully be shared between DOS and TOS cannot be accessed. Maintenance using my normal disk tools also threw up some interesting hiccups. I usually use Atari's Checkdisk, ICD CleanUp and Crypton (a commercial German hard disk optimiser similar to Diamond edge). Checkdisk works fine and I used it successfully to recover a few lost clusters and a deleted file. ICD CleanUp only works with an ICD host adaptor so that was useless which brings me to Crypton.

I knew trying Crypton was a high risk strategy and although the partition was successfully optimised I realised some time later the VHD file had grown to an all too real 32MB, filling up my PC hard disk! Crypton fills up the 'virtual empty space' with 'real' empty space. This led me to investigate the fate of deleted files and I discovered they also continue to take up wasted space in the VHD file.

Without a suitable optimising utility to maintain the virtual partitions I found the best way to avoid deleted files wasting space was to periodically copy the contents of a heavily used partition to a different partition and delete the old partition. It's easy to set-up a new VHD file from DOS. Now I'm aware of what happens to to deleted files I've got into the habit of overwriting old files as this slows the build up of wasted space. A custom Gemulator VHD maintenance utility would be a welcome addition though.

Benchmarking Gemulator real and virtual partitions wasn't easy. I used CORETEST (a well know DOS HD speed checking utility) on my PC drive and a custom version of Ofir Gal's HDBench (thanks Ofir) to perform read tests using 64KB files which threw up some interesting results. Adding a PC cache such as Windows Smartdrive had a dramatic affect on the performance of virtual partitions but actually slowed access to real partitions. Smartdrive and other effective variants all worked best in conjunction with a memory manager and so the decision to use one is not straightforward. Tests using cache software under Atari mode were inconclusive.

CORETEST/DOS real: 787k/sec
HDBench/TOS real: 334k/sec
HDBench/TOS virtual: 321k/sec
Smartdrive installed
HDBench/TOS real: 229k/sec
HDBench/TOS virtual: 1662k/sec

Next I used How-Fast, an HD benchmarking program capable of performing read/write tests with variable sized blocks. Fig 3 shows the results which indicate that virtual partitions are slightly slower than real ones.

Gemulator includes V5.00 of the Atari hard disk software and I set partition C to autoboot. You can't get around the 32MB limit using the ICD software as that's already been tried; the BGM format is not supported by MS-DOS. Although earlier versions of Gemulator supported the ICD and Supra software this version recommends the Atari software.

Floppy Disks

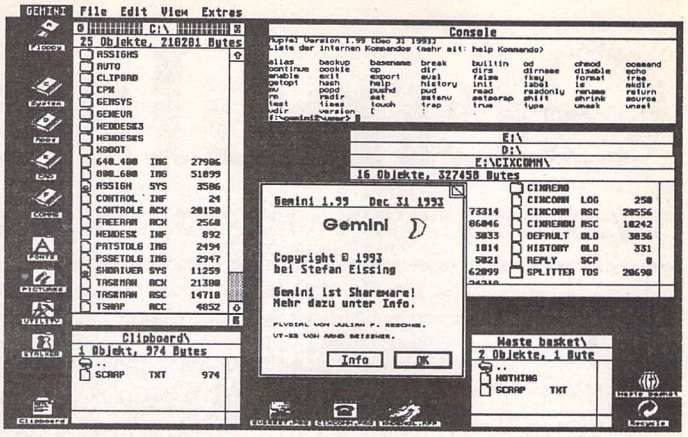
Remarkably the Gemulator reads and writes any Atari formatted single- or double-sided disks with 80, 81 or 82 tracks and either 9 or 10 sectors. Gemulator doesn't format disks under Atari emulation which is a minor irritant but since both the standard 3.5" PC disk formats (HD1.44MB and 720KB) are Atari-compatible this only poses a problem if you're caught short without a formatted disk running under DOS. Running Gemulator under Windows makes it easy to drop back to Windows and format a disk.

ST Medium and Low

Both these resolutions work well. The only software I experienced unexpected problems with were the Cyber series colour palatte and Deluxe Paint which couldn't find its cursor. Naturally games suffered a high percentage of failures, but ST Applications readers don't play games, now do we?

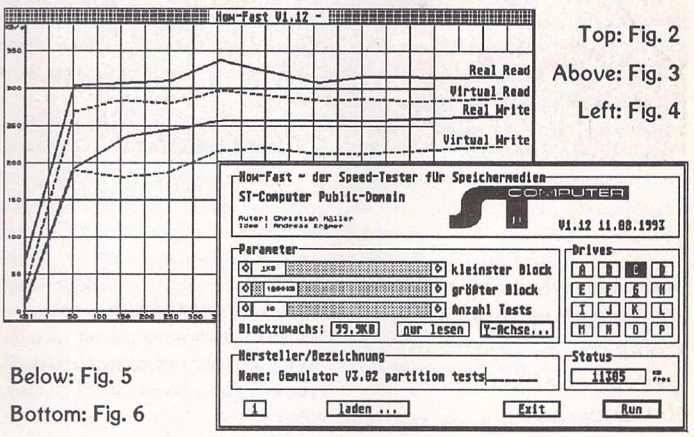
ST High

Because I'm used to working on my Mega in ST hi-res I initially used this mode most. Almost all my usual software worked perfectly apart from



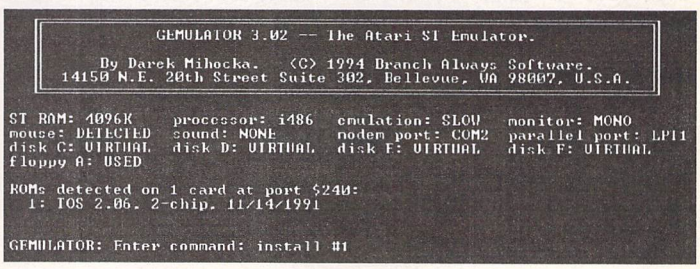
ST Mono	ST Low	ST Medium	640x480x 16Colour	Accelerator/s
362%	OK	481%	260%	Quick mode
210%	OK	234%	159%	Quick mode + QuickGEM
293%	OK	341%	159%	Quick mode + Warp9
319%	OK	343%	186%	Quick mode + NVDI
150%	OK	148%	110%	Slow mode
203%	OK	225%	153%	Slow mode + QuickGEM
285%	OK	330%	156%	Slow mode + Warp9
312%	OK	326%	186%	Slow mode + NVDI

All tests compared to a standard ST without a blitter



Top: Fig. 2
Above: Fig. 3
Left: Fig. 4
Below: Fig. 5
Bottom: Fig. 6

Hardware, TOS and Screen Details	Profile V1.5 © 1994 Mark Baines
Machine Type:	520/1040 ST or Mega ST Computer
Central Processing Unit:	MC68000
Relative MC68000 CPU Speed:	15 MHz
TOS Version:	2.06
ROM Date:	14 Nov 1991
GEMDOS Version:	0.32
AES Version:	3.20
ROM Nationality:	Great Britain
BLiTTER Chip Present:	No
Floating Point Processor:	None Installed
Highest Sound Capability:	ST Style GI/Yamaha
Current Screen Mode:	ST Monochrome - High Resolution
Current Resolution:	Width: 800 Height: 600 Planes: 1
TOS-mode Screen Size:	Columns: 100 Rows: 37
Number of Predefined Colours:	2
Palette Size:	2



XBoot, Imagecopy as an accessory and DynaCADD because there's nowhere to plug the dongle in! I experimented with the extended monochrome and 16-colour modes and since they proved to be reliable I'm using 'ST high' less and less. Currently, unless the software is hard coded and only runs in one of the fixed ST resolutions, I use the 'psuedo' TT medium mode when I need colour and monochrome at 800x600 for serious stuff such as page layouts in Calamus or tinkering around (Fig 1).

The Extended Modes

The four extra resolutions are accessed by installing VGA.PRG in the Auto folder. Booting in colour offers the extra two colour modes and similarily booting in mono accesses the two extra monochrome resolutions. After displaying its login banner a menu appears (Fig 8) from which the desired resolution or graphic card can be selected. Having settled on a default configuration for mono and colour I'd like the option to store my this information in an INF file.

Because TT medium is 640x480x16 colours I was expecting true TT medium resolution but unfortunately this isn't (normally) possible. What you get instead is a kludge compromise using the Low Resolution AES screen gadgets with half-height dialogs and drop down menu text (Fig 9). Here's Darek's explanation:

"The reason the text and gadgets appear 'half height' is because of the increased resolution. In 320x200 mode and 640x200 colour modes, the font is 8 pixels high and 8 pixels wide. In 640x480 and 800x600 colour modes, the font does not change size.

"People expect to see the font suddenly change to 8x16 when they run VGA.PRG, expecting true TT medium resolution but you can't do that. The same problem exists with virtual screen drivers, such as my MonSTEr, or the German 'Hyperscreen' or 'Overscan' hardware modifications. All they can do is increase the screen resolution that GEM uses, but they are unable to increase the font size, because under ST TOS the font size is hard coded to 8x8 for color, and 8x16 for mono. Other than patching a bunch of undocumented TOS version dependent variables which are already initialized by the time VGA.PRG runs, you can't change the font size once TOS has initialized itself."

Strangely enough, I managed to get the aforementioned 'mono' font working in 'psuedo' TT medium using NVDI. I'd love to claim I figured out how to do this but I actually discovered it by accident! QuickGEM wasn't co-operating with XBoot and after knocking XBoot out I was running benchmarks manually by re-naming each accelerator in turn. I almost fell off my chair when the desktop popped up in 'pseudo' TT medium using NVDI!

After extensive tests I'm pleased to report this 'pseudo' TT medium mode works much better (Fig 10) than the 'kludge' modes which commonly cause problems such as overlapping objects in dialog and alert displays. Once again NVDI is confirmed as the essential add-on for all Atari users.

Sound

During the review period I used several different sound cards. In all cases Gemulator successfully detected them. I definitely remember hearing the occasional system beep with the first card but I've never heard a squeak out of my current card, an Aztec Labs Sound Galaxy 16, which works perfectly under DOS and Windows. I couldn't find any speech or music application which worked on my set-up and although it's most likely a PC compatibility problem I'm none the wiser having read the two lines dedicated to sound support in the Gemulator manual. 'SoundBlaster and Adlib cards are supported and cards will be detected automatically'.

Modem Support

Another two lines in the manual cover modem support. 'The ST's modem port is emulated using COM1 or COM2 and various applications such as Flash!, Interlink and the VT52 desk accessory are supported.' No mention is made of the hardware settings needed to use the 'modem' port. My modem was certainly not a plug-in-and-go substitution even after I'd figured out the appropriate PC COM port to plug into.

After reading the modem manual and experimenting with various DIP switch settings on the modem I found both the DTR and RTS signals needed to be forced on. Without the DTR signal it was impossible to get to the modem into 'Terminal ready' status and unless the RTS signal is forced on the modem wouldn't respond to the PC.

Changing the DIP switch settings also required changes in the modem initialisation strings to ignore the DTR signal (&D for my V32 Multitech modem). After making the changes the modem was up and running and all the Comms software I tried including FZT, STalker, Connect and Cixcomm worked fine.

Printer Support

There isn't even a single word in the manual about parallel printer support. Darek's explanation for this omission is that the PC parallel port functions exactly like an ST parallel port! Great, except I've got three parallel ports to choose from and until someone asked me what printer support was like I didn't even realise parallel support was available. It is displayed in the main Gemulator screen (Fig 5) and output from the Desktop, Calamus and That's Write worked flawlessly with my Star 24-pin dot matrix printer and HP DeskJet.

Manual

In case you haven't guessed by now I found the flimsy 15-page A5 manual inadequate. Here's Darek's opinion:

"You call the manual skimpy, but I also don't believe in writing a hundred pages of documentation when ten will do. I feel users are more likely to read a ten-page manual that at least covers everything rather than supplying a 100-page manual which puts the user off reading at all. This happens all the time with any software that has a lot of documentation.

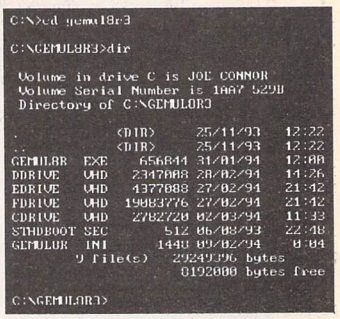
"I receive very few calls from users who can't get Gemulator running. Most calls are from users along the lines of 'I've got Gemulator up and running but am having problems setting up a hard disk driver', which tells me the manual did help them install the product."

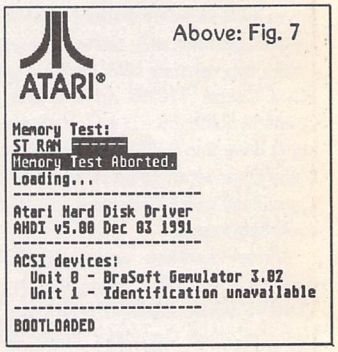
This tells me the manual didn't cover the installation of the hard disk driver properly. I'd like to know more about which PC peripherals can be used, along with the kind of information I've had to unearth for myself over the months. A hints and tips file on the disk would be better than nothing and help other users avoid the pitfalls I experienced using the keyboard, the mouse, a modem and colour modes.

Conclusions

The target market for this product is existing users of serious Atari software and the level of compatibility with serious applications is remarkable. My only gripe is with the manual which made getting the best out of the Gemulator considerably harder than it needed to be. It's been a voyage of discovery which has served to strenghten my admiration for Gemulator.

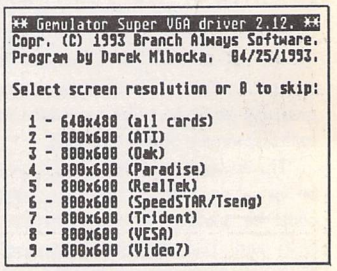
Always remember speed is addictive! No sooner than you're used to the eerie sight of Atari software running on a PC you're going to want to go faster and at higher resolutions with more colours. The fastest processor available is almost essential. Now where did I put my cheque book...?

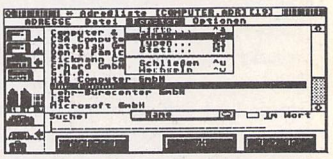




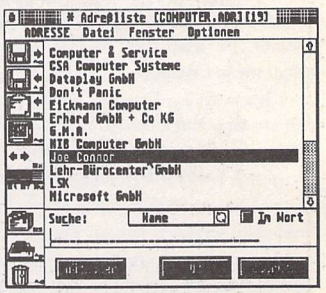
Above: Fig. 7

Above: Fig. 8 Below: Fig. 9





Above: Fig. 10 Below: Fig. 11

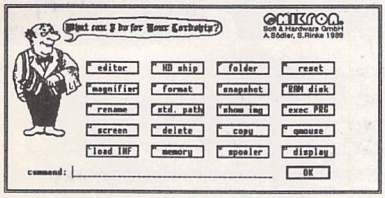


Product:	Gemulator
Version:	3.02
System:	Minimum 33MHz 386SX PC with 4MB RAM, VGA graphic card and VGA monitor
Contact:	FaST Club
Tel:	0602 455250
Fax:	0602 455305
Price:	£199
Manifest:	ROM card inc. TOS 2.06 UK, 15-page A5 manual and HD master disk.

Mortimer

Your very own computerised butler!

- Editor: view and edit texts and IMG pictures.
- HD-Ship: park your hard disk.
- Disk Functions: New folder, Rename, Copy, Delete files, and Format disks.
- Magnifier: integrated screen magnifier.
- Snapshot: grabs all or part of the screen and stores it on disk as a picture file.
- 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.
- Supplied with a very comprehensive 82-page printed manual.



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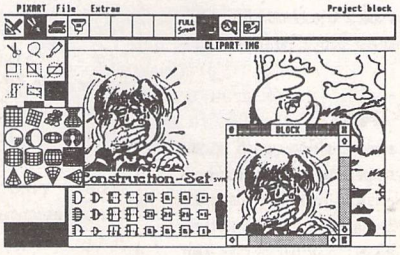
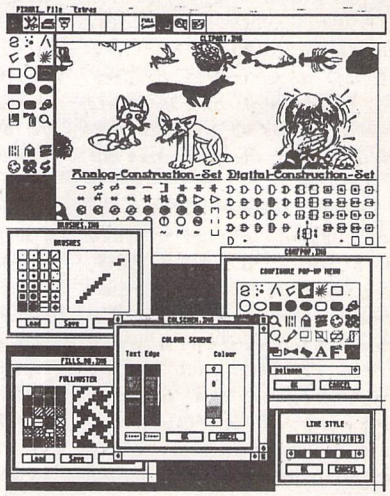
PixArt T: Bundled with Textstyle, which allows PixArt to incorporate text generated from Calamus fonts. Price: £44.95





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AtariWorks

Spreadsheet

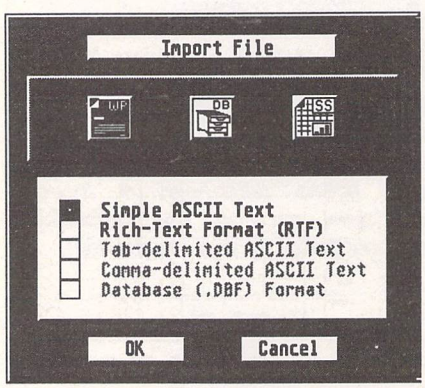
Concluding a two-part review by Graham Curtis

Last time, we had a spin around the AtariWorks word processor. It is necessary to begin somewhere, of course, but the strengths of the package do not become apparent by looking at the one element. This time I shall take a look at the spreadsheet and database modules, examining how well they provide an integrated system with the word processor.

The spreadsheet is started from the same front end as the word processor and database. Indeed, whenever a file load or new operation is attempted the option exists to choose the type of file you wish to work on. With the spreadsheet activated, the menu bar changes to reveal a slightly different set of headings. The first three headings stay the same, and this can be a little confusing at first. As with multiTOS you have to keep a close eye on what is going on. The entries under the file menu remain completely unchanged, but some of the entries of the edit menu are replaced with more appropriate entries for spreadsheet use.

Menus

To follow through from our look at the word processor menus, I will now take a look at the spreadsheet ones. The data entry side of Works is said to be similar to Microsoft Excel, which I use extensively for charting large data files at work. Formula entry is similar in using the '=' operator for formula entry, but general manipulation is sadly not up to the Excel standard. Copying, moving and pasting can be done with those now familiar keyboard shortcuts and blocks of cells can be selected with the mouse. Where Excel shines is in its use of the right mouse button to bring up the cut/paste dialogue, once a selection is made. Works users have to make do with a trip to the 'edit' menu to paste their selection. The 'Fill Down' and 'Fill Right' options allow the pasting of a copied source cell to multiple destinations. Why this cannot be done by dragging out a destination box with the mouse, I cannot understand. Works allows a large destination area to be selected, but just fills in the first cell. Once selected, a block can be copied for inclusion in the word processor or database. More of this later.



Import file type depends on which module you are working in.

The sort option is very welcome and involves just the selection of the required area to sort. Once the selection is made, an immovable dialogue appears which can, if your window is badly positioned, sit on your column headings making entry of the sort fields difficult. It is a simple job to cancel the operation and move the window, but it would have been nice to display the dialogue away from the headings.

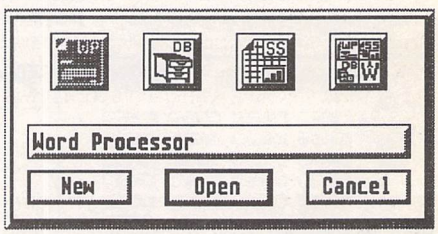
The 'window' entry is the same as the word processor, so we will skip over it!

The 'select' entry takes over from the word processor's 'search' entry and allows selection of the whole spreadsheet, and 'goto cell' and 'find cell' options. The 'find cell' option will find a cell containing a piece of text, but is case sensitive, reducing its otherwise useful potential.

Works' spreadsheet really comes into its own with its 'format' menu. This provides entries for formatting the spreadsheet entries in a multiplicity of ways. The big PC guns will have more features, ultimately, but Works scores with a simple and understandable set of options. Alignment, number of decimals and currency conventions are all here, and can be easily applied to selections from one cell, up to the whole spreadsheet. Any entry can be emboldened or underlined whether it is text or numeric.

Next along is the 'options' menu which carries those boring but necessary entries for cell protection, calculation order, etc. This menu also hides the rather disappointing entry for font selection. Unlike the selections made from the format menu the font selection affects the whole spreadsheet, regardless of selected area. After the flexibility of the word processor, this is a surprise. It means that the whole sheet must be displayed in the same font. I suppose that having different text size within a spreadsheet might make life rather too exciting for programmer and user alike. I just expected it might be otherwise.

Last of all comes the 'chart' menu, which is capable, but a little difficult to fathom initially. The difficulty, for me, comes from the fact



The opening dialogue. Pick a module.

that Works expects its data fields to be the other way around from the spreadsheets that I have used in the past. I have used Excel, Lotus, SuperCalc, GEM Graph and a few others and they generally adopt the columnar approach to data fields. Works likes its data in rows, and this had me flummoxed for a while. When you think of it, it is more logical to have your 'X' axis across the page. It just doesn't seem that way when you have been doing it differently for years. If you, like me, have a tendency to work in columns, then you can use the 'paste with transpose' option to sort out the situation.

The chart options are line, bar, stacked bar and combo (line & bar) with a special selection for pie charts. The charts themselves cannot be described as 'state of the art' but are good enough to get a point across. There is, unfortunately, no colour. This is a shame, now that we have the Falcon with its great emphasis on colour. The GEM fill styles are becoming a little twee for serious reports.

Functions

Works has the usual list of functions for the 'normal' business user, plus mathematical formulae for scientific or engineering types like myself. Missing is the very useful distribution facility that is handled so well in Supercalc and hidden superbly in Excel. I have used the feature many times in LDW Power, but accept that the budding Robert Maxwells among us will be happier with IRR and NPV functions.

Database

I must confess to being disappointed with the whole concept of databases. I appreciate that our whole lives are ruled by people trying to squeeze significant information out of masses of data about us all. To me, a database cannot compete with the magic of a spreadsheet or charting program, for visualising unseen patterns in numerical data or formulae. Databases seem to require hours of dedicated slog in entering the data before the important information can be got at. The only saving grace would be to import someone else's data, which is how all that 'interesting' information about us becomes so marketable.

Works provides a simple flat file database with a graphical interface. Once the fields have been named, a simple set of boxes is drawn on an otherwise blank form. I made the supreme effort and started entering the details of my latest motorcycle restoration project into the database so that I could get a feel for its performance, but I ran out of things to enter. To provide a slightly more rigorous test, I imported a file of British Telecom dialling codes, 4351 entries in total. The program struggled a little during the import stage, which took a minute or so, but was quite happy to play around with the file once it was digested.

Menus

As will have become apparent (if you have been paying attention) the database shares most of its menu structure with its sibling modules. The spreadsheet's 'insert/delete rows/column' magically becomes 'insert/delete record'. Things begin to liven up a little when we get along to the 'select' menu. Here are kept the database search, sort and other manipulation tools. The selection dialogue is very friendly with menu selection of search criteria.

Like the spreadsheet, embellishments within the database are limited to setting bold or underline attributes for field names or data. The font selection applies again to the whole document. The last entry is the 'control' menu which allows options to be set on field totalling and controls pagination for reporting.

Works - The Integrated Package

It is, perhaps, a little unfair to dismantle Works in the way that I have done. The author would surely claim that his aim was to produce an all-rounder capable of most things to most people. An integrated approach to document production should save time compared with dealing with several dissimilar packages. Is he right? Now that I've got my telephone numbers loaded in, I could have a go at producing something with them as a little set piece.

As I write this, I am actually performing the operations which I am talking about. I am writing the review with the word processor module, and database and spreadsheet files are sitting behind this page. My telephone database is on the page underneath this one as I write, so I can click on it at any time. Using the database 'select' option, I have selected a small piece of the database. For no particular reason, I have decided on sifting out telephone exchanges beginning with 'Aber'. With a quick copy and paste, I can drop the selection into the word processor here:

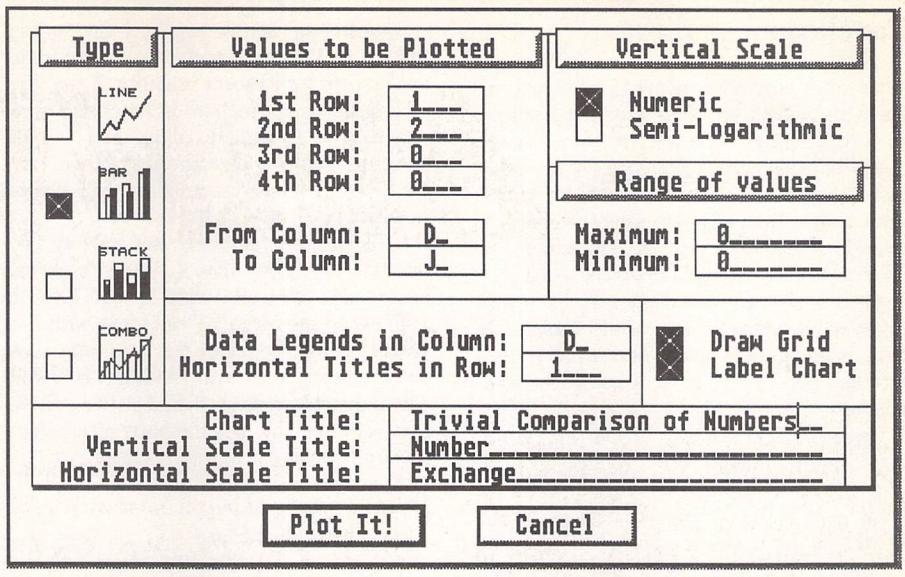


Chart set-up menu: four types of chart are supported here. Pie charts have their own set-up dialogue.

Exchange	Number
Aberdare	0685
Aberdaron	075886
Aberdeen	0224
Aberdour	0383
Aberdovey 3 fig.	065472
Aberdovey 4 fig.	065472

Spacing and and style settings are preserved and a special paragraph style is created for the word processor, so that the spacing can be altered to fit in with the rest of the document. Very simple, but how about cutting it back to a database, sorting it on the numbers & bringing it back? An interesting thing happens here. The two field database is inserted into the word processor with tabs which make it look like a three field database when it is cut back to the database. A dummy first field must be created if the data is to be pasted into a new database file.

The sort option is used to sort the data in ascending number order and we can paste it back into our text. Notice that the sort treats the numbers as text, so that 0685 comes after 065472.

Exchange	Number
Aberdeen	0224
Aberdour	0383
Aberdovey 3 fig.	065472
Aberdovey 4 fig.	065472
Aberdare	0685
Aberdaron	075886

Having done this little job, let's bring the spreadsheet into play. We can create an empty spreadsheet and cut this data into it. Again the first tab causes a little confusion, but only results in an empty column this time. The numbers can be manipulated like any other numeric data and can be summed, averaged or whatever you wish.

Creating Charts from Data

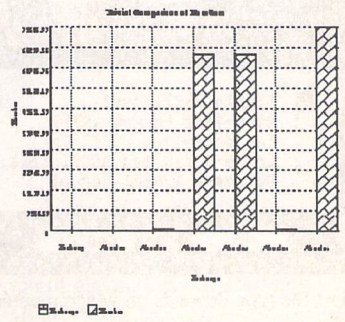
In order to chart the data, as mentioned above, we need to transpose the rows and columns to get them into Works' preferred format.

Exchange	Aberdeen	Aberdour	Aberdovey 3 fig.	Aberdovey 4 fig.	Aberdare	Aberdaron
Number	224	383	65472	65472	685	75886

Now, we are ready to make a chart.

Not a very exciting chart, I admit, but a chart nonetheless! Like all other items in Works, charts can be pasted into the word processor with ease.

This is really where Works comes into its own. The whole business of swapping data from database to spreadsheet to word processor and back again is completely painless and largely intuitive. It seems churlish to criticise the individual parts when they provide so harmonious a whole.



Conclusion

It has taken only a few hours to become familiar with Works, but there are sufficient features to keep me interested for some time. I will perhaps never make much use of the database capabilities, but that is down to my reluctance rather than any deficiency in Works. Over the period of this review, I have come to respect Works as a workhorse. The word processor is intuitive to the degree that you just get on and produce the text, while the spreadsheet and database allow occasional forays into data processing, using a consistent user interface.

Generally, the stability of the program is very good compared with 'version ones' of other applications that I have used. What is not so good is the occasional tendency of the Works dictionary or thesaurus dialogues to crash (two bombs) causing the loss of unsaved work. This is the second time I have typed the closing paragraphs of this review. These words were not here the first time! On investigation, both functions can cause the bombs and have done so on both my 4Mb Falcon and Mega 4 STE. A little more work is needed, I fear.

Despite the above buglet, I find myself turning to Works in preference to my other applications for its sheer usability. It is a very undemanding application, in much the same way as modern cameras allow the photographer to get on with photography without having to worry himself about all of the technical details of how a camera works.

It is tempting, although not terribly productive, to suggest that if AtariWorks had been made available with SpeedoGDOS in 1987 when the Mega ST came out with 2 or 4MB of RAM, the future for Atari may have been radically different. Hindsight is a wonderful thing! Maybe we should just be grateful that we have now got the basis of a professional office solution for the ST range.

Highs:

- ✓ Lovely GEM interface
- ✓ Keyboard short-cuts (for those who can remember)
- ✓ Ease of use
- ✓ Module integration
- ✓ Scalable Fonts - look out for Wordperfect 6.0 Font Pack: 50 Speedo fonts for £39.95
- ✓ Dictionary & Thesaurus (but see below)

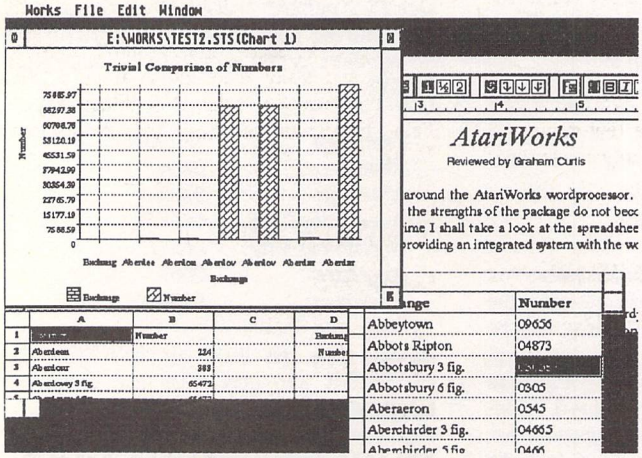
Lows:

- ✘ Dictionary/thesaurus crashes
- ✘ Charting
- ✘ Limited import/export for spreadsheet/database
- ✘ IMG Graphics not visible on screen

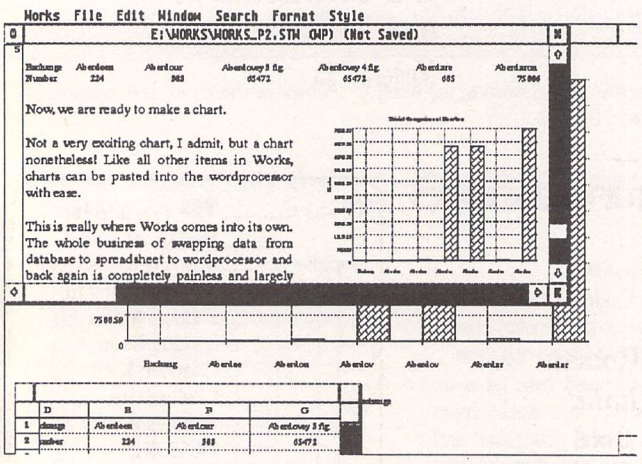
Works Version 2.0 Wish List

Version 1.207 of Works is a very competent start for the author but it must be followed by version two to make it the Atari application to be seen with. My own wish list for the future follows:

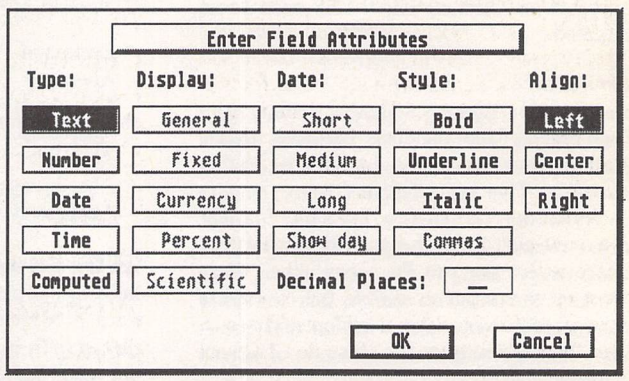
- ❑ Colour charting module with 3D facilities
- ❑ Text run around for imported graphics
- ❑ Visible IMG files on screen
- ❑ Word count
- ❑ Excel/Lotus import/export for spreadsheet
- ❑ Movable dialogue boxes <bullet2>Cursor keys that stop when I let go
- ❑ WYSIWYG Header/Footer Generation.



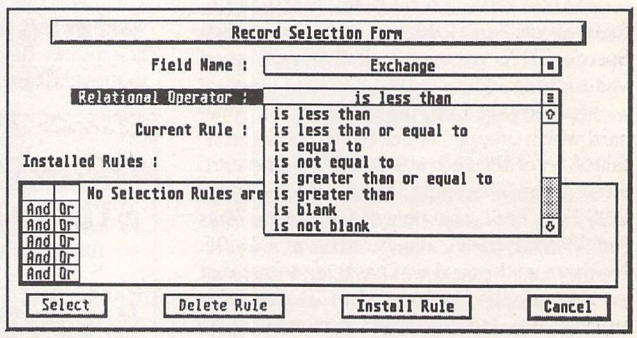
△ The integrated office solution at work!



△ The chart file behind its junior copy pasted into the document.



△ Database field attributes



△ Point and click database search criteria

Product:.....AtariWorks v1
Price:.....£99 alone, £129 with Speedo GDOS
From:.....HiSoft
The Old Schoolm, Greenfield,
Bedford MK45 5DE
Manifest:.....3 d/s disks (in wallet), registration card, manual
System:.....ST or Falcon with 2MB RAM, hard disk

WordPerfect 6.0 Font Pack

Amelia
Bitstream Arrus Black
BREMEN BLACK
Calligraphic 421
DAVIDA
Fractur
Freeform 710
Freeform 721
Freeform 721 Italic
Freehand 471
Freehand 521

Reviewed by Graham Curtis

Now that we have Speedo GDOS to replace the ill-fated GDOS that got bodged onto Atari's version of GEM, ST users have an inroad into professional publishing circles. There has always been Calamus with its vector fonts a-plenty, and the likes of That's Write with its own brand of font handling. Later versions of Calligrapher have also had some (rather expensive) 'own brand' vector fonts.

What Speedo brings, to use a bit of jargon, is a multi-platform font standard which we can share with Mac and PC users alike. What most of us are not used to is the expense of proper, professionally crafted fonts. The fourteen fonts which come with Speedo GDOS are extremely impressive in their quality, at any character size, but what if you crave even more versatility? HiSoft sell a couple of Speedo font sets for Atari users, containing 25 fonts apiece. At £59.95 they make the original Speedo GDOS package look like very good value for money.

Just recently I happened across a a small card which dropped out of the box which contained WordPerfect 6.0 for DOS. The card offered the Bitstream WordPerfect 6.0 for DOS Font Pack, containing fifty Speedo fonts for WordPerfect users, all for £39.95. Nowhere on the card was anything to say that you actually had to have WordPerfect. The supplier was quite happy for purchasers to telephone their details. Having satisfied myself that I wasn't doing anything naughty, and that the existing Speedo fonts supplied with WP 6.0 worked OK on the Atari, I posted off the coupon.

Two days later the package arrived. It contained three 3.5" HD floppy disks containing 50 Speedo fonts in uncompressed form. With these loaded into my drivers directory, Outline.Acc was perfectly happy to add them to my collection of fonts with no fuss whatsoever. This is how software ought to be!

All that remained was to look through and try a few out. I apologise for my lack of anything that could be described as a talent for typographical flair or style, so I will just show you in screen shots what you can get. With the original 14 fonts plus the 50 newcomers there is a noticeable slowing of Works or Wordflair as they first boot up, but once that is over, the system seems as speedy as ever (or not, as the case may be).

Conclusions

I will leave you to form your own conclusions about the fonts shown, but a few comments won't go amiss. Surprisingly, only one font out of 50 is a repeat of the original Atari Speedo pack. VAG Rounded appears in both the Atari version and the WP 6.0 pack. Slightly more disappointing is the large helping of Garamond and Humanist faces which, to the untrained eye, are hardly distinguishable from Dutch and Swiss. Discounting these, we still end up with 37 fonts of reasonable variety, averaging a little over £1 each. All in all, good value for money, and easily accessible in all point sizes from the likes of Works, WordFlair, HyperPaint, EasyDraw and Easy Text Professional Vector.

Monterey
Normande Roman
Normande Italic
Nuptial
Orbit-B
Shelley Allegro
SHOTGUN
SHOTGUN BLANKS
Staccato 222
Staccato 555
STENCIL

Freehand 521
Freehand 575
Freehand 591
Gothic 821
Goudy Heavyface
Humanist 970 Bold
HUXLEY VERTICAL
Impress
INFORMAL 011
Mister Earl
Modern 735

Tango
THUNDERBIRD
UMBRA
Vag Rounded
Vinetta
Classical Garamond Roman
Classical Garamond Italic
Classical Garamond Bold
Classical Garamond Bold Italic
Geometric Slabserif 712 Medium
Geometric Slabserif 712 Medium Italic

Product:	The WordPerfect Six.0 Font Pack
Supplier:	Mainstream Software Solutions Limited 2 Court Mews London Road Charlton Kings Cheltenham Gloucestershire GL52 6HS
Tel:	0242 227377
Fax:	0242 251319
Order Code:	WP6-1001

T28 Accelerator

The T28 is an accelerator for the ST(FM) and Mega computers. It contains a 68000 processor running at 28MHz. How well does it operate? What software will it run? Is it good value? David Hornsby answers these questions in this review.

It was at the Atari show in Alexandra Palace last September that I saw System Solutions first demonstrate the new accelerator from Germany, the T28 and its faster brother the T36. Both contain a 68000 processor running at either 28MHz or 36MHz. They are designed for the ST (FM) or ST Mega computer only. I notice that Titan Designs also stock these accelerators now. I chose to buy the T28.

What does it look like?

The T28 is a professionally produced circuit board containing a fast 68000 processor, a few other chips including 64K of fast cache memory, and a socket for a co-processor. It is designed to replace the standard 68000 chip in your Atari. Since this is usually soldered in place, you have to remove it carefully, fit a 64 way socket and then plug the T28 in.

There are four solder pads which allow you to connect your T28 to a couple of simple switches. This allows either 8 MHz or 28 MHz operation and enabling or disabling of the cache memory. There is nothing more to it than that. All power and signals connections are made through the 68000 socket.

Is it easy to fit?

Yes. Fitting instructions were supplied and covered all the work needed. However, my advice is: don't do it yourself unless you are used to working on circuit boards as it's not a job for beginners. I have wielded a soldering iron since I was 8 years old and have upgraded the memories on about 4 different ST's, happily fitting sockets into solder filled plated through holes. So I tackled the job with confidence, taking meticulous care over static precautions. My work in the electronic industry has taught me that, even though a chip may survive a small static shock, its life is nevertheless degraded. Many are aware of this for CMOS and NMOS type chips. However, even LS TTL chips are degraded, so of you wish long life for your Atari, treat it with care.

Since my Atari Mega was already fitted with the TOS 2.06 T-board, soldered onto the 68000 chip, I first carefully removed this. The 68000 itself is soldered directly into the main circuit board, so the best way to remove it is to carefully clip off each of its legs with miniature side cutters. Next, each leg stump left in the board may be removed with a hot soldering iron and a solder sucker. Any attempt to remove the 68000 intact is sure to fail and will probably damage the main board. When I had finally plucked up courage to remove my 68000, I soldered it into a turned pin 64 way socket so that it could be used again. I then fitted a second socket to the board, plugged the 68000 back in and tested the computer. To my delight, I found that it still operated!

Normally, the next step would be to insert the T28 into the new cpu socket. Because of the shape of the T28, you may need to raise the height of the socket with at least one more empty 64 way socket: having a 6 chip ROM set, I needed 3 extra sockets. Then my T28 and T-board plugged in, a sort of miniature totem pole like stack. The T28 fitted the case of my Mega ST easily even with a T-board, and I have seen it fitted into a ST(FM) although I wonder if the latter would have room for the T-board as well. Karl at System Solutions even claimed he could fit the T28 into a Stacy.

Next it was time to start testing. Alas! my Atari did not at first like its new processor. It suffered intermittent problems and hard disk crashes. It gave glimpses of accelerated performance which excited me but the computer was unusable. Then, even the old 68000 processor refused to work correctly in the computer. I deeply regretted the day I had savagely chopped it out. I made numerous tests, then turned to System Solutions for help. The folk there were very helpful and after testing my 4Mbyte of RAM (2 Mbyte was original 170ns RAM and 2Mbyte was expanded 70ns RAM fitted by me) and my hard disk ICD interface, finally traced all the problems to a couple of dry joints in the new 64-way processor socket. However, my visit to the System Solutions did allow me to gain a little more inside information from experts about the T28 and T36. Apparently, there are rarely any operating problems, particularly with the T28. Occasionally, ST's are fitted with relatively slow memory buffers, the 74LS373 chip made by SGS. If so, these need replacing with faster ones. This speed problem shows up as the machine tends to "hang". Memory chips slower than 100ns or memory banks with mixed speed chips may also give problems. My Mega had both these limitations yet this causes no problems for me. If you chose to fit the T36, all these problems are more likely to appear but System Solutions reckon that they can generally get the faster accelerator working in most ST's.

On Mega ST's, the blitter chip has to be removed because of the lack of compatibility. Although this seems a shame, the accelerated ST is almost as fast at "blitting" (see the table at the end) and in practice I do not notice the absence of my blitter. This is certainly not a reason to reject the upgrade.

What will the T28 do for you?

The accelerator will make a marked difference to the processing power of your ST. In round figures, the T28 executes software three times faster than the standard 8MHz ST (the T36 about three and a half times faster). Theoretically, the speed should be a bit faster still (28 divided by 8 is 3.5, 36 divided by 8 is 4.5) but the rest of the computer slows things down a bit. In fact, without the cache memory, my T28 only gives about one and a half times speed improvement. The only use I have found for the cache on/off switch, incidentally, is to do speed trials for the accelerator.

How well does it work?

Excellently! I have found that every piece of software that I use runs correctly. I have never experienced a crash or a bomb which seems associated with the T28. The speed improvement is dramatic, even for some programs which I thought were not particularly speed limited.

Protext, for example, suddenly spell checks more rapidly, and complex search and replace commands or macros work much more briskly. Calamus becomes an even greater delight to use and I find direct editing of text in the display window becomes easily possible. Screen updates operate faster and changes to layout can be tried in a fraction of the time. Autoroute (what a shame this soft-

ware is no longer supported!) races through its route finding. A three times speed improvement is breathtaking.

I can hardly mention all the programs I use (Neodesk 3, Arabesque, Convector, Easy Draw, Degas Elite, Superbase Personal 2, Outline Art, Genus, Script, KSpread, VIP, GFA Basic, Lattice C, Devpac 2, Atari Archive, Knife ST, LHARC, ARC, ZOO, ZIP etc ...) but they all appear to run flawlessly. Floppy and hard disks run correctly, albeit no faster. My mono screen appears as clear as normal and my printer, a DJ500, and my modem operate correctly.

One item I fully expected to complain was my Power scanner. This, I thought, is why they allow you switch the T28 back to 8 MHz. The switching, incidentally, only takes effect when the computer is reset. By comparison, the cache switch operates instantly, "on the fly". To my surprise, the scanner ran correctly with the T28 switched to 28MHz although it did not scan any faster.

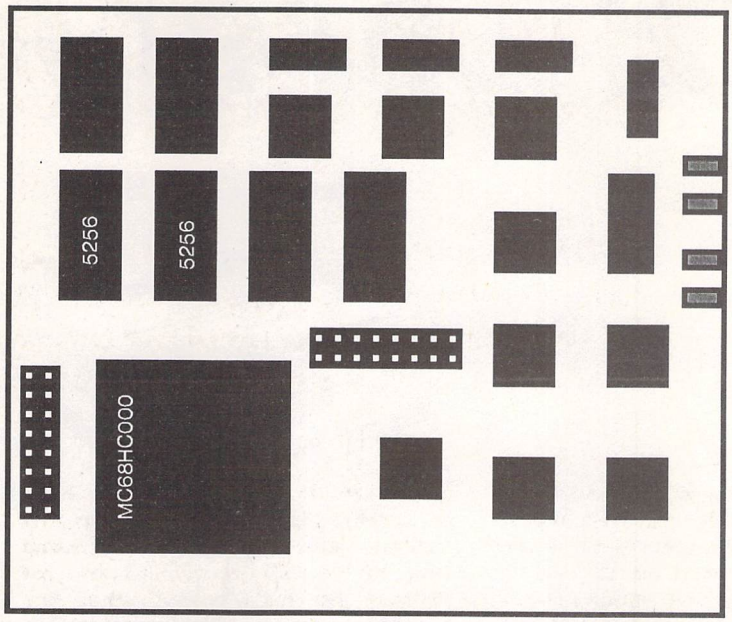
System Solutions supplied two pieces of software with the T28. One was Gembench (the same version as on the ST Club Disk Mag - Jan 94 DM.39) to enable the user to do speed tests. The other, as an introductory offer, was a copy of NVDI, the software accelerator. I already used Warp 9 and was used to the speed improvement of this software accelerator. I have found NVDI marginally faster on balance and I have found that both it and Warp 9 work well with the T28. The combination of software and hardware accelerators has turned my ST into a very respectable workstation for serious computing. I have on my desk at work a 386 machine running Windows 3.1 at 20 MHz. For practical purposes, on virtually every task, it performs quite a bit more slowly than my 8 MHz Atari at home. Now that I have an even faster Atari, I find it really quite difficult to be patient with my work machine.

Are there any disadvantages to the T28?

I suppose the cost is about the only problem! However, compared with the other accelerators that have been available for the Atari, the T28 represents good value. ICD make the AD Speed series but they are almost as expensive and only offer 16MHz speed. The Turbo 25 now seems a little obsolete by comparison with the T28. The SST 68030 accelerator runs at 50MHz and is said to outperform the TT, but is very expensive. If you want more speed, the T28 accelerator at about £199 seems to be about the best value. There is the T36 of course but at £100 more, it offers only a marginally faster speed and is hardly worth it to my mind.

However, there must be applications, particularly on the games side, where the standard ST is quite adequate. Where the speed of operations is controlled by the internal clocks in the ST, no speed will be gained since they "tick" away at normal speed. Music plays at the normal tempo, the cursor blinks at the same rate, space invaders drop their bombs at the usual speed, and so on. For processor-hungry applications, however, I thoroughly recommend the T28.

T28 Accelerator Board life size (9.5 x 8 cm)



Summary

Points for:

- ✓ Good speed gain, especially when combined with NVDI or Warp 9
- ✓ No other accelerators offer this performance at the price
- ✓ All software seems to work with it
- ✓ Professional circuit board
- ✓ Good value

Points against:

- ✘ Fitting needs some skill
- ✘ Not compatible with blitter
- ✘ Some programs may not need extra speed

Product:..... T28 Accelerator
Price:..... £199
Supplier:..... System Solutions
Windsor Business Centre
Vansittart Road
Windsor SL4 1SE.
Tel:..... 0753 832212
Systems:..... Any ST(FM) or Mega ST

Test Results

Mega ST, no blitter, TOS 2.06, testing software: *Gembench v3.02*

Table showing summary of % performance gains:

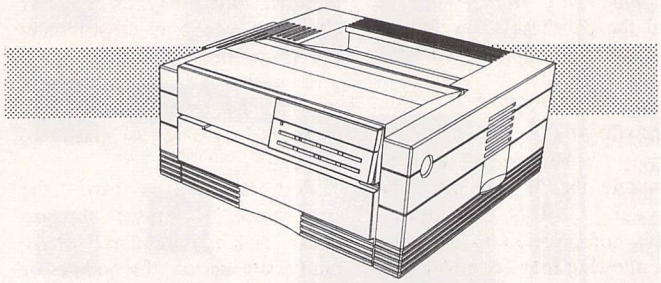
TEST	8MHz	8MHz + blitter	8MHz + Warp 9	8MHz + NVDI	28MH	28MHz +cache	28MHz +cache +Warp 9	28MHz +cache +NVDI
Display	96%	247%	337%	405%	105%	126%	712%	925%
CPU	97%	97%	96%	97%	153%	281%	279%	281%
Average	96%	204%	268%	317%	118%	170%	590%	741%

(The blitter was only on for the one test shown.)

The single test which was not improved was "blitting". At 8MHz with the blitter, *Gembench* showed 613%. At 28MHz (with no blitter), cache on and NVDI active, it achieved 467%.

HP LaserJet 4P

Review by Chris Gray



Having read all the positive press and seeing first hand the stunning output from the 600dpi Hewlett Packard LaserJet 4, I made up my mind that this would be my next printer. When I learned that DMC had released LaserJet 4 drivers for Calamus SL, my heart positively leaped for joy. 300dpi lasers and bubble/inkjets are nice, but for people who regularly incorporate detailed graphics in their DTP documents, or who are graphic artists by trade, 600dpi is a far better choice.

But for the cost. This kind of performance has a price, and it happens to be over two times that of the cheapest 300dpi lasers on the market today. Although the printer is 'state of the art' hardware and offers good value for its performance level, the relatively high cost could not be justified by many of us (unless we cut down on such frivolous expenses as food and shelter). All we could do was wait and hope for a less costly alternative, or try and be satisfied with an "ordinary" laser printer.

Enter the LaserJet 4P. Following tradition, this "personal" version of the LaserJet 4 is more compact, slightly slower, and less expensive than its big brother. This makes it ideally suited for environments where print speed is not crucial, and where space and budgetary considerations are at a premium, such as in a home office. Like the LaserJet 4, the 4P features microfine toner for more precise imaging, and two megabytes of standard memory. For Mac and other PostScript users there is the 4MP, which comes with six megabytes of memory and PostScript Level 2 as standard.

Using the Printer

The 4P comes with a large easy to read instruction manual and one toner cartridge. Installing the cartridge is very straightforward - simply remove it from the opaque plastic bag, open the access door on the printer, and slide the cartridge into position. Connecting the printer to the ST is no less simple - use the printer port on the computer and the parallel interface on the printer. Plug the power cord in and you're ready to go.

The 4P is a very space-efficient package, being a little smaller in length and width and about half as tall as the LaserJet 4. The function buttons and LCD display panel are on the front rather than on top, and there is a switch at the rear of the printer which directs the paper to exit either face down on top or out through the rear. Like the LaserJet 4 (and 300dpi 4L), the paper tray is completely integral, contributing to its compact design.

Paper handling is very convenient. The bottom mounted tray can be configured to handle letter, legal, A4, or executive sizes, and can hold up to 250 sheets. The printer is less than 8" tall, so paper must go through some very acrobatic contortions starting from the bottom tray before it finally emerges face down on top. Regular photocopier paper works well, but I found that thicker paper tends to emerge with a pronounced curl. You can get around this by using the front manual feed slot and having the paper exit out the back, for a completely flat paper path. This method is also recommended for envelopes, 3"x5" index cards, and transparencies. Paper thicknesses of up to 42 pounds can be fed through the manual feed slot, while the paper cassette path can accommodate up to 28 pound stock. The 4P treats paper more kindly than the LaserJet IIIP did, which had a propensity to crinkle paper.

For DOS/Windows users (the world seems to be much kinder to them these days, doesn't it?), the 4P can be controlled via software included with the printer. The Windows 3.1 driver and the DOS Remote Control Panel allow your applications complete access to the printer's features, without your having to physically access the function panel. For DOS, there is also a "Status Monitor", which displays such information as low paper, paper jam, and others on your computer screen.

Atari users of course don't have this luxury, but fortunately the 4P is completely backwards compatible with earlier models. The 4P shares the same 45 scalable internal fonts as the LaserJet 4, printable in .25 point increments from a tiny 0.25 point all the way up to 999.75 points. The standard typefaces include the usual CG Times, Univers and Courier, to the more distinctive Garamond, CG Omega, and Arial. Complete families of most typefaces are present, i.e. book, italic, bold, bold italic, and even condensed versions in the case of Univers. Some of the fonts, such as Albertus Extra Bold, Clarendon Condensed, and Antique Olive Bold are suitable for display purposes, and there is a Symbol and Coronet (a delicate script) as well, to cover a broad range of needs.

Gaining access to these fonts is another story, however. The printer is able to understand older LaserJet III and 4 printer drivers, so Atari and Amiga users can take full advantage of the 4P's superb resolution and typefaces, so long as their application has a LaserJet 4 driver. If all you have are LaserJet III drivers, you can still use the printer, but it will not allow access to all of the fonts, and graphics will print at 300dpi. With WordPerfect 4.1 the LaserJet III drivers allow you to access the CG Times, Univers and Courier typefaces, with some limitations regarding size and orientation. For letters this set-up is satisfactory, and the results look superb. With other more sophisticated word processors, there should be little problem utilizing the printer's features more fully. The manual contains appendices for typeface and graphic control codes for entry into your word processor, if you are so inclined.

Printed Results

Print quality is excellent, on a par with the LaserJet 4. The microfine toner and Resolution Enhancement take care of what

little stepping there is at 600dpi to produce text vastly superior to what most people are accustomed to from a laser printer. Resolution Enhancement varies the dot size and placement on the outlines of typefaces and graphics to reduce or eliminate the aliasing that occurs on lines and curves that are not perfectly vertical or horizontal. This process only works on solid black areas, not halftones. One can see Resolution Enhancement in action with shadowed text - the solid foreground letters appear perfectly smooth, while the background shadows exhibit slight aliasing.

As most users know, Calamus fonts (unlike PostScript type 1 fonts) do not employ "hinting", a process that improves the font definition at small point sizes on low resolution output devices, such as 300dpi lasers. Consequently, at small sizes (usually at ten points or lower) Calamus fonts begin to acquire a disproportionate boldness, an effect that worsens as point size is reduced. Calamus users will be pleased to know that the resolution of the LaserJet 4P is high enough to eliminate any problems associated with printing fonts at very small point sizes. In fact, the serifs of finely detailed typefaces appear very well defined even below 6 points.

Graphics and greyscale images are also far better than those obtainable at 300dpi. While not quite up to imagesetter standards, scanned photographs may reproduce well enough to eliminate the need for a service bureau, depending on the job requirements.

At 600dpi, there is four times more image data to manage than at 300dpi, so the LaserJet 4P needed a speedy processor to maintain the printing speed that customers expect. A 16MHz Intel 80960 RISC processor does the calculations, for a claimed performance increase of 30% over the IIIP.

Using a TT 030, time-to-print ranged from almost immediate for a one page letter from WordPerfect 4.1, to about five minutes for an extremely complex graphics page from Calamus SL, which included several fonts at different sizes and many greyscale vector graphics created in Outline Art 3. A moderately complex page from Calamus (one which contained the text but fewer graphics) took exactly two minutes, which has turned out to be the average time for most documents I produce. Using a standard ST, times will be slower - perhaps it would take 6 minutes to print the same page, but nonetheless this is very impressive performance by any standard. Despite the complexity of the pages, they appeared to print out entirely at 600dpi. This feat is no doubt made possible by the Memory Enhancement, and will allow most users to avoid the purchase of additional (and expensive) printer memory.

Memory Enhancement Technology

Memory Enhancement is one advantage the 4P has over the LaserJet 4. This technology applies compression to the page data, allowing more complex images to be printed with existing printer memory than would otherwise be possible. It is still possible for extremely complex pages to overload the memory, forcing a portion of the page to be printed at 300dpi. HP recommends that an additional four megabytes be added if you regularly print pages with very detailed graphics, with a fringe benefit being faster printing, since Memory Enhancement will not be implemented as often. Users can upgrade to a maximum of 26MB of memory, and Postscript Level 2 is optional.

A benefit of being a state of the art design is greater eco-friendliness than its predecessors. An Economode allows toner savings of about 50% for draft copies, powersaver mode reduces power consumption when the printer is idle (when it uses just 5 to 18 watts, depending on the amount of optional memory installed, compared to about 45 watts for earlier models), and no ozone is generated by the printing engine. The 4P is barely audible when idle and still fairly quiet during printing, an attribute home office users will appreciate. Lastly, the toner cartridges are recyclable, and in N. America Hewlett Packard will even pay the postage for returned cartridges.

Claimed toner life is 3000 pages based on typical business letters with 5% coverage, but if you regularly print pages with graphics, toner life will obviously be substantially lower. The cartridge also contains the print mechanism, so there is no separate drum to worry about replacing.

What is there not to like about this printer? Very little. A trade off of being such a compact and economical package means that there is only one paper tray, so that only one size of paper may be loaded at one time. This is a minor point for most people, but if you regularly alternate paper sizes (as would likely be the case in a larger office) the LaserJet 4, with its multitude of standard and optional trays, may be a better choice. If you only occasionally use more than one paper size, you can load single sheets through the front manual feed without disturbing the paper in the tray.

A more serious concern is the appearance of "ghost" images under certain conditions, where faint outlines of the image or text above can be seen on any halftones below.

Presumably as a consequence of the small size of the printer and print mechanism, the drum is very small, just three inches in circumference (the drum is a light sensitive roller that attracts toner where its surface has been struck by the laser beam). This means that to apply toner to a letter size page, the drum must be charged, neutralized, and then charged again up to four times. For letters and pages containing black an white graphics there is no problem, but on pages that contain a mix of solid blacks and halftones, faint "ghost" images of the solid areas sometimes appear on the halftones below. This is caused by a residual charge left on the drum by the image above. Many users will not experience or notice this (depending on the type of printing they do) but for others it will be a serious issue, one that likely could have been avoided had the drum been designed at eleven inches in circumference, enough to cover a full page on a single charge.

With the increasing popularity of mid to high resolution laser printers (remember just two years ago, before the LaserJet 4, you couldn't get a 600dpi laser for under $4000!) and the affordability of lino output, graphic artists and desktop publishers are finding that the standards for acceptable output quality are rising fast. Bubble/Inkjet and 300dpi lasers are becoming increasingly unacceptable even for short run, low budget jobs. At a street price of about $1350 Canadian, the HP 4P would make an ideal upgrade from a conventional laser or inkjet, providing very good results without the inconvenience and expense of regularly utilizing a service bureau. While it won't replace an imagesetter for high end jobs, the outstanding quality and reasonable price may be enough to attract those who need a little extra from their laser printer.

Conclusion

Points For:

- ✓ Very high quality printouts
- ✓ Faster output than previous generation IIIP
- ✓ Backward compatible with earlier LaserJet models
- ✓ Good value for money
- ✓ Well thought out, compact design
- ✓ Toner cartridge easy to replace
- ✓ Memory Enhancement Technology allows most pages to print at 600dpi with standard two megabytes
- ✓ Memory and Postscript Level 2 expandable
- ✓ Convenient paper handling, wide range of sizes and types

Points Against:

- ✘ Unsettling (though very rare) "ghosting" effect with some combinations of solids and halftones
- ✘ Some applications still do not have LaserJet 4 or 4P drivers, and so the full capabilities of the HP4 are not being realized in these cases.

An excellent cost-effective printer for first time laser owners or for those who wish to upgrade from an earlier model. As of yet there is no real competition from other manufacturers, but this is sure to change.

Product:	HP LaserJet 4P
Manufacturer:	Hewlett Packard Ltd. Cain Road Bracknell Berkshire RG12 1HN
Tel:	0344 360000
Price:	app. £750 + VAT
Manifest:	Full size softcover manual, DOS & Windows software on HD disks
System:	All ST, TT, Falcon machines

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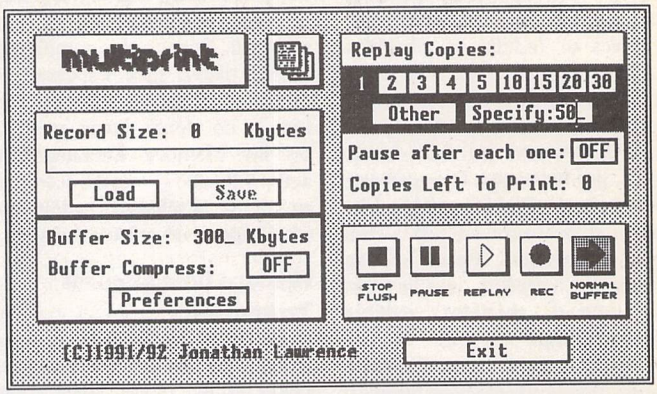
Multiprint



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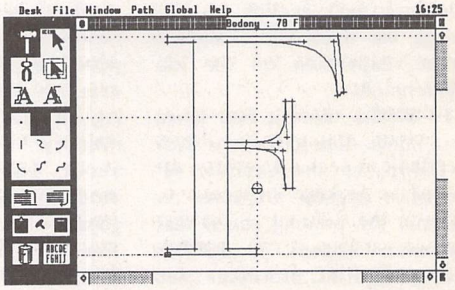
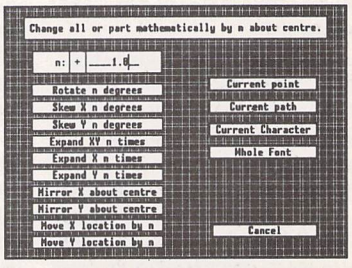
Fonty

Calamus Font Editor

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 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 mathamatically manipulate fonts, and Window scaling. A separate program, PFB2CFN, reads a Postscript Type 1 Font file and copies it into a Calamus CFN font file.



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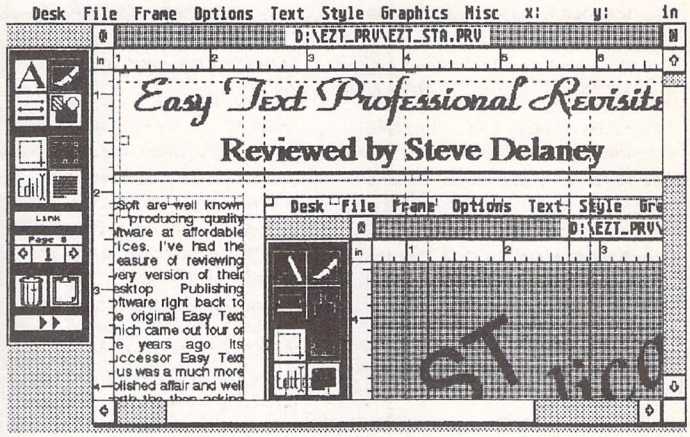
Easy Text Pro Vector



ZzSoft are well known for producing quality software at affordable prices. I've had the pleasure of reviewing every version of their Desktop Publishing software right back to the original Easy Text which came out four or five years ago. Its successor Easy Text Plus was a much more polished affair and well worth the then asking price of £20, but it still came into the budget category. Then came Easy Text Professional which was reviewed in issue 26. I concluded the article by saying that, "It is simply the best of the GDOS based Desktop Publishing packages and in certain respects gives such heavyweights as PageStream and Calamus a run for their money."

As soon as I heard that Easy Text Professional Vector had been released, I called Roger Pearson at zzSoft and requested some details for the news pages. He duly obliged and shortly afterwards, the program itself arrived for review. This review is rather short by normal standards as Easy Text Professional Vector is practically identical in operation to its predecessor, Easy Text Professional. However, the product should not be discounted as a minor upgrade as the incorporation of SpeedoGDOS support has altered its usability and quality of output dramatically. Rather than look at each and every feature of the package, I will concentrate on the differences between the two versions. It can be safely assumed that features not covered in this review remain unchanged from those in Easy Text Professional.

GDOS - The Old Dinosaur

The Easy Text family have always been GDOS based. As everyone knows, GDOS is a pain to install, slows down your system, and the resulting printout, although acceptable, is nothing to shout about when compared to the likes of Calamus and PageStream. In addition, you have to have a separate font file for each type size required, separate screen and printer fonts and cannot use high resolution fonts on a colour monitor and vice versa. The only alternative to using GDOS was for programmers to create their own font format and incorporate it into their package. This has been done by DMC and Soft Logik in Calamus and PageStream respectively. The main problems associated with this approach is that the proprietary font format is incompatible with other packages and its creation adds considerably to the product's development schedule. This is why most DTP programs have stuck to using GDOS.

Like many ST users, I hated GDOS and avoided it like the plague. Its successor was FontGDOS which was an improvement but never really took off. Everyone was waiting for FSM GDOS which promised to bring the original release up to date with its support for vector fonts. FSM GDOS was a step in the right direction but it was slow, buggy and never put on general release.

Enter SpeedoGDOS

With the appearance of the Falcon (well, a good bit later, actually) came SpeedoGDOS. My copy of SpeedoGDOS remained uninstalled until Easy Text Pro Vector arrived. Up until then I regarded it as 'yet another version of GDOS' which might come in handy one day. After seeing what it was capable of, my opinions soon changed! It incorporates licensed technology from Bitstream which is widely used on the PC. This means that a vast library of fonts are available to SpeedoGDOS users from the outset.

The biggest improvements over previous versions of GDOS are its speed, its ability to load and unload fonts, the fact that it is resolution and device independent (you no longer require separate fonts for mono and colour, different fonts for different printer types or separate screen and printer fonts). What's more, you don't need a separate font for each point size and the use of vector fonts rather than their bitmapped equivalents results in every size of type from 10-point upwards giving a professional printout.

SpeedoGDOS takes up almost two Megabytes of hard drive space, although you can save about 700k by deleting the printer drivers inappropriate to your set up. The fonts themselves take up over 800k but this is not as much of a memory headache as you might think. All that is actually loaded is the font descriptions and the character set is built from these at the appropriate sizes when needed. This operation is cached for speed and the internal caches used by Speedo may be set to little more than the size of the largest font you intend to use if memory proves to be a problem. Obviously the larger the caches, the fewer calculations are required. This leads to improved speed in the program you are running.

Probably the most reassuring thing for those of you who regularly use GDOS based packages is Speedo's downward compatibility with the original GDOS. Even programs which do not support SpeedoGDOS can be used as per normal with their original fonts, rather than having to keep two versions of GDOS on your system. For those of you who are not already familiar with SpeedoGDOS, I would recommend that you read the article by Martin Norfolk in issue 34 which covers the product in much greater depth.

What You Get

Easy Text Pro Vector is essentially Easy Text Pro upgraded to v1.35 and adapted to fully utilise SpeedoGDOS. It is supplied on one double sided disk and you may be surprised to hear that it comes with the standard Easy Text Pro manual and a 21K text file on disk which outlines the differences between the two packages. That's how similar they are to each other. I'm pleased to say that the text file on disk is as well written as the printed manual. It details all the new features and explains clearly and concisely how to use them. It also lists a number of anomalies between what's printed in the manual and how specific features are implemented (or not) in the latest version of the program.

Easy Text Pro Vector will not run unless you have SpeedoGDOS installed. It cannot be used with earlier versions of GDOS. The original Easy Text Pro is still available for those of you who do not have SpeedoGDOS or are limited to one megabyte of memory. I still rate it as the best of the GDOS based DTP packages, despite its low price. Easy Text Pro Vector is intended to be installed onto a hard drive and requires at least two megabytes of memory, mainly because of the overhead required by Speedo. It can be installed on to a large ramdisk but you will require at least 2.5 megabytes of memory if you

wish to do this. zzSoft provide Maxi Ramdisk on the distribution disk for this purpose and give easy-to-follow instructions on setting it up to your own requirements.

Like Easy Text Pro, the latest version is supplied with an easy-to-use installation program. It's just a case of a few clicks of the mouse and leaving the program to get on with the installation. Nothing could be simpler. Now reboot your computer to install SpeedoGDOS and load up Easy Text Pro Vector. If you have upgraded from Easy Text Pro, you will take to this package like a duck to water. If not, it's just a case of reading the manual, followed by the text file on disk which outlines the changes between the two packages. As I said in the review of Easy Text Pro, the manual is very thorough in its coverage of the package and really easy to follow.

Existing Easy Text Pro users will be glad to know that a conversion program is supplied to convert their old .PRO files into the new .PRV format. The converted documents may then be loaded directly into Easy Text Pro Vector. Obviously the fonts used in the original document will not match those available with SpeedoGDOS, but the program makes an intelligent guess as to which font to use and at what point size. The results are surprisingly good for such an automated process.

One Small Limitation

It should be noted that the review copy of Easy Text Pro Vector allowed a maximum of ten fonts to be used. If there are more than ten fonts in your SPDFONTS folder (fourteen are supplied as standard with SpeedoGDOS), only the first ten will be available for use within Easy Text Pro Vector. However, Easy Text Pro Vector knows that there are fourteen fonts even though it only allows you to use ten. The problem comes when you try to print out and can't! The only solution is to load up the Outline utility supplied with Speedo and disable excess fonts. You must then re-load the document into Easy Text Pro Vector and resave it before printing. I am pleased to say that zzSoft intend to increase the maximum number of fonts to twenty in the near future.

The Main Changes

The fixed point sizes used by Easy Text Pro have gone. Although Speedo gives you a choice of several preset sizes which can be selected with the mouse, you can also enter your own choice of point size by simply typing it in. This can be anything from 4-point to 999-point, but sizes below 10-point are not recommended as the printout suffers on such small type. A nice feature is the ability to display some characters from each loaded font on screen. This makes it much easier to decide which of the available fonts you wish to use in your document.

Subject to available memory, different attributes such as bold, italic, outlined, subscript and superscript may all be applied to Speedo fonts when being used within Easy Text Pro Vector. The documentation states that Atari do not recommend doing this. I tried it and experienced no problems but the warning is there nevertheless.

Easy Text Pro Vector allows you to view your page at one of five preset sizes. This option replaces the 'Page Preview' mode of Easy Text Pro, being much more flexible. I was pleased to see that pages may be edited (as opposed to merely viewed) at any of the selectable sizes.

Another new feature brought about by the use of SpeedoGDOS is the ability to rotate text (of any size) to any preset angle. This is not a feature that you are likely to use very often but it is one which is missing from normal GDOS based packages. It involves setting up one of the program's tags to specify the font to be used, point size, angle of rotation, justification of the text and so forth. Tagging is a quick and easy way to restyle text and was one of the features I liked in Easy Text Pro.

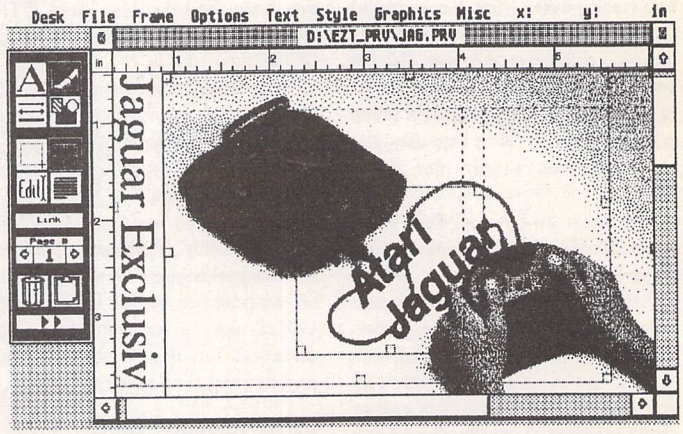
There is one oddity in that rotated text is often invisible on screen if it lies outside the boundaries of its frame after rotation. I'm not sure if this is a problem with SpeedoGDOS or Easy Text Pro Vector. Either way, you can rest assured that it is only the screen display which is affected and your document will print out correctly as long as the text does not protrude beyond the printable area of the page.

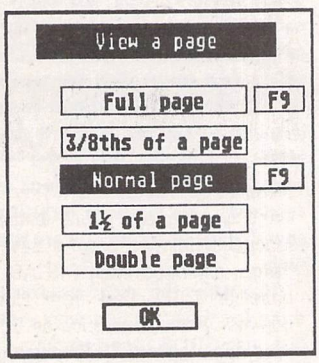
Printing

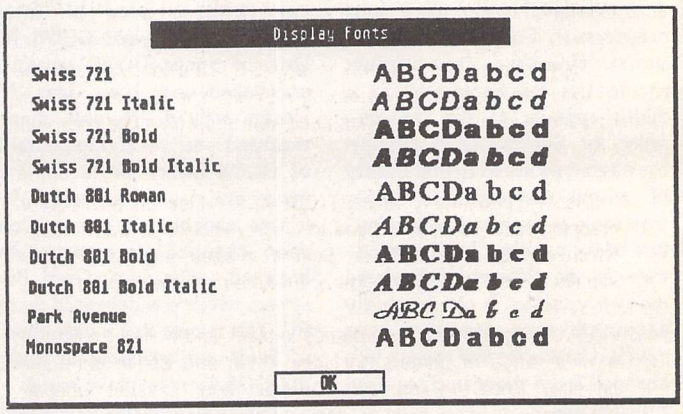
Easy Text Pro Vector is rather slow at building up the page in memory prior to printing, even slower than Calamus if the truth be told. However, once it starts it produces clear crisp results which rival anything on the market. What's more, once it finally gets going, it prints a page much faster than Calamus, or at least it does on my Starjet SJ-48!

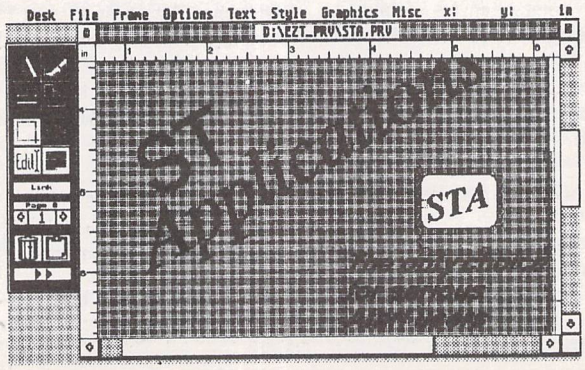
Conclusion

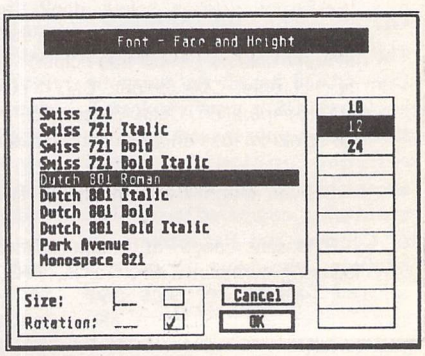
Easy Text Professional Vector is available now at a cost of £39.95 and I have no hesitation in saying that it is well worth twice that price. It may be missing some of the frills of Calamus, but I could very easily sit down and create a professional looking newsletter or product manual with it. It is simple to use and screen updates are a little slower than with Calamus but nothing like as bad as with GDOS based packages. As regards the printout, it's as good as anything I've seen produced on an Atari.











Second Opinion

It should be possible, through the use of an Extend.Sys file, to mix bitmap fonts and vector fonts when using Speedo GDOS. ETP Vector cannot do this: bitmap fonts either give a corrupt screen display or are displayed at the wrong point size, and an error message is displayed when you try to print. Roger Pearson has admitted that this will need to be looked at, as he has received a good number of enquiries from people who want to mix the two, particularly those who have had to develop a (GEM) font for their own specialist use: Hebrew, Greek, Phonetics, etc. It would also be useful to be able to mix small point size GEM fonts (below 10pt) with the Speedo vector fonts, as these often give a superior printout at this size.

The screen redraw is slow. Whereas Timeworks will only redraw that part of the screen that is brought freshly into view when slider bars are moved, ETP Vector redraws everything, making it as irritating as PageStream!

Manual text entry is also a bit of a hit-and-miss affair. I have tried to type text (and edit previously entered text) on screen, only to be frustrated by the refusal of the text cursor to do anything suggested by keyboard manoeuvres. Positioning the cursor in a text frame is itself fraught with difficulties, and once there it is often not exactly where it seems. Deleting or backspacing over a character can result in the wrong one being disposed of. The arrow keys only occasionally have any effect on moving the cursor around the text, and the simplest edit operation, such as inserting a comma, causes the whole frame to update (redraw) itself. Maddening. Block operations are pretty hazardous too: mouse drag highlights portions of text, true, but not normally the ones intended. I'll stick to Timeworks, GDOS and all, for the time being.

David Smith

Easy Text Professional Revisited!

zzSoft are well known for producing quality software at affordable prices. I've had the pleasure of reviewing every version of their Desktop Publishing software right back to the original Easy Text which came out four or five years ago. Its successor Easy Text Plus was a much more polished affair and well worth the then asking price of £20, but it still came into the budget category. Then came Easy Text Professional which was reviewed in issue 26. I concluded the article by saying, "It is simply the best of the GDOS based Desktop Publishing packages and in certain respects gives such heavyweights as PageStream and Calamus a run for their money."

△ A sample printout on HP DeskJet 500 using a 30-point Park Avenue for the heading and an 8-point Dutch for the body text.

Product:	Easy Text Professional Vector
Version:	1.35
Authors:	Roger Pearson and Sean Hodgson
Supplier:	zzSoft 114 Sparth Road Clayton Le Moors Accrington Lancs. BB5 5QD
Tel/Fax:	0254 386192
Price:	£39.95
Upgrades:	£10 from Easy Text Pro (return master disks); £25 from Easy Text Plus (return master disks & user guide)
Manifest:	134-page ring-bound manual and 21K document on disk
System:	Atari ST/E, TT or Falcon with at least 2MB of memory and a hard drive or 2.5MB of memory and a ramdisk (supplied). SpeedoGDOS is also required.

Imagecopy 2

Image utility for Atari ST/TT/Falcon computers

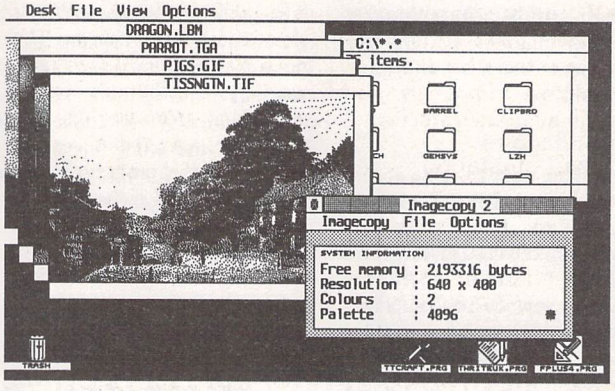
Copy images from screen in any ST/TT/Falcon video mode. Images can be copied by pressing Alt-Help, and a flexible rubber-banding system allows images to be selected with a fine degree of accuracy.

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

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

Convert images between different formats (see next paragraph).

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



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

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

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

FaST Club
7 Musters Road
West Bridgford
Nottingham
NG2 7PP

A Little Bit of LOGIC

Tim Finch

Ahh, every now and then I remember why I bought Atari kit all those years ago, and more importantly, why I still use it over PC. Notator Logic (Logic from here on) is joy all over again. I remember that day in 1988 when I got the cash together for Creator V1.3 on my 520STFM!! Lots of playing, time and cash-expenditures later, I felt a touch of déjà vu as I received Logic for my Falcon.

This is Logic V1.7 for any 2 Meg ST, STe, TT or Falcon. It costs about £350 and I hope I'm going to convince you it's worth every penny. Whether you need it is for you to decide – Notator SL (which I reviewed in STA 38) may well be the best in price and features for you (it only needs 1MB RAM, for example).

The features box details Logic's main features and their use. Logic really sports all the SL features but in a redesigned and upgraded form. However, it adds one new very notable feature, the Environment, which we will look at a little later.

Logical Windows

The first thing notable thing about Logic is the windowing system used. Considering the immensity of the program the user needs the most configurable yet simple method of getting to all the screens and dialogue boxes. Musicians, if they're anything like me, want uninterrupted 'flow' when writing music.

Nothing is more infuriating than having to move to the computer keyboard and enter a whole load of commands just to change display. So Logic has a system called Screen Sets. Every feature of Logic has its own window. Well, to be more precise, every feature can have windows 'opened to it'. The Arrange mode feature for instance can have as many windows open as you like – all conceivably displaying the same (or slightly different) info for the same song in the same 'Screen Set'.

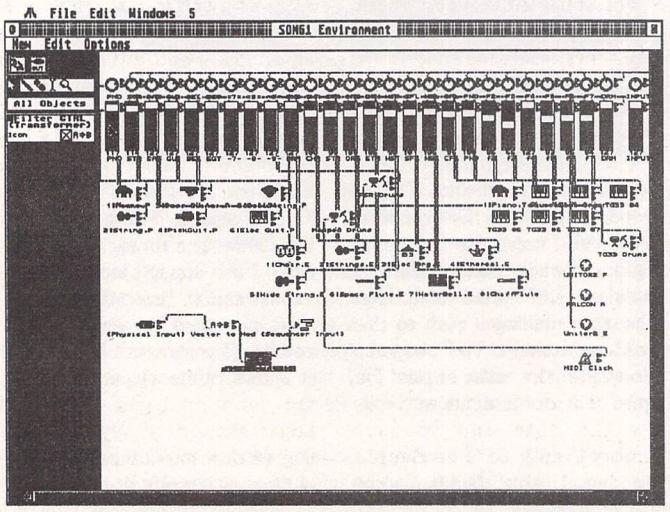


Fig. 2: This is the environment, well my environment anyway. A highly customisable feature where you 'draw' your MIDI set up. A long list of 'object' types is available to make things such as drum kits, delays and arpeggios a total doddle to produce. The Mapped Instrument (called Mapped Drums in this figure) in my environment can have multiple cables going from it to the actual drum instrument icons and thus allows automatic internal routine of specific notes in specific octaves. This is set up in a window that appears when you double click the Mapped Icon. It's all too clever really. But highly useful.

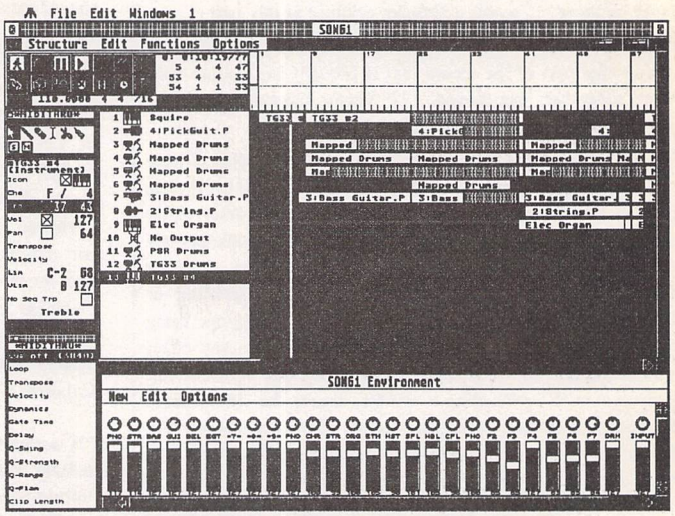


Fig. 1: This is 'screen set 1' on my set up – here we have three windows open. The arrange window occupies most of the screen. The environment window is at the base showing only the fader objects I created, and finally the extended parameters window bottom left.

Any number of windows at any size can be opened (within limits of RAM, no doubt) and positioned anywhere on the screen. These can then be put into one of the 90 screen sets available. These sets are recalled by dialling a one or two digit number on the keypad (no number is allowed to have 0 in it, however, as this is the START key).

Thus, with a screen-set set up for the Arrange mode, one for Notation Edit, one for Matrix Edit, etc., you can simply move between them by pressing say 1 or 2 or 3, etc., on the keypad. This is just a brilliant system that definitely needs implementing on many other programs. Take a look at Fig 1 for my main screen set used for recording parts and general editing, etc., and some of the other figs to see my other defined screen sets.

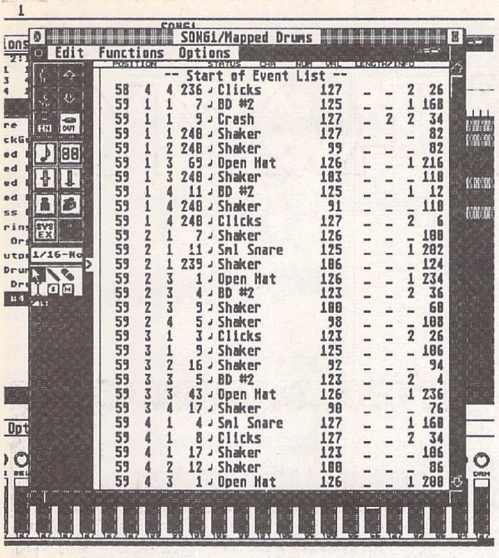
Clean Environment

Fig 2 (left) shows an environment window. Here you draw your MIDI setup by placing 'Instrument' icons on the screen and then drag a cable from the jack sockets on the top right of all icons to the left side of any other, such as a volume fader or MIDI out icon etc. This then connects those icons, or objects, together internally in Logic. The MIDI IN icon is connected to the SEQUENCER INPUT icon for instance. Disconnect the cable and you can't record anything!

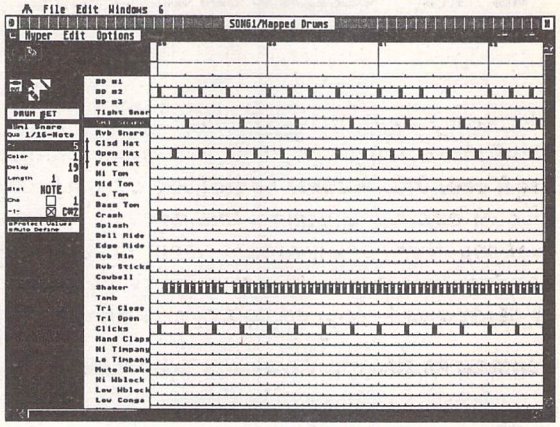
You can group all the instruments for one particular MIDI device on a separate environment screen – I have done this but displayed the 'all levels' page to show you all the icons I've defined.

Faders and pan pots can easily be defined and moving them with the mouse sends Vol & Pan information out the MIDI socket you have wired them to. Naturally, you can define a fader to send ANY type of MIDI data you like.

Arpeggiator and delay line icons, to pick on two, are objects that amend MIDI data that flow through them – so a Piano instrument wired through a delay icon and then wired to the output will produce a MIDI delay (according to the settings for this particular delay icon) as the notes are played. All in all the environment

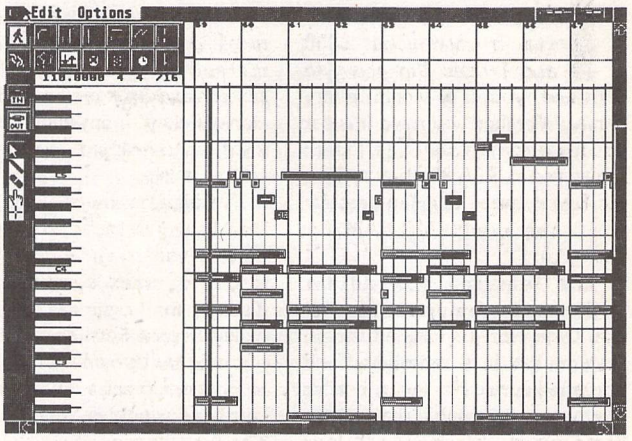


◁ Fig. 3: The Event Editor. Here is a list of the events in a particular sequence - this shows a drum track - notice how all the drum notes are named. This is set up in the environment window using a 'Mapped Instrument' icon. Clicking the box under the window close box takes you back a level (like leaving a folder on the desktop). You are then given a list of sequences and their time positions from which you can choose another sequence to have a look at in more detail. Phew...



▷ Fig. 4: This is Hyper Edit - often used as the drum editor. Here is a list of all my drum sounds down the left and the blips indicate that sound at the respective time position on the time ruler at the top. Now, get this - all these drum sounds can be on any MIDI device, on any MIDI out socket on any channel, or even be layered sounds from multiple devices, etc. (This is provided by the 'Mapped Instrument' feature of the Environment section.)

△ Fig. 5: The File menu allows you to import two very important file types - MIDI files from many many sources and .SON files from Notator SL V3x. SL loaded files produce up to 4 Logic 'folders' (similar in concept to GEMDOS folders) longways across the screen. These can be unpacked into individual sequences if you need to continue editing. If your SON files have tempo changes, however, you need to create a sync reference first or you are back to fixed tempo throughout.



▷ Fig. 6: The Matrix Editor - the old pianoforte display. However, Logic draws a thin line in the middle to indicate the velocity (hardness) of the note and this can edited besides length, position or pitch.

is jolly excellent, highly configurable and central to Logic's way of operating.

Log Three

Logic is shipped with the LOG THREE interface. This plugs in the cartridge port and offers a through port and 4 MIDI outs (three individually addressable) as MIDI ports G, H & I. Unitor2 owners also then get two additional MIDI INS (by plugging Unitor2 into LOG 3) and out ports D & E (along with the SMPTE synchronisation ability of Unitor2 of course). So with both plugged in you have 6 MIDI outs giving 96 channels! Word of warning - Unitor C or Unitor N owners need to upgrade to Unitor2 - contact Sound Technology for details (see end o article). LOG 3 is also a dongle - Logic will not run without it.

Notation

Logic's strength (well, one of all the equal strengths, really) is the notation. Notator SL V3.x notation was superb considering the mono screen size. Logic develops it by giving page view whilst you edit and so laying out the score is just simplicity itself. Good zoom facilities allow you to see in 400% or more detail as well as full page mode. As the sequencer plays, the 'time line' moves along the notes so you can see which notes are going out at what time when tracing timing errors - it really is very clear. What more can I say about this feature? Its brilliant. Maybe the odd musician with needs for special scoring functions may have reason to complain but I think the vast majority of users will be very happy with it. Print quality is every bit as good as SL V3 was - tested on 24-pin dot matrix and 300dpi laser.

Sequencing

The arrange mode may well appear familiar to Cubase users. To record you double click in the track list down the left (Fig 1) in a blank space so that a new instrument name appears. Click-hold the left button over it and a flip-up menu appears with all the instruments you have defined (from the environment screen). Select the one you want to record music for. Now press key pad ENTER twice - this resets the song to the start. Hit keypad * to record. Play on your keyboard. As you play little note symbols appear across the screen. Hit Keypad ENTER to stop. The notes turn into a white bar the length of what you have played. You can now move this 'sequence' back and forward in time or up and down onto another track, thus making it play to that track's instrument. You can copy it, loop it, make 'alias copies' (i.e. copies that don't actually duplicate the data and so save memory), and so on. Simple. Effective. Usable. Brilliant. You can pick it up in about ten minutes.

Test System

I tested Logic on a Falcon030 TOS 4.01 and my trusty STacy TOS 1.4. The screen shots are from 800x600 resolution in 2 colour. Logic is quite cramped on 640x400 ST high-res but virtually all windows have horizontal and vertical zoom functions so as to cram as much in a space as possible whilst retaining readability on an ST mono monitor. In this way workable screen sets can be made for ST high-res as I discovered on the STacy. As far as speed and reliability go, I've used Logic for about six weeks on the Falcon and it has bombed out very little. The funniest crash was when I connected the metronome icon's lead to itself! Screen redraws are slow on Falcon in 16 colours (or more) but I'm sure this is TOS trouble as per usual. I've not yet tried Logic with NVDI. Logic showed a slightly higher degree of instability on the STacy (which is essentially an STFM TOS 1.4 machine) but still very usable. As for the power of Logic on Atari, I had the STacy (8Mhz clock speed, no Blitter) playing a song in perfect time on my three synths AND printing a score of it on 24-pin dot matrix **simultaneously**... I won't mention the word PC at this point, in an attempt to

Main Features

1. ARRANGE MODE

Displays the song on a simple 2d plane. Listed down the screen are the MIDI instruments that make the 'noises'. For each instrument the sequences appear across the screen in segments - each known as a sequence object. Time bars are displayed at the top of their arrange window across the screen - the further to the right the later in the song you are. Simple amendments are made to MIDI instrument settings and sequence objects, such as quantisation, delay, etc., are done in this mode in the boxes on the left of the MIDI instruments' track list.

2. EVENT LIST MODE

Displays the whole song in an event list - a line by line explanation of each discrete piece of MIDI information. It is remarkably similar to the Desktop's windows in SHOW AS TEXT mode - you even have folders in Logic which when double-clicked reveal more information listed down the screen. All the displayed information can be changed by mouse clicking.

3. SCORE EDIT MODE

A complete system in itself for the creation, editing and printing of professional quality scores. The notation is intrinsically linked to the data in the sequence objects in the arrange mode. You can view the notation in an 'extends to the right for ever' type approach or in a page view mode to see the actual layout in DTP terms. You can zoom in and out on the notation and all forms of editing can take place. Print quality is professional and easily good enough for publication (needs Laser or DeskJet output really).

4. HYPER EDIT MODE

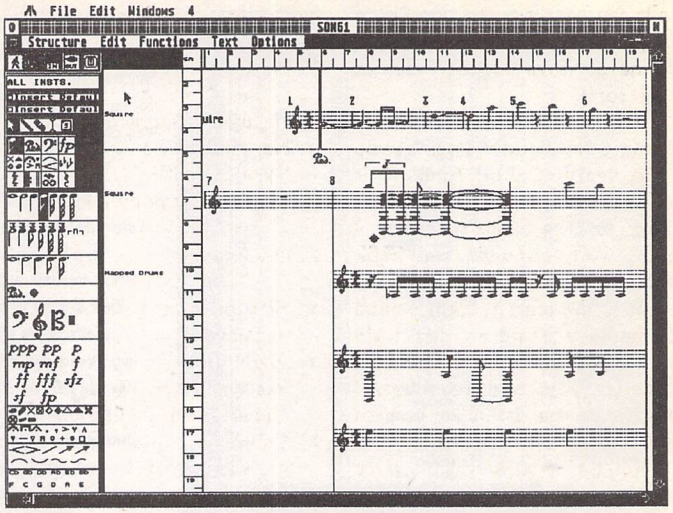
Non-MIDI users will find this a bit hard to grasp. Hyper edit is a system where you can single out discrete pieces of midi information for display on a grid-like structure which may be a more suitable method of display when trying to edit it. Drum programming is the most obvious choice of use, but real time volume information or aftertouch pressure could make good use of this mode. Hyper edit on Logic is far more advanced than SL V3.x. The extra screen space offered by Falcon modes is very handy here.

5. MATRIX EDIT MODE

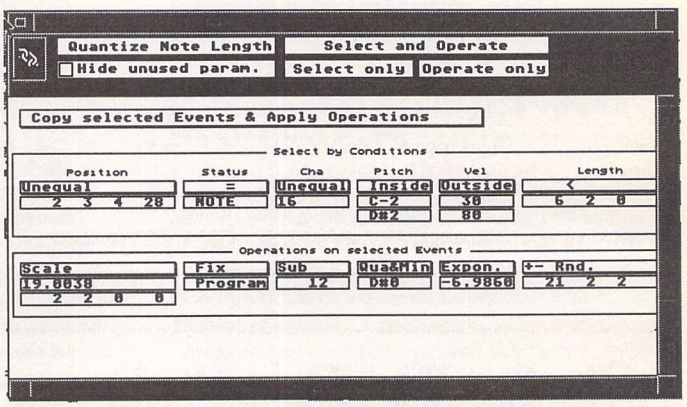
This is very similar to the piano roll idea where a sheet with holes in it roll up the piano and play the tunes. The 'sheet' on Logic is on its side. It is very useful when you want to edit piano parts or any two-handed part as it gives a very approachable method for correcting mistakes or entering new notes exactly in the right place in relation to other notes already there. Also alterable is each note's velocity (hardness).

6. ENVIRONMENT MODE

Simply put, this display lets you 'draw' your MIDI environment on screen. Using icons to represent each MIDI device you own you 'drag' cables from one to another. However this is by no means just a drawing gimmick. Any changes made here intrinsically affect the way Logic runs. You find yourself no longer repatching MIDI cables: you just redraw them on screen to cater for a new song's need. I keep getting the feeling I have yet to really grasp the power of this ability. It's just superb.



△ Fig. 7: The all important notation. No surprises here - it's just brilliant. Most notable addition over SL is the 100% Page view - WYSIWYG DTP view of the page about to print now available.



△ Fig. 8: The Transform display. Significantly simpler than SL's version of the same window but retains (and adds, funnily) functionality. Don't try the example shown above at home, girls and boys, without permission... Mummy's Bach MIDI files may just turn into an Extreme Noise Terror MIDI file in a single mouse click.

compare ability ratios on the CPU/Clock speed basis...

Other bits and pieces

The figures really explain themselves in terms of the other features of Logic. The program comes with a tutorial manual that is quite comprehensive but probably expects you to have a fair knowledge of MIDI/Atari first. Also supplied is the main manual (written for Mac version V1.3 or thereabouts), a V1.6 addendum manual and V1.7 upgrade READ.ME on disk. The manuals are OK - definitely a much better attempt than any revision of Notator SL's manuals over the years, but newcomers to the scene are still likely to be a little perplexed. Saying that, how can you describe such a complex, top of the market program in such simple terms to total novices and yet get the message across in fewer than 800 pages? The manuals add up to 590 pages excluding READ.ME.

Importing old SL files is a doddle, but you do need to have a Sync Reference if you want to keep any tempo changes - not possible without Unitor, which is about £150-£200. This is a bad oversight as Tempo changes in SL files are a 'Pseudo event' and thus could easily be spotted in the SL .SON file by Logic's import routines. MIDI files load easily so no problem there.

Conclusion

To round up, this program program is quite amazing. It's programs such as Logic that sell Atari computers and make you appreciate your Falcon, for instance. It is very trustworthy (despite it being only about a year old) with only a few niggles. It's expensive but you get what you pay for. I wouldn't trade it for anything else.

It doesn't work with MultiTOS. Ironically the bug that prevents it is very silly - the Open & Close options in the File menu stay greyed out when you close the 'Empty' song after initial loading, thus preventing you loading anything off the disk or starting anything else! I also had trouble terminating Logic from MultiTOS's Desk menu.

However, this aside, Logic really is quite the best sequencer I've ever seen. I think the ball is rapidly moving back to the Notator camp in the race for top range MIDI sequencing perfection. I find myself very rarely touching any button on my MIDI devices now

as it can nearly all be done by a Logic feature, or you simply define an environment fader to cater for it.

Watch out in the Summer/ Autumn for Notator Logic Audio – the rival to Cubase Audio. This will work on the Falcon and do direct to Disk audio recording. I can't wait, although the bank balance probably can! As for Logic in the present form, Sound Technology assure me that it will continually be updated to add new features and fix bugs. I already have a list of about eight things to mention to them.

Notator Logic is brilliant. Very usable and comes thoroughly recommended!

Summary

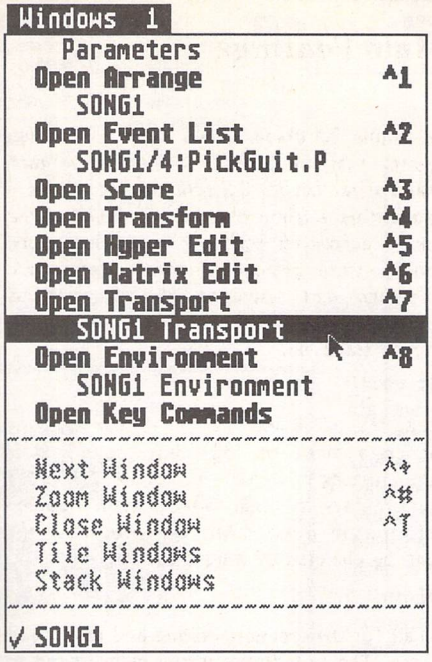
Points For:

- ✓ Highly Configurable
- ✓ No hinderance to musician's 'flow'
- ✓ Windowing system a joy to use

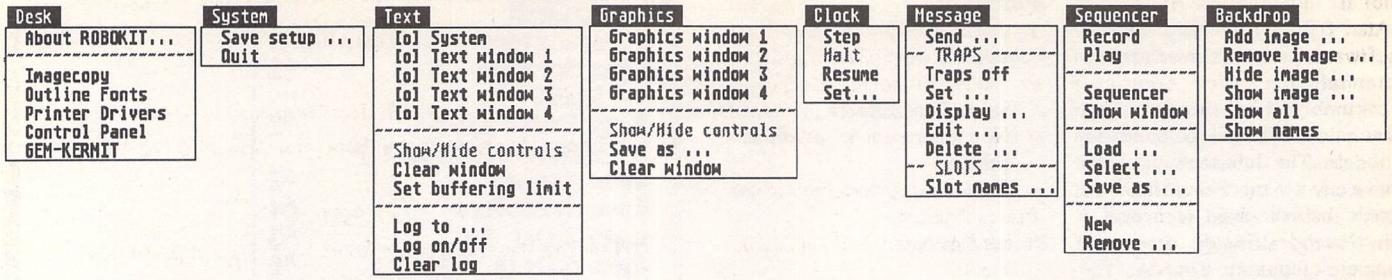
Points Against:

- ✘ High price (but you get what you pay for)
- ✘ .SON import doesn't read Pseudo Tempo changes
- ✘ MultiTOS unfriendly
- ✘ UnitorN/C owners need to pay more to upgrade

Product:	Notator Logic
Version:	V1.7
Publisher:	Emagic
Distributor:	Sound Technology PLC
Tel:	0462 480000
Fax:	0462 480800
Price:	£349
Manifest:	Three manuals totalling 590 pages (plus a READ.ME file)
System:	Any ST, STe, TT, Falcon030 with min 2MB RAM & one floppy



◁ Fig. 9: Excuse me? Which Resource Editor gives bold menu items? Emagic being clever once again by copying a Mac OS feature. This menu grows and shrinks as entries are added/removed, also a Mac OS feature. It lists all the windows open in the current screen set (the number after Window). Clicking on the bold entries opens a new window of that type, even if some of that type already are open. Clicking on normal text entry brings that window to the top. Pressing the numbers on the keypad (bar 0) change screen mode and this menu is updated for that screen set.



Atari Robokit

by Graham Curtis

When we talk about computers we all think of the box on our desk on which we do our wordprocessing or play games. In terms of numbers in use these are actually overshadowed by the dedicated computers used for controlling the family microwave, or the fuel injection equipment in our cars. These embedded computers have just as much computation to do as our desktop machines, but do it in an inconspicuous way, so that we can have full control over our cooking without having to cope with software bugs as we defrost the chicken! The 'EC' in the Motorola 68EC040 stands for Embedded Controller, as the biggest perceived market for these chips is in our washing machines and other 'smart' domestic equipment which will soon have enough processing power to process our spoken wishes.

When the Atari Robokit first came out a few years ago it was expensive as all educational hardware items were. Without the glamour of a scanner or hard drive it was always likely to be rather low on the list of 'must haves' and so sales were slow. Europress are now selling the kits off at a very attractive price for those with children or themselves to educate. It is now possible at a whisker under £20 to make a step into the murky world of control engineering.

For £19.99 you get an A4 spiral bound instruction manual, a single disk containing the software and a simple but beautifully made interface card which plugs into the ST's cartridge port. The package is intended to be used with the Lego Technic construction system and includes full instructions and illustrations for five projects:

* Mini Robot Arm
* Lift Operator
* Card Reader
* Drum Plotter
* Maxi Robot Arm

While none of these models will allow you to start building cars in competition with Toyota, you will be led through the fundamentals of control, sequencing and feedback systems. Having mastered the Lego versions of each project, there is nothing to stop you building more serious hardware or writing your own software to go with the system.

Full hardware and software details are included in the manual for those who wish to go it alone. One of own my dreams is to construct an ST-controlled router for making fancy patterns in wood.

Hardware

The actual interface provides 16 digital i/o lines configured as 8 ins and 8 outs. Each output is designed to operate a Futaba DC servo motor as used in model planes and cars. Each channel can provide 600 milliamps continuously and 1.2 amps peak current for less than 100 microseconds. For more powerful devices an external power supply must be used, for which details are provided in the manual. This sounds sensible as it might be a little expensive when the ST inadvertently starts making smoke signals.

The inputs are all buffered and two of the eight are specifically designed to operate with Lego opto encoders so that you can sense how far a particular shaft has rotated, for instance.

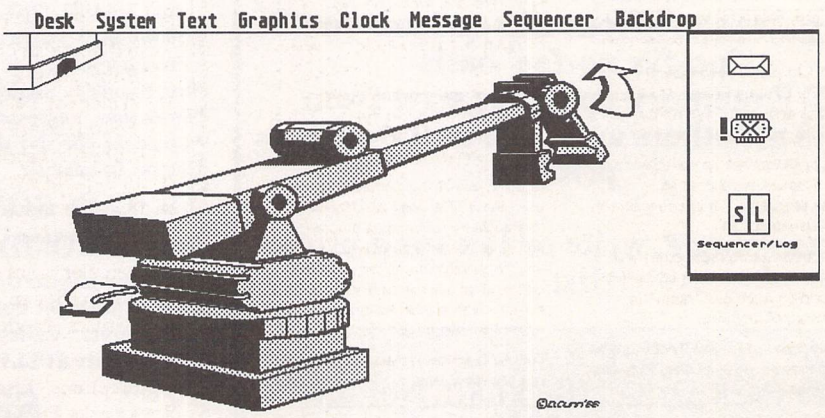
Software

A great deal of effort has been expended in creating the software to make it highly visual and easy to use. The interface is all graphical and uses a standard GEM interface, unusual for a machine control system. Once the model has been built and connected you select the relevant screen image to go with your model. Control sequences are created by attaching icons to the main image and associating control sequences with the icons. This is real 'object oriented programming'!

Sequences are built up from smaller commands and can be stored and retrieved as commands in their own right; just like a Pascal or Logo procedure is built up. The manual guides the user in a very clear and helpful way, ideal for youngsters and parents alike.

Summing up

For most people this is most definitely not a mainstream application. It does however help to bridge the difficult gap between simple desktop computing and machine control and is therefore particularly useful as an educa-



The beginnings of a car assembly plant?

tional application. At £19.99 (Atari ST User special offer) for software, hardware interface and manual, the price compares favourably with the items of Lego Technic required to build the models. The interface does not have any analogue capabilities but could be combined with one of the Microdeal/Hisoft samplers if analogue inputs are a must.

Hand me my router and that piece of Lego with the six knobbly bits...

Points For:

- ✓ Cheap enough for those occasional educational forays.
- ✓ Excellent software and instruction/construction manual.
- ✓ Not constrained to supplied software.

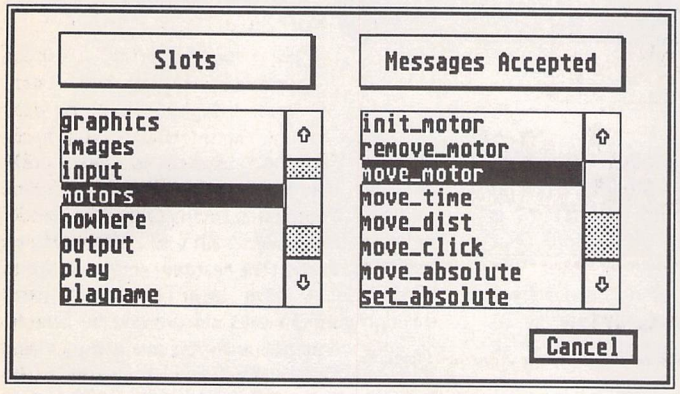
Points Against:

- ✘ Whatever you build will look a mess!
- ✘ No analogue in/out.

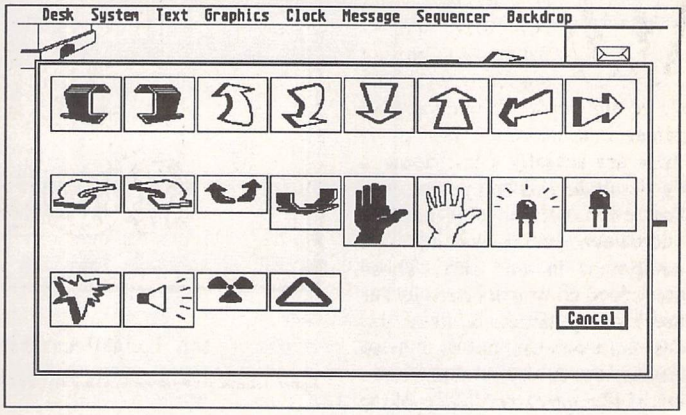
Suppliers

Atari ST User Bargains,
Europa House, Adlington Park, Macclesfield SK10 4NP

Silica Systems,
1-4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX
Tel: 081-309 1111



Each 'object' accepts its own relevant messages.



Adding commands to the basic robot.

Grafix Arts

Paul Keller

TECHNIQUE – Video Output

Video output is the one thing which is most needed for any animation of computer graphics to be viewed by others. With the ST range of computers this can take several forms, one of which is output to the household TV using the ST's modulater; another is output to the computer monitor, and one which is the subject of this discussion is output to the video recorder. As most of you will know how to use a TV and a monitor as output devices for the computer we will concentrate on the not so much used device - the video recorder.

Video Limitations

When it comes to recording any animation onto a video recorder some major problems have to be born in mind early on. At the production stage of your animation check your colour palettes with use of the TV modulater and a TV. From this set up you will probably see that this composite output is a little fuzzy, and that certain colours such as dark blue, green or red are not so distinct as black and greys. Viewing your work in this way will help you decide which colours are therefore best suited to video reproduction. The modulater output is a good example to what the actual finished video source recording will be like in terms of contrast, colour and detail. You will however find it better to work out your actual animation on a colour monitor; this will give you a much superior picture quality and be easier on the eyes to work with. If you are used to running your monitor at 60HZ step it down to 50HZ (the standard British TV frequency refresh rate) as the tape recorder will most probably not be able to hold the picture at this faster rate.

It is possible to run both a TV and monitor output simultaneously on the ST (in 50HZ mode only). This can save on any possible major changes to an animation or picture because you can spot or anticipate any visual problems a lot earlier on. The TV output using the modulater shows the position of your border when you come to record: this output will vary from both computer to computer and TV to TV. Some STs' will centre the picture while others will annoyingly offset it slightly. You cannot easily remove this border for video recording as the ST does not have an overscan mode as such. An overscan board for the STFM is available from the Atari Workshop*, but nothing for the STE.

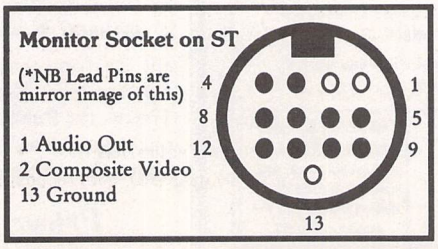
To set up the illusion of no border keep this border colour the same colour as its paper colour eg. background all black or all white.

Making a lead

In this small project we look at how to build a composite video lead for the Atari ST and so enabling connection with a video recorder.

An ordinary spare ST 13 pin monitor cable is required. If it has a scart socket detach this to leave just the wire connections remaining. You also need two phono plugs with wires attached, if possible, one for sound and the other for video output. It is best to label the phono plugs SOUND and VIDEO with some small sticky lables from the start of this project. Both phono plugs need to be attached to the silver wire on pin 13 (Ground), this being connected to the outside surrounding shields of both phono plugs - some soldering might be required here, also with the attaching of wire to wire. The sound phono plug is connected from the phono plug's centre to the light grey wire connected to pin 1 (Audio out). The video phono plug is connected from its centre to the red/brown wire connected to pin 2 (Composite Video output). Cut back the wires not needed and tape them together with ordinary sellotape. Cover other exposed wires with electrical masking tape - it is very important to keep the bare wires separated from each other.

Connect the lead to the computer's 13-pin monitor socket when it is switched off. Connect the two phono sockets to your video recorder corresponding to 'video in' and 'audio in'. Your video recorder should have a switch called TUNER EXT IN. Move this to its ON position; this ensures your computer takes priority over any TV signals going through your TV and video recorder. Switch on your computer and you are away, make the recording in the normal way and when finished turn off the computer, unplug and remember to switch the TUNER EXT off before attempting to play your video recording back through the TV.



Genlocks

A genlock tends to be favoured by the more ardent video enthusiasts. It normally has a set of special effects such as inverse, Key, Dir and overlay. One of its primary functions is in the editing of computer graphics onto other video material. An example context is overlaying text titles over a marriage video or placing a screen title before the beginning of some video film. Genlocks enable this to be done as they convert the ST's frequency to the same as that of the source being edited. This means no annoying screen scrolling lines or bands travelling down the screen. Genlocks are really for the professional user and not the man in the street who just wants VHS quality and can get by with the lead mentioned in this article, which will save on the cost of £200-£300 for a genlock used solely to connect an ST(E) to a VHS video recorder.

For best VHS recording results try recording onto Scotch Video Tape cassettes, the quality of the tape does help if it is going to be continually re-played. The quality for recording onto Scotch VHS tape will seem the same as that compared with other brands but on inferior quality tapes after only about 10 or so plays the taped image of computer animations will start to deteriorate badly.

*Atari Workshop: 17-19 Blackwater Street, London. SE22 8RS
Tel: 081-693 3355 Fax: 081-693 6936
Overscan about £39.95

Using GFA Basic

Tim Finch

You thought GFA Basic Tutorial Column was gone, now didn't you? Well, I have had a few letters with some questions and I shall attempt to throw some light on the problems raised. However, I must make it clear that it's unlikely this will turn into a regular feature as things stand at the time of writing.

The first letter is from **J Brown** of Louth, Lincs. It reads:

'We have two speech programmes, SPEECH and SPEAK, and would like to know how these can be accessed from a GFA Basic program.'

I have the SPEAK program myself as it is part of Fast Basic - the old interpreted BASIC from Computer Concepts (who now deal with Acorn computers only). I remember seeing a similar question to this in ST magazines before and basically the answer is, 'Only with a lot of perseverance and a certain amount of luck.' SPEAK doesn't appear to do any of the nice programmer-type things such as leaving a message in the cookie jar or having any XBRA headings (that I could find) - two methods of making any sort of presence known. The problem is that GFA has no way of finding out where the speak program is in memory or how to ask it to say something, etc. As for SPEECH.PRG, I've not got it but if someone sends a copy to me via the ST Club I'm happy to have a look. The only hope is if the programs in some way use the command line feature of passing information. Thus GFA could then load and execute the speech module, passing the text to speak on the command line (using the EXEC command amongst others). It might then be possible to load the speech program but not execute it until you need it. All of this is quite messy and unfortunately not very helpful. Anyone got any further? Perhaps write to the Forum or Programmer's Forum pages and leave info there for J. Brown.

Next is a point raised by Mr Alan Kennedy from SW12 in London. He writes concerning a calculus program written for his son's A level problems. This program illuminated a well known problem of BASIC numeracy handling - floating point. Mr Kennedy's program showed that certain rounding effects were taking place at certain values of a variable. For instance when a value was meant to be 0.152 in variable named 'x' (this is a single-precision floating point variable, in other words it is allowed to store numbers with decimal points) it would actually end up storing the number 0.15199998 or 0.15200001 - almost but not exactly what was asked for. I have also come across this problem in GFA when writing a simple stock control program for work - but only on figures with pence values like '14.92' which would come out 14.91999998. Of course the software didn't check for it and soon enough the printout (or whatever) was wrong, printing 14.91 etc., one penny less! The problem, Mr Kennedy, is the way in which floating point numbers need to be stored in the computer's RAM. The approach involves storing numbers in a 'mantissa' and 'exponent' form. A lay man's explanation is that the mantissa holds an integer number and the exponent details how many places the decimal point must move to make it the correct value decimal. Unfortunately, some numbers don't code to mantissa/exponent form very well unless a lot more memory is used per variable - which would make GFA operate slower when using them. This is what the double precision is for and you indicate in your letter that the problem still exists at small decimals - which is really quite bad news for your program.

The only way I got round the problem was to use Long-length integer variables (these have a % sign after the variable name) and work everything out as an integer. Thus if you really wanted to work on numbers with 2 decimal points - do everything at 100 times the size. So instead of multiplying 1.23 by 6.58, multiply 123 by 658. Then the answer simply needs printing with the decimal place 4 in from the right. You can investigate the PRINT USING command to help with printout format, or write a procedure that takes an integer % variable in and turns it into a string using the STR$(num%) type command and then prints the answer with the decimal point in the right place. Here is an example:

```
PROCEDURE shownum(number%,decimalposn|)
  '
  LOCAL number$
  number$=STR$(number%)
  number$=LEFT$(number$,decimalposn|)+"."+
    RIGHT$(number$,LEN(number$)-decimalposn|)
  PRINT number$
  '
RETURN
```

(Note the line with LEFT$ and RIGHT$ in is all on the one line in GFA Basic)

To call the routine, type in something like this:

```
shownum(12689,3)
```

which means print the number 126.89 as the point is to go after the third number (the 6). The routine could be amended to place the decimal in from the right not the left if this is more useful. Not a brilliant fix but may open the door to more investigation!

Lastly, I had a letter from **Mr Parker** from Wokingham, Berks. He says that he is having trouble setting the Left margin on his Star LC-10 printer. He states:

'I have tried everything I can think of to set the left margin. GFA Basic always seems to set the margin at 50 plus the figure that I want. At least, this happens for figures from 0 to 9. After 9 the margin seems set at 50 and the figure that I wanted for the left margin is PRINTED. Protext can send ESC 'l' n and set the margin to the value of 'n', so why can't GFA Basic? Both GFA V2 & V3.5 have the same problem. Can anyone help?'.

Well, Mr Parker, there appears to be a little confusion here. You do not include the GFA code you've written to set the margin which makes determining the problem difficult. However it needs to be said that GFA doesn't send codes to the printer itself but you must write commands to do this. As you mention the command you need is ESC 'l' n, then you could simply simulate this by typing:

```
OUT 0,27,ASC(``l''),n%
```

where 0 means 'send to printer port', 27 is decimal ASCII for ESC, ASC('l') sends the ASCII value for lower case 'l' and the n% variable is to contain the value to set the margin to. This should fix any trouble you are having in GFA sending the wrong code.

Well that's about it for this letter-answering column. Please send any more enquiries about GFA Basic to Programmer's Forum, and please send all letters ON A DISK as well as printed out. Jon Ellis: you are welcome to contact me via ST Club if you want any help with problems you get on GFA. Happy GFA coding!

PD and Shareware Update

Version 14.4 ~ May 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).

AM.970: CVG Clip Art: This disk has been updated with another 31 CVG files from Andy Rees. These CVG-format clip art files are ready to load into Calamus and include more borders and a selection of miscellaneous themes.

DM.40: ST Club Disk Mag for March 1994:
AV380 - ASCII file viewer.
FINDER - Route planner: finds the shortest or fastest route between locations in the UK.
GFA_PT_6 - Source codes for part 6 of the GFA programming series in ST Applications.
GNU_C_UT - Utilities for use with GNU C++.
LZH299 - latest version of LZH plus an ST ZIP-style shell.
PATIENCE - card games.
PROFILE - gives a detailed system breakdown.
P_FORUM - source code files for Programmers' Forum columns in ST Applications issues 39 and 40.
SOUND CPX - replacement system beeps for TOS 1.6+
TRUEDI21 - Ram disk.
TSHCPX_E - Recoverable trash can.
TWOINONE - Graphic shell for use with most archiving programs.
WRITEDOC - quickly creates text files.
XMENU14 - shell for launching programs.

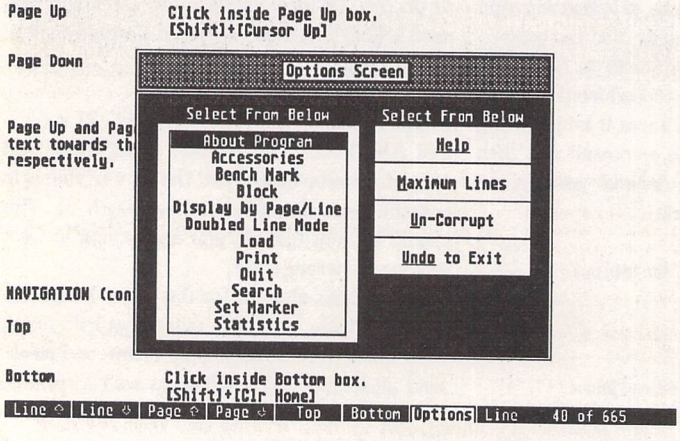
IN.505: ST NEWS" Volume 9 Issue 1:
Jeff Minter's "Nature of the Beast" column! Information about his hottest projects ever - "Llamazap" on the Falcon and "Tempest 2000" on the Jaguar. An in-depth preview of ChromaStudio 24!
Adventure solutions: "Time Quest", "Demons Seed", "Gold Rush", "Hero's Quest II" and lots more!
An article by Atari Benelux's Wilfred Kilwinger explaining how the get the most from MultiTOS!
Some interesting programs, among which all the latest ST emulators for your Falcon and "ST ZIP" 2.4!
A revamped and even more complete Falcon software compatibility list!
Reviews of: Khaoohs (CD), Hard Target (film), Geneva (utility), Hideous... (MC Demo), Small Gods (book), Prince (concert), A.P.B. (Lynx game), Demolition Man (film), Trip: the Dreamtime Remixes (CD), Kobold 2.5 (utility), Winterskuggen (CD) and a whole lot more! Unbelievably hot news about forthcoming music, books and films! Plus interviews with My Dying Bride, Anathema and Paradise Lost!

IN.561: Inside Info Issue 69:
Features include: Jaguar - a three part account from an owner! Atari - why do Atari Australia never answer the phone. Falcon - update on the latest Falcon news and developments worldwide.

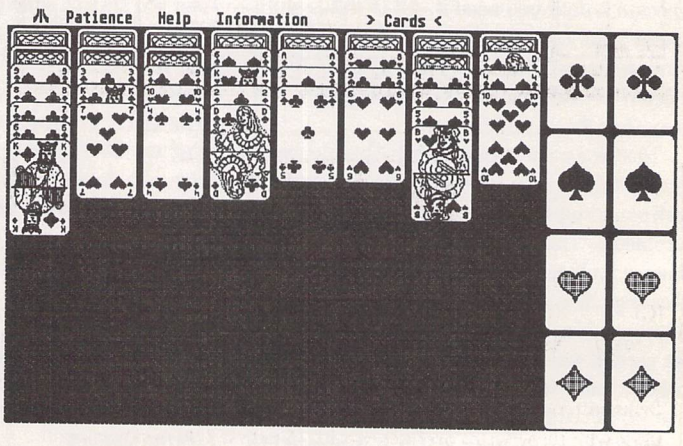
PR.140: ANA Modula 2 compiler plus utilities: "goto compiler error" function and template editing for micro-emacs; M2BUILD - a "make" type utility; plus a collection of extra library modules. This disk has been updated.

COM.57: ONLINE WORLD BOOK - A shareware book on disk that deals with the practical aspects of using the rapidly growing global on-line information resources on global networks and services such as Internet, CompuServe, Fidonet, Usenet, and Bitnet.

LAN.156: ADA TUTOR. An interactive Ada tutor program to train people to be excellent Ada



ASCII file viewer on Diskmag DM.40



Patience on Diskmag DM.40

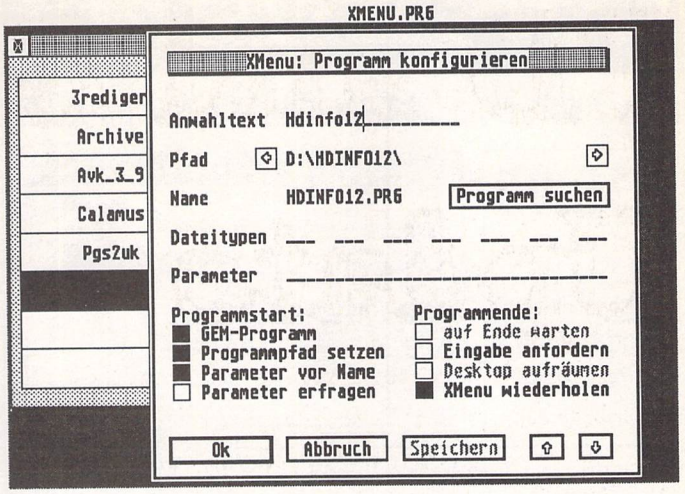
programmers in minimum time. Ada is an ideal programming language, because Ada programs tend to have fewer errors, to be easier to read, and to be much easier to modify later. The U.S. Department of Defence mandated the use of Ada in mission-critical systems.

Not just a "quiz", ADA-TUTR is a thorough course of interactive instruction that even checks "homework" assignments. ADA-TUTR concentrates on teaching good program design, not just syntax.

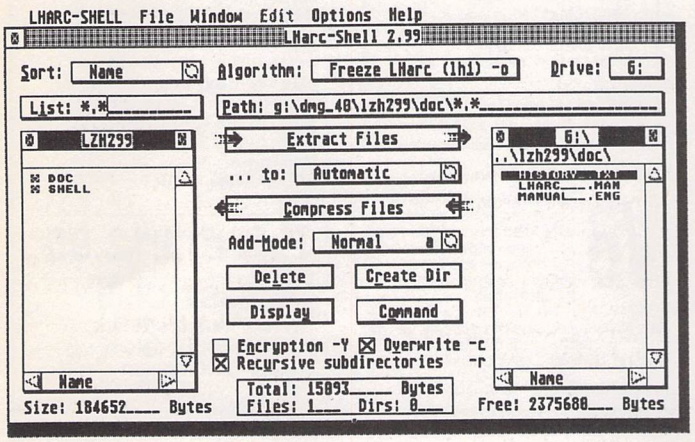
MUS.102: ProTracker 2.0 - excellent tracker player - reputedly better than the Amiga version (C). Backtracker - plays any standard >Soundtracker 2.2 or Pro/Noisetracker module in the background (in a multitasking fashion). Can also be run as an accessory.

UTI.330: SUPRA - Version 4.10 of the Supra Hard Drive Utilities. ZORG - comprehensive disk editing and management package from France.

WPR.123: Easy Text Pro Vector: demo version of this Speedo compatible DTP package. See full length review in this issue of ST Applications. You will need a copy of SpeedoGDOS in order to use this program.

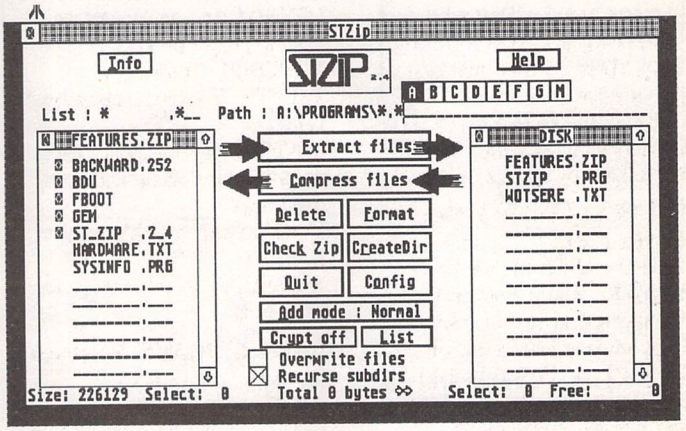


△ XMENU14 (on DM.40): a shell for launching programs

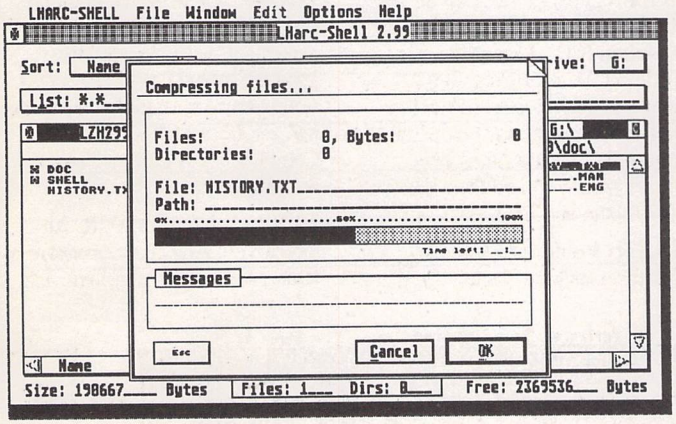


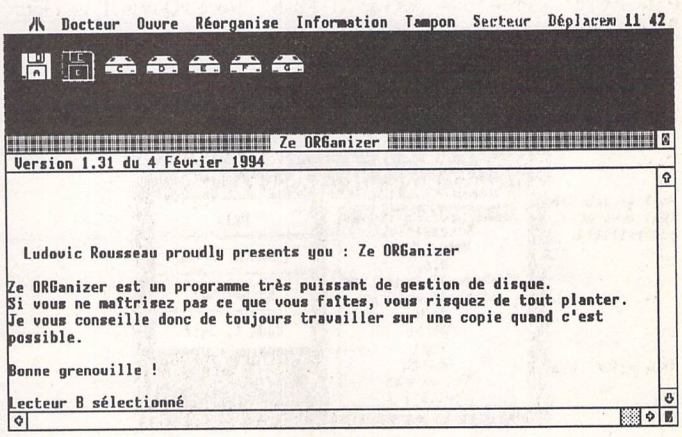
△ Latest version of LZH on DM.40 ▽

(also includes an ST ZIP-style shell)



△ ST ZIP 2.4 on "ST News" disk IN.505





△ "ZORG", a comprehensive disk editing and management package from France; on disk UTI.330

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 each (£2.00 to subscribers).

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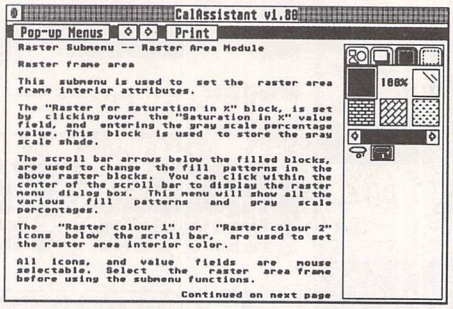

- CalAssistant is an accessory program that runs on top of the Calamus software providing online help for each function.
- Includes a 40 page manual packed with tutorials and much, much more.
- Printer drivers included for use with the CalAssistant print command. Send the online help text to printer for hardcopy reference.
- Text, icons and pictures are used to illustrate, explain, and give tips on functions step-by-step.
- Includes complete Helvetica font set (Regular, Italic, Bold, BoldItalic), and requires just 145K of memory.
- Supports pop-up overlapping menus, monochrome and moniterm monitors, and virtual screen drivers such as MonSTEr and BigScreen.

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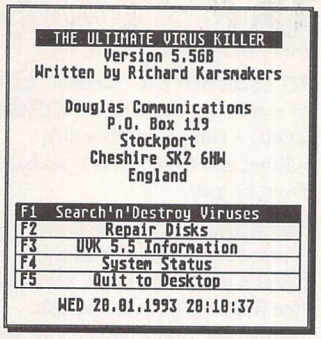
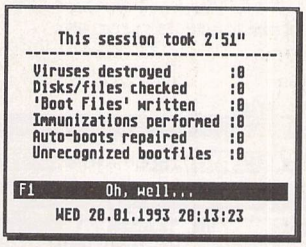
Ultimate Virus Killer

Written by Richard Karsmakers





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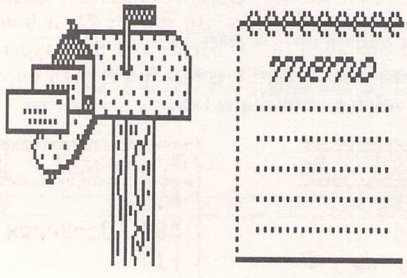
Feedback



Use this space for any feedback you'd like us to read.

STA41

Getting the Best out of Redacteur

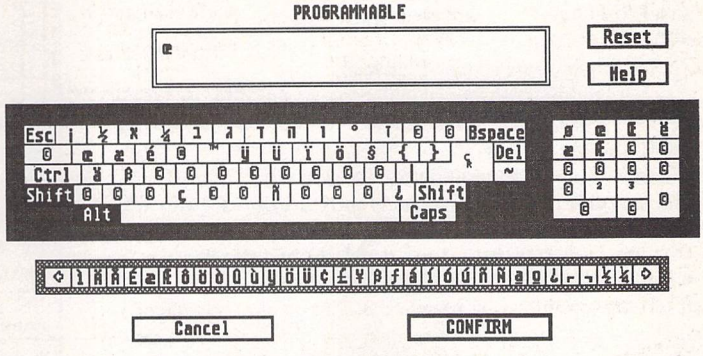
David Smith

I have been using Redacteur for some years now, initially the very fast if somewhat basic version 1 and then going on to the much more sophisticated (and stable) v3.15 that is available today. I have tried other WP's, but stick with Redacteur3 for most of my work - mainly editing text files sent to me for inclusion in this magazine. As a pure 'text cruncher' it is near perfect, its blindingly fast load and format operations making it a pleasure to work with. As a 'document processor' or page layout tool it is perhaps less of an obvious first choice, but even here it can be tweaked to provide some very good-looking printouts using the GraphPrint module.
Some of its features I have never used, such as indexing and database merges, but the particular configuration resident on my hard disk does everything my work requires of it. I wrote a piece in issue 19 on customising Redacteur3 for your own needs, and another article on Redacteur3 fonts appeared in issue 17. The present piece concentrates on giving advice on how to make the best of the features that are used extensively in my work, and some readers may think there are important omissions. If so, there is no reason why additional articles should not appear in later issues written by those of you who do make extensive use of the features not covered here...

Keyboard

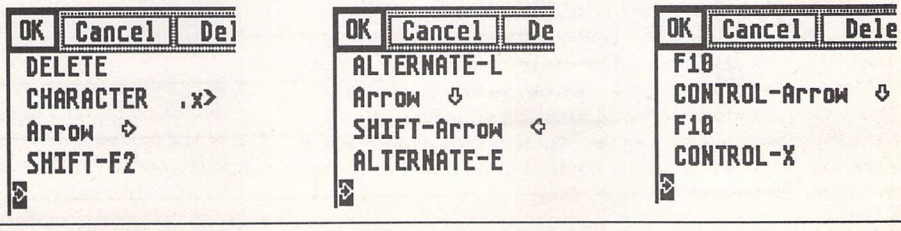
The 'Keyboard' function gives easy access to non-keyboard characters. Whilst it is easy enough to type French grave and circumflex vowels (along with Spanish ñ and Portuguese nasal vowels ã and õ) directly from the keyboard by first hitting the inverted apostrophe, circumflex or tilde and then the appropriate letter, this is not possible with ç, é or with German umlauted vowels. Danish å or ø, anyone? or Dutch ij? Spanish accented vowels? Hebrew characters, copyright signs, degrees Centigrade or Fahrenheit? It is extemely cumbersome to have to lift the window and select the required character from the table lying below it every time you want to use one of these; far easier to set them up on your keyboard using Shift-Alt and Ctrl-Alt combinations. Once you have placed as many as you need in suitable keyboard positions in the Keyboard dialogue box, this may be saved for future sessions by Saving Parameters in Options.

NB: if you need to use the circumflex, tilde or inverted apostrophe as characters in their own right, you have to remember to press these keys twice.



Macros

Redacteur allows the use of two kinds of macro, text and keystroke. Text macros are useful when you are writing something that has commonly occurring phrases; I find them especially valuable for tagging text in preparation for import into Timeworks. Keystroke macros can be set up to facilitate commonly used functions such as 'Save as Wordplus', saving a paragraph as a separate file (below right), etc., that would normally need more than one mouse or keyboard operation. I have even set up a simple macro that corrects careless punctuation - comma changed to full stop and following character made upper case, all at one keystroke (below left). Macros can also be set up to repeat themselves - useful for inserting something at the start of each line of a long list (below centre repeats a tag on Alt E). It involves creating the macro that will perform the single operation (Alt L below) and then appending the keystroke for that operation to the end of the macro (Alt E) so that it will keep on doing it. These self-perpetuating macros can be interrupted by pressing a key.



Fonts

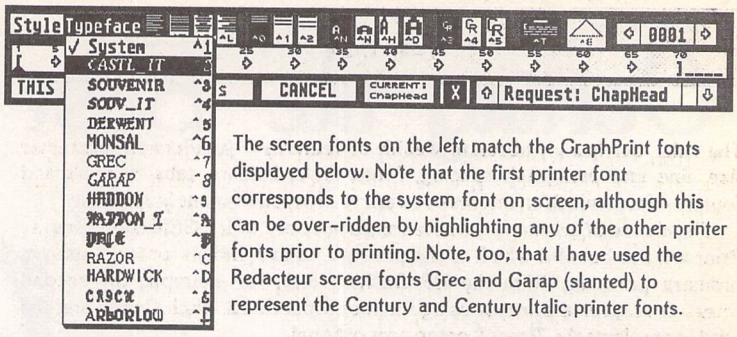
It has become easier with later versions of Redacteur to match screen fonts and printer fonts for use in GraphPrint, and to install GEM fonts from other sources. The trick is to do a bit of planning first. Make a list of the printer fonts you would like to use and put them in some order of preference or importance, remembering that the first one listed in GraphPrint will correspond to the system font on screen. Load the screen fonts using 'Options: Parameters: Typefaces' (double-click on each slot in turn to assign a font to it from the item selector) and then do the same in GraphPrint. You will need to do this twice, once for 10pt fonts and again for 12pt fonts, giving one of them the default name 'CONFIG.SOR' and the other an appropriate alternative: CONFIG12.SOR that may be loaded once you are in GraphPrint. If you want to list any specific 20 or 24pt fonts, put them in at the end of the list.

If you have GEM printer fonts from other sources you will need Redacteur format screen fonts for them. By far the easier option is to use Redacteur screen fonts that look something like the printer fonts: I have done this with the Century and Century Italic fonts, using Grec and a slightly slanted Garap. For my own GEM fonts, I have used Fontkit Plus to create specific screen-font look-alikes. This is tricky, though, and not for the faint-hearted. You must end up with a monospaced font that is exactly 4698 bytes long for a hi-res display and 2650 bytes for a medium-res. All the character cells must be 'implemented' even if you leave some of them empty. The printer fonts for use in GraphPrint need not be fully implemented, however. If you include a character in your text that is not implemented in the printer font, GraphPrint will simply leave it out. The ST Club publishes a selection of screen and printer fonts specifically for use in Redacteur in its Fontpac Plus series.

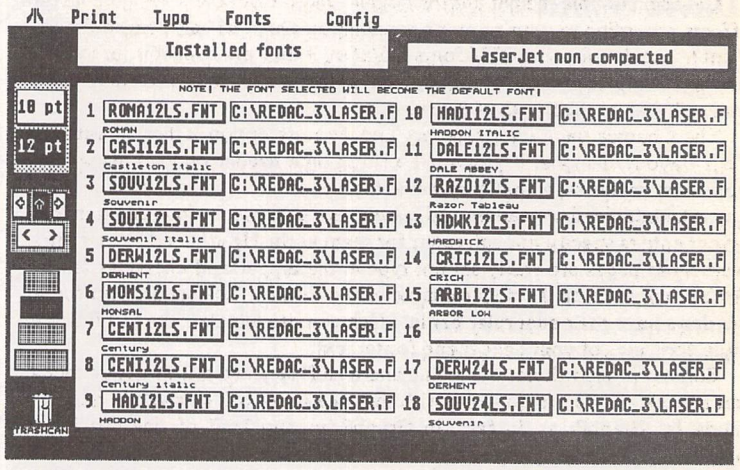
If you intend to use proportionally spaced GEM fonts, especially 10pt ones, over the width of A4 with standard-sized margins, it is wise to use a 96- or 136-column layout; otherwise, the margins to the left and right of the text when printed with GraphPrint will be far too wide. What I usually do with my (default) 80-column configuration is to set up GraphPrint to 'centre' the text and then set the margin at half the difference between ruler length and 80. Thus, if your ruler length is 74, your left margin should be specified 3. This gives neatly aligned text, even if you are using more than one typeface: any paragraph using a font that is 'slimmer' will be indented on both margins in relation to the rest of the text.

Beware double spaces! These will spoil the look of any line they appear on in GraphPrint.

Printer fonts other than 10 or 12pt ones may be used so long as you tweak them: they need positive or negative line offsets to make them appear to be 10 or 12, and the name needs to contain 10 or 12: ARBL12LS.FNT, for example, even if it is a 14pt font in fact! If you already have an actual 12pt font with the same name, the 14pt font will need to be renamed so that Redacteur thinks it is a totally separate entity. Using a 14pt font in single-line spaced body text will cause some overlap of the lines and the descenders will be cut off. This can be solved by setting the point size to 'User' in Page Layout and entering a smaller figure than normal for the number of text lines. If you normally use 60 lines of text with 5 lines for both header and footer margins, you can work out how many lines to enter instead of the 60 by dividing 72 by the point size of the font and multiplying the answer by 10 (60 lines of 12pt text is 10 inches). Thus, 72 divided by 14 gives approximately 5, and this multiplied by 10 gives 50. Shave a couple off for safety reasons, and enter 48 for the text length. The 'leading' used by GraphPrint will be increased to space the lines out so that the whole text area is used, and the overlap of lines will no longer be a problem. If you are merely using the 14pt font for subheads with a blank line below, there will be no need to do this. (For further reading on this see issue 17, pp 24-25.)



The screen fonts on the left match the GraphPrint fonts displayed below. Note that the first printer font corresponds to the system font on screen, although this can be over-ridden by highlighting any of the other printer fonts prior to printing. Note, too, that I have used the Redacteur screen fonts Grec and Garap (slanted) to represent the Century and Century Italic printer fonts.



ASCII Files

If files are saved as Ascii with end-of-line carriage returns, they will not re-format properly when they are re-loaded and the ruler length is changed.

I often need to get rid of end-of-line carriage returns in files sent to me for the magazine. There are two kinds of Ascii file with end-of-line carriage returns, though. First Word Plus normally inserts a space before the carriage return and this must be borne in mind when doing the conversion.

If you load any Ascii file, be it one that has no end-of-line carriage returns (continuous Ascii) or the type we are currently concerned with, the line length will be set automatically at 80 (or 136!). The quickest way to shorten all the lines is to go to the top of the document, insert a carriage return to give a blank first line, place the cursor on the first line of text and then change the ruler, clicking on All Para's. Now remove the blank line. This saves you having to do the operation twice, once for the Chapter paragraph and then again for the others. Continuous Ascii will re-format beautifully when you do this, but broken Ascii won't: you need to stitch the lines back together again first.

To start with, if the original author has not separated paragraphs by two carriage returns, you will need to go through the file first, putting in an extra carriage return at the end of each real paragraph. From there on the steps are as follows:

1. The double carriage returns need to be safeguarded: in the Search and Replace dialogue replace them with (for example) a couple of hashes - any combination that has not been used meaningfully in the text. 'Control-Shift M' gives $^{C}_{R}$ in the dialogue. Save the file.

2. Replace single carriage returns (or space and carriage return) with a space. Save file.

3. Now re-instate the double carriage returns by searching for the double hashes and replacing them with double carriage returns. This part of the operation always takes longer than the preceding steps. Save file: it is now a standard LIB file that will re-format normally when ruler lengths are changed.

Layout

The ruler bar has an absolute wealth of features – justification, character size, line and paragraph spacing, fonts, style, indents, tabs, headers and footers – from which an impressive variety of layout options is available.

The choice of screen fonts determines not only which GEM fonts GraphPrint will use but also which of the printer's 'native' inbuilt fonts are used in ordinary printouts. With the HP DeskJet 500, for example, the second screen font gives a printout using the monospaced 12-pitch Gothic and the third font selects the Times Roman proportional.

Choosing double-height and/or double-width characters will give varied effects according to your printer's capabilities. These will also cause GraphPrint to use double-size GEM fonts (20/24pt) if they are available (or to scale up the 10 and 12pt ones if not). Selecting double-width screen fonts automatically halves the length of the ruler.

The Chapter paragraph Headers and Footers option is tied in with the Page Layout dialogue. If you want a single-line header on each page, then you must make sure that you have the space for this specified in Page Layout. Multiple-line headers and footers are possible, so long as your page layout entries specify enough room for them in the Header and Footer lines. Numbered pages are easily set up: type in the ampersand character (&) for Arabic numerals or the dollar character for Roman. The header and footer windows have their own ruler bar in which you can stipulate the justification, style, font, etc., of your header and footer text.

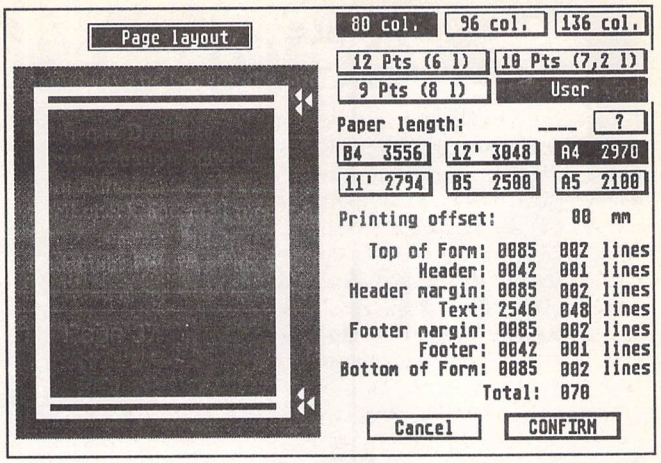
Some printers will not obey 'line and a half' spacing in their native mode, but are quite happy to go along with this idea when being driven in graphics mode by GraphPrint. In fact, in GraphPrint any kind of line spacing is possible – see the section on Fonts.

Fonts *can* be mixed in the same paragraph by using **Shift F3** and **Shift F4**, normally set up for Inverse and Relief. Right-clicking on either of these brings up a popup menu listing all the available screen fonts. Click on the one you want to install for that key – its name will now appear in the slot instead of Inverse or Relief. This is the easiest way to use true italic versions of your GEM fonts alongside the standard (Roman) ones: I have Castleton Italic and Souvenir Italic set up on mine. It also enables you to mix the inbuilt printer fonts, should you so wish, but you will need to be careful here: on the HP DeskJet 500 the Gothic font works well, but if you turn on the Times Roman for a word or phrase it refuses to turn off!

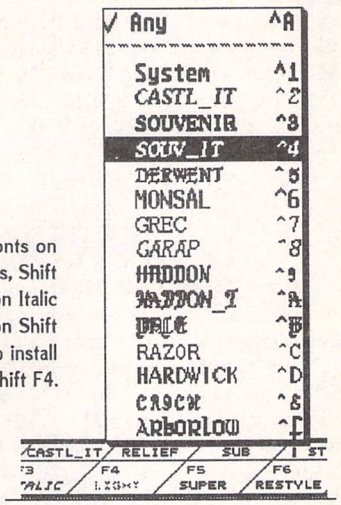
Pictures: image files are shown on a screen pixel basis; Redacteur does not take into account the specific resolution of your printer in graphics mode. Most pics will therefore be too large once imported, and the size will need to be reduced in the Modify Image dialogue in the Graphics menu. Simply change the 100% horizontal and vertical scaling factor entries to whatever figure gives the required size. The same dialogue also allows you to trim or 'crop' the picture. This is done in percentages of the four margins: A-B (left vertical), C-D (right vertical), E-F (top horizontal) and G-H (bottom horizontal). There may be far too much white space around the actual image: if so, enter small percentages in the relevant margin sections of the dialogue till you have only what is really needed left. If you make a mistake and cut off too much, worry not: it is not irretrievably lost. Merely change the percentage figure to something a little lower and the lost bit will miraculously re-appear.

Pictures may be moved around on screen by holding down the Control key, clicking on the picture and then, once the image is 'selected' (surrounded by a frame with re-size handles), using mouse drag to re-position it. Text may appear alongside pictures, and even over them. It is also possible to position two separate pictures alongside each other – even to superimpose them, in which case they are treated as 'transparent', i.e. one does not block out the other. It is thus possible, with a little deftness of touch, to approach some kind of DTP layout in your Redacteur documents.

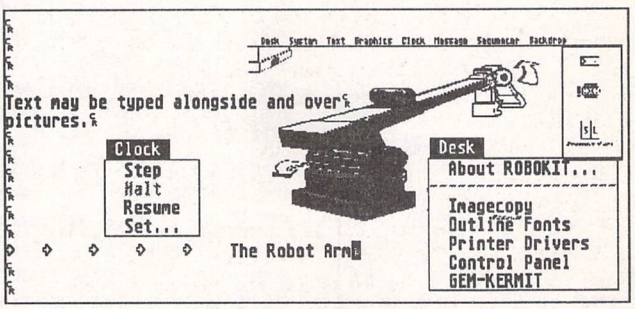
If you would like to incorporate a letter-heading and/or logo in your letters, it is now very easy to create these with Textstyle, save them as IMG files and then 'insert' these in Redacteur. Images saved at 300dpi resolution in Textstyle will be far too large when imported, but they can easily be re-sized as outlined above. Textstyle allows various justification modes to be used, and if you prefer your address heading to be ranged right, then all you need do once in Redacteur is re-size it and re-position it using the Control-click-drag method. In this way, impressive shadowed, outlined, patterned or contoured text can become part of your Redacteur3 documents.



'User' spacing and a text length of 48 lines in the page layout dialogue, designed to space out a GraphPrint font that is not stricly the right size – here for use with a 14pt font.



Setting up two true italic fonts on the Inverse and Relief keys, Shift F3 and Shift F4. Castleton Italic has already been set up on Shift F3, and I am about to install Souvenir Italic on Shift F4.



△ Three pictures laid side by side – and overlapping – with text mixed in. It is possible to add captions on either side of the pictures by the careful use of tabs or specific paragraph styles with appropriate indents.

Prices

Redacteur 3 ..... £99
Redacteur Lite £69
Redacteur Junior £39

If you buy the reduced versions, the modules not included can always be bought at a later date:

AZtheque Database £10
Sigma Equation editor £10
Font Editor £5
Spell check and mail merge £8

Redacteur Fontpac Plus set £6.95

Beginners' Forum

Mark Baines

Archives and File Compression

Part 1: Background

The files that often cause the biggest problems for new users of computers are archived or compressed files – files with filename extenders such as ARC, ZIP, LZH, ZOO and ARJ. When presented with these files, new users try clicking on them and are presented with a screen full of garbage. What are they and how do you use them?

Saving space

Disk space is limited on all computers, whether large mainframes or small STs. The larger the disk storage, the more expensive they are to buy. So, one way in which to save some space (and therefore store more on a disk) is to compress the files. This, at first, sounds rather odd. How can a file be compressed into a smaller space – after all, a bit is a discrete unit of storage – you can't have half a bit!

Where the compression can occur is in sequences and groups of bits rather than in the individual bits themselves. In other words, what is compressed is the data *represented* by the bits. For an example, take the ASCII coding of characters. This is one of several ways in which to represent a character in a computer's memory. The ASCII code for the letter 'A' is binary 1000001 – seven bits are used to represent ASCII codes. But, in computer memory the smallest unit usually processed is a byte, that is, eight bits. So we have one redundant bit and if we could devise a program to get rid of that bit we could compress an ASCII text file to 87.5% of its normal size. This isn't normally done because the eighth bit is often used so that more characters can be represented than the 127 that seven bits allows. For instance, on the ST, the pound sign '£' is ASCII 10011100 – that eighth bit is used (on the left). If we used this form of compression then we would lose the ability to use the '£' sign and other foreign characters. But the idea does demonstrate the principle of data storage redundancy.

The simplest practical method of compressing data is called Run Length Encoding – see the accompanying box. There are many more ways in which to analyse a file, whether program or text, and see where there is some redundancy and where, with some juggling and efficient algorithms, that data can be stored in a another form that takes up less space. These methods can get very complicated but give tremendous savings of as much as 50% or more with text files, for instance. I'm not going to describe those methods here because they are of no practical relevance to you unless you are a programmer wanting to write such programs. An idea for a future Programmers' Forum article maybe? For some more theory on this, look at Desktop Discussion in issues 13 and 15.

In some cases, data can be compressed automatically by the application producing it and unseen by the user, such in most graphics programs, where as I have already said, there is a lot of redundancy of data. These programs decompress the files back to their original data when being loaded. For instance, Degas Elite compresses its PI3 files into PC3 files and can load them back in as normal. To compress an image is increasingly the norm these days especially when dealing with huge images with several thousand colours in them on the Falcon!

Other applications may also compress their data when saving to disk, some spreadsheets or databases or even word processors may do so, although this is rare. Apart from applications, the other source of compressed files are computer users themselves. There are two main reasons for doing so – disk storage and file transmission.

As already mentioned, compressed files take up less space on disks enabling more files to be stored there. Magazine cover disks and PD libraries often do this to give you better value for money. When making backups of data or when just storing unused programs and data onto a disk you are creating an archive and the process is called archiving. To maximise the available space and because this data isn't usually used much – if at all – then it does no harm to compress it using one of the many utilities available, such as ARC (short for ARChive). It is interesting how the term 'archive' has been confused with the program that compresses the data before storing it, often referred to as 'archivers'. Many files can be stored within the one compressed archive file, there is usually no limit. In this way, you can organise these files so that, say, all the many files necessary to compile a program, or all the individual database files for a particular project can all be stored together in the one archive file.

The other reason for compressing data is that a compressed file doesn't take so long to transmit over phone lines from one computer to another, say from a bulletin board system into your own. This saves on the call cost especially as you only download the one file rather than its many separate components. It also saves on disk space for those that provide the files, of course.

Archivers

There are several different utilities which will compress any sort of file and store as many as you want within one archive file. On the Atari range there are currently four main methods – ARC, LHARC, ZIP and ZOO. In addition you will occasionally see files that have been ARJed, a method used on some other computers. There isn't a program on Ataris that will compress files using this method

Run Length Encoding – Simple Examples

If I had a series of characters AAAABBBBBFFCDDD this would take up 15 bytes. It could be represented as 4A5B2F1C3D, meaning 4 A's, 5 B's and so on which uses 10 bytes. Notice how it saves a lot of space on long strings of the same letter.

In images, we might have a series of bits like so:
0000000000000000000
0000000000000000000
0000000111110000000
0000011100011000000
0000011100011000000

This takes up 5 rows of 20, in total 100 bits.

This could be split up into strings of identical bits and just making a note of the length of each group, so:
20 0
20 0
7 0, 5 1, 8 0
5 0, 3 1, 3 0, 3 1, 6 0
5 0, 3 1, 3 0, 3 1, 6 0

This would have to be stored in binary, giving:
10100 0
10100 0
111 0, 101 1, 1000 0
101 0, 11 1, 11 0, 11 1, 110 0
101 0, 11 1, 11 0, 11 1, 110 0

Written without the spaces and commas, it could be represented as:
101000
101000
1110101110000
10101111101111100
10101111101111100

as long as you had a good enough algorithm for decoding that lot back again! If you did, our original 100 bits is now represented as 59 bits. Image files, especially 2 colour ones usually have huge areas of single colours in them so instead of storing every white bit we could just count up how many there were and store that figure. In this way a simple monochrome Degas Elite image can be compressed from 32000 bytes down to maybe 6000 or less. GEM IMG files are also saved using this method.

but there are two programs that will unARJ them - STUNARJ being the best. See Table 1 for a list of available methods and programs that you will need. Try and get the latest versions wherever possible but it isn't really necessary. Next month I will deal with how to use these programs, so be prepared.

The table shows the filename extender used and what program you need to deal with it. The ARC method isn't used much these days as it is very poor at compressing files. See Table 2 for a brief comparison of compression efficiency. ZIP tends to produce the smallest files using its Deflate/Best method but be aware that older PC versions of ZIP don't have this method, making transfer to PCs difficult. LHARC comes close and has the advantage of having the fastest decompression speed. Note also, that earlier versions of LHARC used a method called -lh1- compression and that the later version 2 varieties use -lh5- as default. This can cause some problems if using LHARC1.13 to de-archive a version 2 archive file - a common problem!

Packers

The table also shows two programs under the heading of Executable File Packers. As already mentioned, archivers can place many compressed files within a single archive file for storage or transfer. However, similar methods can be used on program files where the file is compressed and a small de-archiver program invisibly added to it, so that when you double-click on this program, it is automatically decompressed into memory and runs as normal. It retains its PRG, TOS or TTP filename extender. This can save a valuable amount of disk space and is especially useful for floppy disk users trying to put large applications onto a floppy. There are several programs that will pack executables and I prefer ICE v2.4 which produces the smallest files and PFXPAK which depacks the quickest. On a 97130 bytes PRG file, ICE can pack it to 46108 bytes and PFXPAK to 50365 bytes. Unless the program file is very large, you won't notice the extra time taken to load the program with either packer.

Before you experiment with this packing method, make sure you keep a copy elsewhere. Sometimes the packing doesn't always work properly. I've had problems with the new GEM version of PFXPAK v3.0beta and PFXPAK versions later than 1.8. Also, ICE doesn't come with a depacker routine so you will need another program to depack it for you. As some people distribute programs already packed, this universal depacker can be very useful. I recommend Mega DePack v2.12. It has been developed into New DePack which is buggy and less versatile.

Self-Extracting Files

Another variation on archiving is a combination of an archiver and a packer, so as to enable an archive of files to be extracted by just double-clicking on that file. The file normally has a TOS filename extender and double-clicking the file runs a small de-archiver which decompresses the archive onto disk. This method produces slightly larger archive files but is very convenient for the user. If working on floppies you have to be very careful that you have enough room for the files. The best two are SFX_LZH which uses LHARC archives and ZIP2TOS which deals with ZIP files and comes with STZIP.

UUEncoding

In fact, this isn't a file compression method at all! It was developed years ago as a way of sending files, especially program files, between users on different computers connected together with a mailing system on a network. The mail system can only usually send text and has no facility to attach program files to a text message. This mail usually only uses 7-bit ASCII characters. UUEncoding turns any file into a series of 7-bit ASCII characters which can be attached to the end of your mail message. The recipient then UUDecodes this block of text where it is converted back into the original file. With this method it is a good idea to compress the file first before UUEncoding as a UUEncoded file can be much larger than the original.

In the next two issues, I will take a practical look at using archivers.

Send me a letter or e-mail 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.

Table 1. Archivers

EXT	*Method*	*Program*	*FaST Club Disk*	*Comment*
ARC	ARC	ARC 6.02	UT.502	Last version
.LZH	LHARC	LHARC 1.13	UT.501	Incompatible - avoid!
.LZH	LHARC	LHARC 2.01l	UT.501	Slow
.LZH	LHARC	LHARC 2.32		Improved speed
.LZH	LHARC	LHARC 2.99	DM.40	Latest
.ZIP	ZIP	STZIP 2.2	UT.501	Buggy but OK
.ZIP	ZIP	STZIP 2.4	IN.560	Latest, slow to load
.ZOO	ZOO	ZOO 2.1	UT.502	Latest
.ARJ	ARJ	STUNARJ	UT.502	Decompress only
.UU?	UUEncode	UUCODER 1.0	UT.502	
.UU?	UUEncode ESS	UUCODER 4.5		Latest
Executable File Packers:				
	ICE	ICE 2.4	UT.503	Smallest files
	PFXPAK	PFXPAK 1.8e		Fastest, beware v3.0beta!
	ALL	Mega DePack 2.12	DM.35	Depack all files
Self-Extracting Archivers:				
	LHARC	SFX_LZH v1.6	UT.501	Use '-o' LHARC option first
	ZIP	ZIP2TOS v2.2	UT.501	Comes with STZIP

Table 2. Compression Efficiency

Test was to form a typical archive of three files:

Program file	97130 bytes
Text file 1	44291 bytes
Text file 2	45501 bytes
Total	186922 bytes

Method	File size	% of original	Comment
ZIP	75967 bytes	40.64%	v2.4 Deflate/Best method
LHARC	77947 bytes	41.70%	v2.99 Default settings
ZOO	78158 bytes	41.81%	v2.1 High compression setting
ZOO	103847 bytes	55.56%	v2.1 Default settings
ARC	106064 bytes	56.74%	v6.02
UUE	110971 bytes	59.37%	Previously compressed with LHARC

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FidoNet: 2:259/29.10
STA support in ATARIST echo
TurboNet: 100:106/0.10
STA support in T_ATARIS echo

Going On-Line

Teddy-Term v2

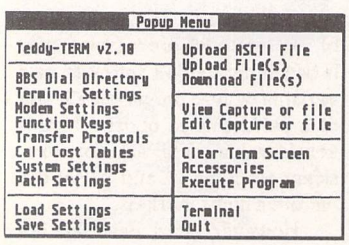
Mark Baines

Being a long-standing member of the bulletin board networks and comms journalist I'm often asked to give advice to new users about terminal programs and which one to use.....

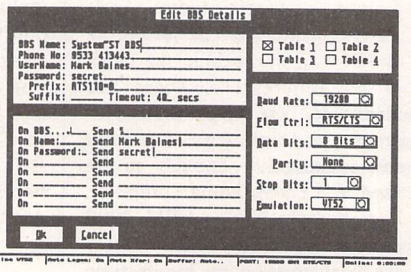
The Atari range is blessed with many competent terminal programs, mostly PD or shareware. What distinguishes one from another is usually not the features it offers but the user interface. Is it easy to configure and use? Can you get on-line quickly or do you have to spend days experimenting with multitudes of dialogs and configuration strings? Does the program get in the way of using a BBS remotely, for instance GEM window gadgets hiding parts of a BBS screen? Obviously, much of this is down to a user's own preferences and tastes. Some like a GEM interface, others prefer a clear, uncluttered screen.

Simplicity

One of the easiest and most stable terminal programs is Uniterm. It is simple to use and has some useful features, such as the pop-up menu and macros that could be used by people once they have developed more experience. Later came DTerm which again had a simplicity that attracted new users and got them on-line quickly. Both used GEM features where it mattered yet the screen was not GEMmed giving a full 80x25 screen - the usual terminal standard.



Above: Teddy-Term v2.10 main popup menu. From here everything is accessed.



Right: A dialling directory entry for System ST showing some auto log-on sequences.

Freeze-Dried terminal followed this interface format and being fully featured it was made very welcome by many experienced comms users. However, on a mono monitor it left something to be desired and the daunting configuration screens and poor documentation put many prospective users off. Woe betide anyone who obtained the US configured version! There are still many configuration details in Freeze-Dried that I don't understand and probably never will. Freeze-Dried is an excellent terminal program but the interface is awful, illogical and simply OTT!

Teddy-Term has a simple, clear display and interface, carefully thought out by an experienced comms user and sysop, Mark Matts. It has the simplicity of use that Uniterm and DTerm offered - a clear screen with a single status line, full ANSI, VT52 and ASCII terminal emulations and yet, a GEM interface for interaction with the program tucked out of the way as with Uniterm.

Features

The two mouse buttons can each be configured to call up a pop-up menu (Figure 1), the file selector, GEM menu for the accessories, dial directory or no action. From the pop-up menu the rest of the program can be accessed. All dialogs are movable and every command is accessible by mouse or key presses. This is important, as some things are best done via dialogs but when on-line a single key-press is more convenient. The terminal settings and modem settings dialogs are easy to understand and all the defaults are sensibly chosen so that most new users don't have to do much to get going. This is one of the things I really like about Teddy-Term.

There is a lot of power in the program for users who need it - yet this doesn't get in the way and you don't have to get involved in it if you don't want to. Take the Dialling dialog for instance (Figure 2). You can just enter the phone number and off you go. If the BBS uses different protocols then these can be individually tailored for each dialling directory entry as can the modem configuration strings. On top of that, Teddy-Term can learn the log-on sequence for you if you want. What it does is to record what the BBS sends to you and your response to it and puts all these in a list for each directory entry. When you next log on your name, password and first key presses are sent for you automatically resulting in quick and error-free log-ons. Freeze-Dried can do the same, but it doesn't seem as easy and accessible to the new user somehow. Chain-dialling is available and user-configurable call cost tables can also be assigned to each directory entry.

Emulations include ASCII, VT52 and ANSI and all work well. ASCII causes any control sequences to be displayed direct to the screen. VT52 is usual among STs as the emulator is built into TOS. ANSI is often found on PC-based bulletin boards and requires 16 colours which are all available on Falcons and TTs. On STs, with only four colours in medium resolution, Teddy-Term tries to make sure that the foreground and background colour are not the same. On this basis ANSI even works in mono. Movement of the cursor on the screen sends appropriate VT52 or ANSI commands to the remote computer for correct positioning there. Emulation can be switched at any time whilst on-line with CNTL-T.

The capture buffer is again configurable with sensible defaults. It or any text file can be viewed or edited at any time by external programs of your own choice. I much prefer this as it means that I can use my regular programs and I don't have to learn yet another one. The transfer protocol programs are also external. Teddy-Term comes set up to use XYZ and Jekyll. Again, setting up alternatives is easy. 40 function key macros are available that can also call up external programs.

The documentation consists of a disk file which is well laid out and fully detailed. Mark asks for £5 registration fee or whatever you think is valid. You can even send him some new PD software he hasn't got for his BBS, System ST in Leicester.

I thoroughly recommend Teddy-Term v2.10 as the comms terminal program for new users. I also expect that many of the more experienced among you will also find it refreshing and pleasant to use. I find myself using it more and more in preference to Freeze-Dried these days...

Teddy-Term is available from most Atari BBS and PD libraries.

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

DESKTOP DISCUSSIONS

A Beast of Burden?

Atari seem set to release a personal computer based on the Jaguar games console. William Hern isn't optimistic about its prospects for success.

You may not know it but the cover date of this issue marks the tenth anniversary of the start of the ST project. Back in May 1984, Atari decided to turn its back on the eight-bit computer technology that had served it so well for five years and move to the sixteen-bit processor technology which it saw as the future of computing. It seemed a bold move at the time but the several million STs now in existence are testimony to how well it paid off.

Atari now find themselves in the similar situation to ten years ago. The ageing ST design has long since ceased to be regarded as state of the art and the company is faced with the task of designing its next generation of home computer.

While it's good to see Atari acknowledging that it's time for something new, I'm deeply concerned about the route they seem to be choosing. If the persistent rumours are to be believed, Atari is planning to launch a personal computer based around the Jaguar chip set. I'm not at all convinced that this is a good idea.

My most basic objection is that I don't believe the Jaguar chip set has the all round ability to be used in a personal computer. Games consoles are a highly specialised form of computer, requiring dedicated circuitry to produce the high speed graphics that players crave. A personal computer on the other hand needs general processing power which is capable of handling a wide variety of computing tasks.

Of the five processors in the Jaguar, four are specialist. The blitter, object processor and digital signal processor won't be much use for general purpose number crunching. According to Atari the 64-bit graphics processing unit is a respectably fast RISC processor and so can do much more than just handle graphics. As yet we only have Atari's word for that and if it isn't up to the task then the thirteen megahertz 68000 processor will need to shoulder the burden alone. That chip is hardly a speed demon - the Falcon's processor is considerably more powerful.

The Jaguar's limited computing power isn't a problem for games as most are written in assembler and so can be highly optimised to extract every last ounce of performance out of the machine. In contrast, applications on a personal computer tend to be written in high level languages such as C. Although compilers are getting better, they are still nowhere near as good as a skilled machine code programmer for getting maximum performance. Hence personal computers need to have faster processors than do games consoles.

One of the arguments for a Jaguar computer is that it would have a low price. After all if you can sell a Jaguar for two hundred pounds then surely you can turn it into a real computer by adding a few inexpensive parts. Well, it's true that you need only a few extra parts - disk drive, keyboard, etc - but unfortunately these tend not to be cheap.

There's also the small matter of memory. The Jaguar console has two megabyte of memory on board. For a console that's a huge amount as the program code is stored in ROM rather than RAM. A personal computer's memory has greater demands placed on it as it must store both the program code and its data. As a consequence two megabytes is considered these days to be tiny. Four megabytes is the realistic minimum for useful work and eight is better, particularly when used with a multitasking operating system.

So, in addition to the cost of the disk drive, keyboard and operating system, the expense of at least two megabytes of RAM must be factored in. All these costs add up and mean that a Jaguar computer won't be particularly cheap.

My fear then is that a Jaguar PC will prove to be neither very powerful nor very cheap. This hardly sounds like a recipe for a runaway success. Even compared against the machines of today, the Jaguar computer doesn't look exactly breath-taking. Just think how bad it will look against the opposition in two to three years' time.

I feel that Atari would be much better off starting completely from scratch. Forgetting about compatibility with old systems gives the designers complete freedom to choose the best components available today. Let's start by ditching the Motorola 680x0 as it is reaching the limits of its architecture. There are plenty of new chips that offer greater performance and yet are still inexpensive enough to be used in a cheap home computer. For example NEC's MIPS 4200 chip has about eighty percent of the performance on Intel's state of the art Pentium chip and yet costs only about seventy dollars - less than ten percent of the Pentium's price.

Let's also say goodbye to TOS which is built on CP/M 68K, a version of an operating system nearly twenty years old. It's time for a more modern operating system with built-in support for features such as multi-tasking and virtual memory.

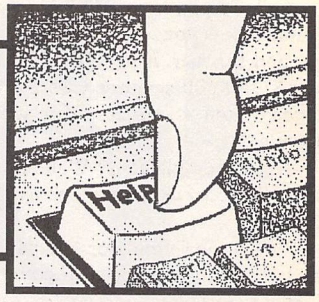
Even the humble floppy disk drive should be revised. I'd recommend using the new floptical disk drives which can fit over twenty megabytes on to a single disk yet can still read and write standard three and a half inch disks. Prices on these drives are falling rapidly and are now no more expensive than were the conventional 720K drives when they were first used in the ST.

This is not a bad time to launch a new computer. The PC market is in an extreme state of upheaval as both IBM and Apple release machines based around new processors. The domination of the Intel x86 processor family is beginning to look shaky as new variants deliver progressively less of a performance boost. There is considerable potential for outsiders to come in and carve out lucrative niche markets.

However Atari need an innovative machine if they are to make an impact once more and I don't think that a Jaguar based computer will provide that edge. The Jaguar is a fine games console but it is too specialist for use as a general purpose computer. An Epsom sprinter does not necessarily make a particularly good cart horse.

William Hern

FORUM



Gemulator

David J Fright – Forum STA 37

Q I installed one of these beasts a month ago: had to wait initially for TOS 2.06 ROMs, but no problems with the physical installation. It took two days to sort out why an 8 MB PC would only deliver 2 MB as an ST. The problem turned out to be a free trial version of Lotus Organiser configured to be resident at start-up.

The set-up is an 8MB Fountain DX2-50 and 250MB HDD, with CD-rom and fax-modem. Hanging off the back is a GT-6500 and an HPLJ4P. Gemul8r is Version 3.0. The STe (which I rashly promised to my daughter) is 4MB, with a 105MB Power Computing HDD and a Floptical (from Ladbroke and with a fan that sounds like Gatwick at rush hour).

The following programs work (with reservations): Didot, Protext 6 and Prodata. (These last two I know have PC native versions, but...)

A program which didn't work was 3D Calc. It just produced a line of bombs after appearing to load normally. (A shame, because I had to use the spreadsheet in Window Works to illustrate chaotic behaviour for a session on complexity.)

Today I nearly had a major ooh-nasty! Doing some work on the manual for Son of Didot, I was missing some screen shots and installed Imagecopy2 as an acc. then tried to reboot – crash! Phoned Paul and got the advice to rename cdrive.vhd and try booting from floppy. I actually renamed cdrive to fdrive and fdrive to cdrive (a nice empty drive to load some basic accs into!). This allowed me to get into the original cdrive and kill imagecopy.acc. Just as well – there was a week's work on the VHDs that (in keeping with Murphy's Theory) I had not backed up.

The reservations concern the screen colour – anything but "mono" and the screen redraws are idiosyncratic. In "mono", choices are offered but anything apart from "1" gives an unreadable screen!

My major problem concerns peripherals: the system can only see LPT1, COM1 and COM2. I have been unable to convince it that there is a scanner on LPT2 (I don't think it knows about LPT2). What about SCSI? How do I configure the system, given the small range of options available?

I had hoped, perhaps naïvely, that I could fit a SCSI card and hang my HDD and the Floptical onto that. If I could, would it save copying everything across? The manual is totally silent about this sort of addition, not even admitting that it might be impossible. Quite honestly, the information that I could fill every socket on the board to induce multiple personality syndrome is not essential IMHO.

Has anyone else any experience of getting Gemulator to see items that don't seem to have been allowed for in its design? (The manual, in the nature of these things, is silent about details like this.)

Eddie Dunmore, CIX #637

I Imagecopy. Well, nearly the same here, I'm at least politely informed an ST program has crashed. I'm not sure how I missed Imagecopy not loading as an ACC; I've been running it from the desktop without problems.

I tried changing the header flags but the ACC version still crashes :-(So along with Xboot, that's two incompatibilities with stuff I use.

Peripherals: A SCSI interface would be an excellent development for Gemulator but as far as I know there's no SCSI support at the moment...

›copying everything across??

The least tedious method has got to be via a null modem serial link.

›The manual is totally silent about this sort of addition

The manual is silent about almost everything that's remotely useful. I'm hoping my article (part2) will fill in a few of the gaps.

Joe Connor
CIX #642

● You can connect your ST hard drive and floptical drive to your PC by by-passing the ICD host adaptor and fitting a SCSI card to your PC; this should be trivial but even experienced PC users view setting up SCSI hardware with trepidation. The Gemulator hardware is only there to carry the TOS ROMs and so keep the Gemulator free of any potential legal approaches from Atari – there's no option to add ports or such like. The hard drive and floptical will have to be driven first by the PC, and not with the ICD software. The software supplied with your PC SCSI card should be up to the job. If not, something like Corel SCSI should get everything up and running on the PC.

Gemulator recognises up to four real DOS drives/partitions, C: to F:, so long as they are 32MByte or smaller. (The size restriction is a TOS limitation not a problem with the Gemulator.) So if your SCSI software installs your floptical and the first partition of your SCSI drive as, say, E: and F: then the Gemulator VHDFILE command should install them and the Atari HDX hard disk driver software should make them available. If Atari HDX does not drive the floptical drive try the ICD software.

A future version of the Gemulator could maybe see a PC SCSI card as an ST DMA port, or run TOS 3.x ROMs and use the TT's support for a real SCSI port. (This is speculation...)

Printer ports. Remember that the software

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

you are running is TOS 2.06 and it is this software that has no support for more than one parallel port. Look for a TSR PC utility that allows you to swap LPT1: and LPT2: this should allow you to toggle between your printer and scanner. If the ST driver software for your GT 6500 scanner uses the parallel port legally then it *should* also work with the Gemulator.

Looks complicated? Welcome to the Intel and Microsoft world of stone age kit car computing.

Whilst the Gemulator manual satisfactorily serves its prime purpose of covering how you install a Gemulator and get it up and running, I do agree that there could be lots more information on using the Gemulator there. But with so many different potential hardware and software combinations this would be in danger of becoming so general as to be useless. We shall implement Joe Connors suggestion of a Hints and Tips text file first, see the Gemulator review in this issue.

Opus Problems

Derek Smith – Forum STA 38
David Teal – Forum STA 39
Keith Powell – Forum STA 39
Dave Luker – Forum STA 40

A To obtain a registered version of Opus V2.3, send the registration fee to: Mr. Doug Harrison, PO Box 66236, Baton Rouge, LA 70806-6236. USA.

Incidentally the first registered copy of 'Opus' which Mr. Harrison sent went missing in the post. However, when I contacted him to explain that I had not yet received the registered version, Mr Harrison was quick to send another copy, together with some additional advice in the operation of the program. This all happened during April/May 1993.

Donald Bailey

A I registered for Opus in March '93 and received version 2.32 after sending $25 (I often send a bit more than requested).

I can't remember the address, but was able to communicate with Doug Harrison via email: 72277.2315@compuserve.com

I believe Doug isn't continuing to work on Opus. V2.32 has the following import/export functions: Save as Text, and Load and Save for WKS and WK1 The menu also contains items for loading and saving DIF, and loading text files but they are greyed out – presumably unimplemented.

V2.32 gives his address as: Doug Harrison, PO Box 66236, Baton Rouge, LA 70806-6236. But this may well be out of date.

Oliver Skelton, CIX #635

I 2.32 is also available on some Internet sites, although the enclosed readme file still says it is for registered users only. If Doug was still supporting it, I guess he would have had the 2.32 version removed from those sites long ago...

John, CIX#636

I Last I heard (and this was some time ago) Doug was saying he'd learned how to write GEM programs by writing Opus, and that he'd like to do a complete rewrite to put all his knowledge into practice. However, he didn't think it would ever be worthwhile financially.

Anyone know what he's doing these days? I know he wrote LookIt and PopIt for Codehead, but don't know what he's been doing since.

Come to think of it, a "where are they now?" series could be quite interesting. Is Tom Hudson, of Degas and CAD-3D fame, still working for Autodesk, for instance?

Graham, CIX #639

I Last I heard of Tom Hudson, he was working for one of the graphics teams on "Star Trek, The Next Generation".

Dazzz, CIX #640

UIS III

Mike Playle – Forum STA 39
Dave Luker – Forum STA 40

I Users of UIS III may have discovered that it crashes under certain conditions, and has a habit of causing the ST to freeze at odd times, requiring a reboot. Try copying a folder from hard disc to RAM disc while in First Word Plus, or inside the Lattice C editor, and bombs will appear. Try reporting this to the editor of STA, and your letter will be rudely ignored. One advantage of 'serving' the Atari scene is that the dwindling base of end-users can simply be ignored. But then, perhaps, what can you do when saddled with 5,000 letters of complaint? UIS bombs out not only on my Mega 4 ST, but also on my old 1040ST, the latter machine being stripped to a minimum for the test.

The German Selectric file selector does not bomb out when folder-copying from inside the Lattice editor, but refuses to copy from within FWP, claiming that no RAM exists for the purpose. It would seem that there is a serious programming error in UIS III. Readers might well enquire why no mention of this has appeared in the pages of STA.

Dr. John F. Reilly

● Despite a couple of lengthy sessions testing on a 4Meg ST with TOS 1.4, UIS v3.32, 1st Word Plus versions 2.02 and 3.20, and both the HiSoft RAM disk and the SI RAM disk I still cannot reproduce the problems you are reporting. Some details on RAM disk size(s), number of drive partitions, size of the files loaded into 1st Word Plus and the version numbers of the programs you have loaded, including the hard drive software, would be of help. As would details on what circumstances cause UIS to habitually cause your ST to freeze up; we've had no reports of such behaviour.

I don't understand your implication that all feedback on problems with programs such as UIS should go straight into ST Applications.

Spectre GCR

R Chiswell – Forum STA 39
John Richards – Forum STA 40

A I got a copy of the Async LaserWriter direct from Apple some time ago. I didn't use it, as I decided to give up Mac emulation just before I bought a laser printer. I'll be happy (if Apple don't object) to make a copy for John Richards or anyone who needs it.

Daniel Cohen

Psion/ST File Exchange

Mike Playle – Forum STA 39
Derryck Croker – Forum STA 40

A Another cause of hair-tearing is trying to upload open files. These must be closed first (using the delete key from the system menu or Psion-X from within running applications.) The one exception is Time, which cannot be closed and which does not have any files associated with it.

Derryck Croker

Amiga Disks

Anon – Forum STA 40

A There are several ways in which an Amiga can read ST and PC disks. These are all software based and are as follows. Note that all the solutions require an Amiga as well as your Atari machine.

a) MessyDOS – Public Domain program, requires a lot of setting up. Once set up, you can access PC and ST formatted disks at the same time as Amiga disks. No need to change drive identifiers like CrossDOS – see below.

b) MessySID – Complete suite of utilities, which is a file-management program (SID) with MessyDOS in the background.

c) CrossDOS – Once a commercial program, but recently given away with Workbench 3 (ask your A1200 owners for their 'Storage' disk). Double clicking on the PC0: or PC1: icons will enable your Amiga drives to be accessed as PC0: instead of DF0: and similarily for the external drive, PC1: instead of DF1: – also the configuration files allow you to set CrossDOS up to read extended ST format disks. I can easily read in 2/9/79 formats as well as the extended 2/10/81 formats from my Amiga.

This can be installed as part of your startup sequence, but as with any major alterations to the setup of your Amiga, unless you have a hard-drive, you are better off with solution (b).

Mike Mee

Amiga File Transfers

Q I would like to know if anyone has suc-

cessfully managed to transfer files between the Amiga and Atari over the parallel connection cables as used by some of the better multi-player games - such as Populous II? I would prefer to use two terminal programs instead of formatting a disk on the ST, transferring the files across to/from the Amiga and then back to the ST.

If anyone knows which software I can use, please send in an answer.

I already have the 486 and 286 PC machines connected on a network, but I would like the convenience of a similar system for my ST and Amiga. There is a program called Twin, which allows the Amiga and PC to 'network' but I need a similar type of system for my 16-bit machines!

Other formats that are usable on both machines are the proverbial music modules (.MOD) format as mentioned in your description of Oktalyser STE (MUS 101). This is one of the main reasons why I need a decent transfer system - I rip and convert lots of music from the Amiga! I also need to transfer depack routines from the Amiga to the ST for the ever-delayed release of my Multi Depacker v2.0!

I would also like to know if anyone has found a program which will convert Windows v3.1 '.ICO' files into usable picture formats on the ST. They are only 766 bytes long, so surely someone could knock up a little program to do it? GEM View can't handle it.

Mike Mee

Calligrapher

Alan Johnson - Issue 40

A If the 'Printer/Document' disc is opened up you will find a folder named FONTS CAL. Open this folder and you will find a folder named CACHE CAL. Open this, and if the disc has been used, there will be one or more files with nonsense titles. These are in effect the 'picture' files constructed by the programme of the outline fonts of the text.

These files are assembled and used once in the printing, and if a fresh print is called for, a new picture is constructed. Delete these files at the start of each session and the disk life will be extended, but eventually it will corrupt.

The best way to run Calligrapher on a single drive system would appear to be as follows:

Make a working set from the masters.

Then make a duplicate program disk, several (say 3) printer disks, and of course all text files should be on their own catalogued text file disk that can be used in any appropriate system(Cal, Doc, Et al, all together in some sort of category of order).

Then run the system, clearing files on the printer disk as described, and swapping to a new disk when the need arises - this is usually first indicated when a diagonal black stripe starts working its way down the print out.

At the completion of the session format the discarded disc for use in some other application - not Calligrapher, and make a replacement printer disk to maintain the 'one working, two spare' ratio. This way all should be hunky dory, most of the time.

Finally in issue 22, Forum, Simon Daw describes another way of configuring Calligrapher - if you have 2 meg and 2 drives to play with.

John Ash

Calligrapher Fonts

Q I'd like to have information in regard to Calligrapher Gold Vector Fonts. Last September I purchased this software and soon after Working Title closed down. Would you know any? Or perhaps do you know of some software which can convert, for example, Calamus fonts into Calligrapher fonts? Your advice will be highly appreciated.

Eric Girard

● When we looked at the possibility of writing a Fontkit Plus Calligrapher import module Working Title made it plain that they would be unhappy if anyone did anything with their font file format. This protective attitude seems to have dissuaded anyone from writing any third party fonts or font utilities for Calligrapher.

Calligrapher was recently 'given away' on an ST Review cover disk and the magazine is running offers for Calligrapher fonts. Prices look much the same as the old Working Title price list: £18 per font.

Mouse Problems

Huw Williams - Forum STA 35
Paul Kelly - Forum STA 37
A J Kennedy - Forum STA 38
George E Hogg - Forum STA 38
Andee Graves - Forum STA 39

A Following on from all the mouse defects listed recently, most of which I have experienced at one time or another, there is one which does not so far seem to have been mentioned. This is due to electrical noise generated by the mouse circuitry itself.

A number of the later types of smaller and handier mouse now use a quad (four stage) comparator i.c. to clean up the output pulse shape from the encoder-wheel opto-detectors. For those who are unfamiliar with the term comparator; it is simply an op-amp with a logic level output stage (*simply a what? - Joe Public),* high open-loop gain, and is normally operated without any feedback. The four stages in the i.c. are used to 'compare' the four opto-detector outputs with a common pre-set d.c. reference voltage, and thus define their relative logic states at any moment.

Whilst these devices are generally well-behaved, the odd rogue sample can exhibit a higher than normal self-noise in one or more of its stages, or even instability when used in a pcb which has excessive stray capacitance between some input and output tracks. The effect is sometimes made worse by a low sensitivity opto-detector as an input source.

The encoder-wheel is essentially an analogue output device, in that the detector produces an output roughly proportional to the area of light source uncovered by a slot in the encoder-wheel as it revolves.

The comparator is needed to turn this relatively slow (in digital terms) rise or fall of the detector signal into a 'single' clean pulse transition.

When the detector signal reaches sufficient amplitude to bring about an output transition, an additional noise voltage of only a few tens of microvolts will, when boosted by the comparators' high gain, cause a long burst of pulses to be produced instead of just one. Indeed, if the pcb layout is such as to encourage instability, a continuous stream of pulses is possible; hence the sometimes disconcerting sight of the cursor sailing serenely across the screen without any deliberate movement of the mouse. The pulse stream is usually only stopped by a further small rotation of the encoder-wheel, accidental or otherwise.

Apart from the effects of broken or intermittent leads or connectors, the fact that the cursor movement is almost invariably in one direction is a clue as to which particular comparator is responsible when noise is the cause. Only one comparator of each encoder-wheel pair needs to be noisy to produce movement.

Having said all this, unless the noise is really excessive, it is nearly always possible to cure the fault when due to this particular cause, by introducing some deliberate 'hysteresis' to the circuit involved. This should not be confused with any natural hysteria aroused in the operator when chasing the wayward cursor with the mouse!

The hysteresis involves applying just sufficient positive feedback to the comparator concerned. This will shift the input voltage threshold after the initial transition, to a value higher or lower than the added noise voltage peaks, and thus prevent further triggering of pulses. In its simplest form, this usually means a single large value resistor connected between the positive or non-inverting input of the comparator, and its output pin. This and similar techniques are often outlined in the applications section of the i.c. manufacturers' data sheets, but some further information could be offered to the editor if anyone feels intrepid enough to want to experiment.

That this is not incorporated at the design stage of low-cost mice often comes down to basic economics. Four or more resistors saved per unit has a significant cost advantage for large volumes of production, particularly if the units generally work well enough without.

It is also unfortunately true that in the manufacture of large batches of i.c's or discrete semiconductor components, the noise or stability limits are occasionally exceeded, to the detriment of long term end-product reliability. Even changes of component source during the production run can bring about a drop in quality from that of the pre-production samples, with the odd suspect unit slipping past at the inspection stage.

In the case of Andee Graves' troublesome Alfa Data Omni Mouse (STA 39), I can say that a similar model in my possession has been cured by the above treatment.

Although I do not have access to an Amiga to confirm the fact, I seem to recall that it reads the mouse output differently by requiring both pulse streams from each encoder-wheel to be present in order to move the cursor. This is in addition to the need to determine the direction of movement. Thus spurious pulses from one comparator alone would be ignored.

The compatibility switch serves only to transpose two of the four output leads to accommodate the differing Atari-Amiga type connector conventions.

If one output of a pair of detectors is disconnected from an Atari form of mouse, the ST will still happily move the cursor, but only in one direction and also, incidentally, at half normal speed. Hence the problem with noisy mice.

P R Evans

P.S. I notice from the Forum section in STA 36, that I appear to be asking for 'more information about cheaper plateau (up to A3)'. A3 Plateau?. Now I know my handwriting is not very good at the best of times, least of all when scribbling in the comment section of your order form; but really! Surely 'plotters' would have seemed more likely in connection with a CAD application. However, as even the doughty Joe Connor now seems to despair of much CAD development for the ST, perhaps I shouldn't bother with such things and just stick to my geriatric printer. Thank you for printing the comment anyway.

● Making flat-top mountains out of flat-bed conspirators?

Interfering Cables

If you experience trouble with your Inkjet-printer, like formfeed on the middle of the page - make sure there are no other cables crossing the printer cable or too close to the printer cable. Do not even let the printer cable cross itself. I had problems with mysterious formfeds on my new Fujitsu Breeze 100 Plus because of interfering cables.

Jonas Moller Nielsen

Missing CAD

Greeting from the Great White North!

One week past the beginning of spring means that it is not quite as white as it was, thank heavens. Of course, one of the things that gets me through a Canadian winter is the monthly arrival of my ST Applications.

I'm hoping that the disappearance of the CAD Column in the March issue is not permanent. I'm only a few months away from a diploma in Architectural Technology and I'm one of the rarest types of students here: I don't produce drawings on a PC using a pirated copy of AutoCAD for Windows. I use DynaCADD (paid for!) on a Falcon so I'm starved for any kind of published Atari CAD support.

Do I miss AutoCAD? No. Granted, it does have 3-D tools that outstrip any found on DynaCADD by a mile, but despite all the hype in PC magazines about 3-D modelling, it still forms only a small portion of Architectual working drawings. For the bread-and-butter production of 2-D drawings, DynaCADD works just fine and is much easier to use.

Another of AutoCAD's strengths is its data management capabilities which simply do not exist on DynaCADD in its current version. DynaCADD version 3 does support element attributes and the like, but whether we will see DynaCADD 3 on the Atari is becoming increasingly doubtful. It's been almost 2 years since I saw a beta version of Dy3 operating on a TT and Ditek is still not making any promises about releasing it for Atari machines.

When and if I require more features than DynaCADD has there are many other CAD packages available on the PC (Power PC!) that are as good or better than AutoCADD and far easier to use. MicroStation PC, ArchiCAD and SoftPlans are just a few. It is my belief that I can pass capably through my professional career without ever having to own a clumsy Intel based computer or an overpriced, over-inflated AutoDesk product.

While DynaCADD itself has only rudimentary 3-D modelling capabilities

I've noticed a number of modeling/rendering packages being produced for the Falcon. The ones I'm aware of include Raystar, Xenomorph and Xenomorph II, Inshape, the various Lexicor products and, of course, the Falcon version of Persistence of Vision Raytracer.

I would like to see ST Applications do a complete review of all these products, comparing them to each other and to similar programs on other platforms. At a minimum this review should cover:

1. Speed of rendering
2. Rendering styles, resolutions and colours
3. Modeling capabilities
4. Materials and material creation capabilities
5. File import and export types
6. Animation and editing capabilities
7. Morphing and other "special effects"
8. Use of math co-processor
9. Use of DSP chip
10. Lighting styles and placement
11. Camera movement

This is rather a tall order, but there's meat here for several issues and if any magazine is up to it, ST Applications is the one!

Mark S. Cole
Ontario, Canada

● Sorry, but the CAD Column demise is irreversible. Joe Connor will be at the front of the queue to review any new CAD related products for the ST, and if there are enough hints and tips around he can probably be persuaded to do some irregular 'CAD on the ST' style articles. We'll try and live up to your hopes on the modelling and rendering software articles.

How about a version of TOS 4 for the Power PC? 100% practical if IBM/Apple have sorted out standard ways of implementing DSP and MIDI on a Power PC, and an easy NeXT-alike way for Atari to stay in the computer market without any hardware development costs.

EPROM Programmer

Has anyone any information on a disk that tells me how to build an Eprom Programmer/burner? I would also need the software to run it as well. I have seen Eprom burners for sale for the ST, but they are asking too much for them and the software, so I thought that it might be cheaper if I built the unit myself.

Iain Carr

Magazine Tricks

For a while now, your publication has stated that final output is on a LaserJet 4. Can I ask what GDOS printer driver you use with Timeworks to do this please? Do you print at 600dpi?

Colin Bramich

● We use the Turbojet LaserJet GDOS driver. No doubt the GST driver supplied with Publisher 2 works just as well but the Turbo-Jet was closest to hand when the printer arrived! Nearly all of the body of the magazine is printed at 300-dpi with Timeworks Publisher. Some headlines and a few of the italic fonts used in ST Applications would improve noticeably if printed at 600-dpi but this would involve recreating all of the fonts at 600-dpi. Additional obstacles include the absence of any sign of a LaserJet 4 specific GDOS (or even SpeedoGDOS) driver, and the significant nuisance of all print times being quadrupled. It already takes something like seven hours on a 16MHz ST!

Four elements of the magazine are printed at 600-dpi: the cover, program listings, and most FaST Club adverts are created and printed with PageStream; screenshots with over 4-colours are usually printed with Imagecopy 2. PageStream takes a month of Sundays to load TIF files and then makes a complete nonsense of them by dithering the text in screen shots. We could print the TIF files into 300-dpi IMG files with Imagecopy 2 and import these into Publisher, but the files are so big that DTP files keep outgrowing floppy disks. So I still can't throw out my guillotine and glue!

Videomaster Pictures

I have a question about Imagecopy. I just purchased Videomaster and I am having trouble transferring pictures of reasonable quality into Pagestream 2.2 to make a low budget newsletter for an organization. I'm already doing most of it for free and don't really want to buy something that won't help. So, my questions are:

1. Will the screen grab feature work within Videomaster (it does not have a menu bar at the top like most programs)?
2. What are the differences between the mono and color Imagecopy? I'm not interested in color at all, only DTP output of pictures from Videomaster.

3. Is there a way to adjust for dpi? I print to a 300dpi laser (soon to be a 600 dpi laser).

Also, thanks for a great publication ST Applications. It's my kind of magazine.

Doug Crew

● If you can do a print screen with Alternate-Help from within Videomaster you should be able to grab screens from within this program. If you just want a program to grab ST low resolution screens then Imagecopy 1 will work fine: see advert in our latest catalogue for a list of the enhancements in Imagecopy 2. For such a trivial application there are also numerous PD utilities that can do the job.

Doesn't Videomaster save pictures in Degas or Neochrome format?

Imagecopy 2 will print at all resolutions available on the printers that it supports, including 300 and 600-dpi. If it is the way that PageStream converts 16-colour pictures to mono that you find imperfect (they always look good to us), then you could use Imagecopy 2 to do the job by directing printer resolution output to an IMG file and importing this file into PageStream. This takes a little thinking about as you need to print from Imagecopy 2 at the size you want the final printout to be; scaling the IMG file in PageStream will upset all of Imagecopy's good work.

Remember that ST low resolution contains very little information, even less when the image is converted to a grey-scale. The image displayed in colour on a screen is going to look better than it really is because the human eye and brain automatically use the colour information to enhance the picture, something that does not work as well with the printed grey-scale version of the image.

Even national newspapers have a tough time getting good printable images from TV grabs. Do you have to use a video source for the original picture? A 35mm camera will get a vastly better image and with CD ROM prices continuing to drop the Photo CD route to getting the image into print is already looking cheaper than a colour scanner set up. Not that this helps if you're doing the work unpaid!

Creating PageStream 2.2

I Having recently invested in your WP.650 "PageStream Support" PD disk, I was pleasantly surprised to discover that it contained a patch program and file, namely PGS_2_22, which enabled me easily to create PageStream 2.2 from my existing PageStream 2.1 program.

As the patch program isn't listed along with the other contents of WP.650 in your latest catalogue, you can readily appreciate why I was so pleasantly surprised! Perhaps others might be, too?

Keith Markland

● This program is not listed in the catalogue because it will be supplanted as soon as something better comes along. The major flaw with this patch program is that it doesn't update the UK version of PageStream, just the US issue files.

Someone Else's Little Phoney

I Modem users should please note the telephone number printed in the classified advertisements of earlier issue of ST Applications for the "My Little Phoney" bulletin board system was incorrect. The correct number is (0454) 883624. The remainder of the advertisement was correct. The sysop, Steven Green would like to apologise for any inconvenience caused by people dialling the wrong number and welcomes new callers or old callers unaware of the new number to his system, which is connected to Fidonet, NeST, AtariNet and Technet, features hundreds of megabytes of Atari files for downloading and participates in the NeST intergalactic Space Empire Elite network game.

Steven Green

Applications and Printer Drivers

Q When issue 40 dropped onto the doormat, I had been fully engaged getting my self into a right mess trying to configure a recently acquired colour printer into all the appropriate programs. Some success had been achieved with the printer configuration acc. to be found on disk DRG.21- but equally I was moved to give up, having seen Flexidump destroy itself after an attempt to use the Custom facility - a resounding crash from the 'A' drive and a disk full of program and associated files and folders disintegrated into one file with a c**p name.

So coffee, armchair and issue 40 to sooth a scrambled brain was the required prescription. Mark Baines, in Beginners' Forum, told me what had most likely happened. It did not say how to avoid the situation, but at least one knows a little of what is going on.

Jon Ellis, in his Programmers' Forum, took us into the complexities of programming DeskJets. Being a total programming ninny, and at my age likely to remain so, I was simply left wondering how to get Jeremy Hughes' Imagecopy Colour or Martyn Dryden's Chromes to talk to an ancient Canon PJ1080A. Any ideas would be most welcome.

John Ash

● C**p? Not another foul-mouthed guttersnipe - I can feel us descending into a foul-smelling slurry of four-letter words again. (See Unhappy Swine, Forum STA 40.)

If your colour printer is Epson JX80c compatible then it should work with Imagecopy set to Epson 9-pin. If not send us some details on the printer and, if they look recognisable, some sample printouts. BJ Chrome only supports Cannon BJ printers.

Russia Calling

I The boys and me are just crazy about Atari ST. Unfortunately people of this kind are few and far between in Russia. That is why making contacts with Atari clubs in different countries seems particularly interesting. Could you help us get the list of Atari ST Clubs all over the world?

By the way, can we get in touch with other ST users by E-Mail? Looking forward to hearing from you.

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Signum 2

Q Years of satisfaction with Signum 2 came to an end when I changed my Panasonic KXP 1124 for an HP500 Deskjet printer. The nearest fit printer driver I have been able to find is Gate 7 Computer's Signum HP Laser Fonts and Drivers. Whilst this combination produces excellent quality printing it does so in a way that I find most frustrating. For example, it will print a line of bold capitals in a heavy font such as Normandy in one lightning sweep, then it will take up to ten, or more, chattering pecks at a line of Grotlite or similar light text before executing a couple of lines of the same in single passes. Apart from the length of time it takes printing, I am concerned that the printer, which goes hyperactive every other line, will shortly succumb to belt stretch or seizure. I lost count of the number of passes it took to print this letter but, as a text file, good old STWriter, (which was bundled free with my 520ST in 1985), zipped through it in the time it took to print one line with Signum. On lines where the problem is most evident, it appears to need many bites at the ascending parts of characters, it then zips through the body of the letters yet suffers again with the descenders. Presumably this is tied up with the way Signum text is presented as a graphics file. The HP500 works satisfactorily with all my other graphics software. Any assistance will be gratefully received.

Peter Clegg

● With no UK distributor for Signum any more there's no obvious easy solution other than to contact the publishers of Signum, Application Systems in Heidelberg, Germany.

Paper Jam Fix

I If your SLM804 laser printer suffers from what I call the Phantom Paper Jam, constant jamming of paper, for no apparent good reason, here is the solution:

I have had to rectify this problem on a few occasions - in my case the problem has always been traced to slipping of the one way clutch that operates the rubber pick up rollers. This explains why manual feed is always successful.

The problem may be overcome by dis-

mantling this clutch and cleaning off the old grease and very lightly lubricating the clutch surface with a light grease (a photocopier technician should be able to assist you in this area) and re-assembling.

Sounds simple doesn't it? However! a few things to be aware of:

Note the position of the pick up rollers!

The clutch is dismantled by slipping off the rubber ring (only used to stop pin coming out) and pushing out the pin (this pin will be horizontal not vertical), you will then be able to remove up to the spring, by rotating the assembley as you remove it.

I leave the driving pulley in place and clean it there, clean and lubricate very lightly and reinstall in the reverse order and away you go.

NOTE: It is important which way the spring is fitted.

When you reinstall the pin it can go in two ways - the right way and the wrong way. If you have it in wrong the pick up rollers will be in the wrong position.

If you do manage to get it wrong, it will not do any harm - nor will it feed the paper either. Remove rubber ring, withdraw pin and rotate the pickup roller shaft 180 degrees and put the pin back in.

I offer this advice on a user beware situation - if you do not know what you're doing - don't do it.

Lance Barrett

SM 124

Patrick Middleton - Forum STA 39

A I have had similar problems with my SM124 monitor and cured them. The display became unstable, with disk access equally spaced vertical dotted lines to run up the screen. This was an annoyance but my system was usable. Eventually, I got the end two hard disk partitions corrupted. I reformatted the drive but it happened again. The monitor instability and drive corruption were perhaps related.

The problem did not appear to be with the computer since there were no display problems in medium/low res mode, so I removed all peripherals and reconnected one at a time. No particular device seemed to be implicated. This did point to the monitor as the real problem. I examined the inside of my monitor and noticed several internal plug-in type board connectors. These I carefully checked for good fit. Nothing seemed loose but when I rebooted, the display was rock steady (there is some faint disk access interference but I think this is normal) and the disk has performed well.

I can only infer from all this that a connector was loose and that an excessive voltage found its way from the monitor to the hard disk. A large and uncontrolled magnetic field would explain the corruption of the same end partitions of the disk on two occasions (parked head?).

Mark Glanfield

Morse Machine

Q Last year I bought Microdeal's StereoMaster, and I like the product very much. However, what I want to do is tune my radio to a morse code station, let my ST listen to the radio through the StereoMaster cartridge, and let my program decode the morse and display ASCII-text on the screen. What I'd like to know from you is 1) Can I use the StereoMaster cartridge for this, or was this cartridge made in such a way that use for other purposes beside StereoMaster software is not possible? and 2) Who can help me with the reprogramming of the cartridge port? Perhaps a sample listing in ST-Applications would be nice?

Aljo Wijnands
The Netherlands

● Your StereoMaster cartridge is simply acts as an analogue to digital converter: the level of the two stereo input signals are read at regular intervals, and these levels are then converted into numbers that are passed on to the ST via the cartridge port. There are programming and hacking tools that would let you find out how the cartridge is controlled by the StereoMaster software and how it gets the sound data from the cartridge. But try asking HiSoft/Microdeal for details on how to write your own software first.

As morse code is simply a string of dits and dahs and StereoMaster is a 16-bit music sampler this is a big sledgehammer for one small nut. You could use a simple input to either parallel or serial port.

Background Music

Q I have a problem. Basically, my friend and I get bored on the computer; not in the Word processing, Desktop publishing, drawing, ray-tracing, animating, programming side of it but the background noise and sound part.

I wondered if there is a program that will allow you to put a digitised piece through the speakers without disrupting whatever you are running (unless it has music of its own). I have a small program called Stormlord, but unfortunately this program works with the Atari sound chip, i.e. the sound is not digitised, and it will not let you insert your own music.

I have an ST and my friend has a Falcon.

Ben Vandyk

● Backtraker on disk MUS.102 will play Soundtracker MOD files in the background. But this will use up processor time and so slow down the ST. Time for some hardware multi-tasking: get yourself a radio cassette...

Falcon Forum

Wot, No FF?

I In Issue 39 all the input in Falcon Forum came from CIX, and I must admit that the discussion was lively and informative. Things are hotting up I thought, and like the rest of you out there I sat back and waited to see what appeared in issue 40. Well, we all sat back, and look what happened. No Falcon Forum at all! I am just as guilty as all you Falcon owners reading this letter now. I did nothing to add to the Falcon Applications part of ST Applications. A quiet month for soft/hardware reviews specific to the Falcon can be excused; most new items are relevant to STs as well as Falcons... but no letters!

As I am not a member of CIX, I hope to continue to get a free and frank exchange of information, suggestions and ideas within the pages of my favourite magazine. I know we are not all as computer literate as Ofir Gal and Graham Hinton (especially me), but the Falcon is a home computer, mainly used by amateurs. Granted we are all highly intelligent, wise and wonderful people but we are not all-knowing! So support Falcon Applications, support Falcon Forum, support The Falcon! Don't leave it up the "experts" - we can all add to these pages.

OK, here's a snippet or two to get the ball rolling again.

If you use PageStream and are sick to death with multiple screen redraws then get a copy of WinX and pop it in your Auto folder. Problem solved!

A friend gave me a pre-formatted HD disk (we have been told compatibility is better if the disk is formatted on the target PC) for me to supply him with working copies of his company logo that I had been working on. There were five folders on the root directory each with three sub-directories and a total of 19 picture files and 19 small ASCII text files. Dragging them en bloc doesn't work! I had to create all the folders on the floppy and then copy the files into their correct directories. I tried a disk formatted on another PC with the same result: copy files - OK; copy folders - no way! Why?

Colin Fisher-McAllum

Falcon Scanners

Q I used the Pandaal A4 scanner (with sheet feed) with the Daatascan scanner software on my old Mega. I've now changed to a Falcon and find that the software doesn't work properly. The scanner usually scans part of a page and then stops. Does anyone have a solution - I'll be sorry to give up this very nice scanner. Surprisingly, I hear that the Daatascan software for hand scanners does work OK, but that other scanning programs don't work on the Falcon.

Daniel Cohen

Programmers' Forum

In this month's edition of ST Applications' regular programming column, we begin a two-part look at programming with windows.

Through the programming window

One of the key areas of AES programming is that of window handling. With the advent of MultiTOS, its importance has increased, as one of the requirements for full MultiTOS-compatibility is that a program confine its screen output within a window. The problem is that many of the usual published sources of advice on how to write GEM programs are a little short of practical detail on this subject.

Over the years, Programmers' Forum has received many letters on various aspects of window programming. These range from basic questions about how to cope with window events (**Dave Jones** of Manchester), to problems with multiple scroll-bar messages (**D A Rendell** of Crediton, Devon) up to how to deal with several windows at once (**H Marriott** of Worksop).

Mr Marriott's letter is typical:

"I have spent a great deal of money on the various books (Abacus, Compute, etc.) about programming windows and the various parts, but there is very little help in programming more than one window at a time. Most programs with two windows, the second window is usually a small window run by an accessory which is covered by the AES, and so is removed from the screen and the underlying window is then redrawn. When I try to use a second window, say a little more than half the size of the first window, this does not happen.

"At the moment, the technique that I use is - I first take a sort of snapshot of the work-space using vro_cpyform() and save it, then open my second window. Then when I close the second window again, I use vro_cpyform() to restore the original work_space, but there has got to be a simpler way of doing it surely, particularly, as looking through the 'C' programs they do not seem to use this technique at all. I have used the redraw assembler code given in the 'Compute' book on the AES, using a hollow fill, but this leaves my second window still on screen. In fact, this also occurs with my first window if I enlarge it to full size, the original window is still visible."

I must confess to not being familiar with the 'Compute' books referred to, but I think we can come up with an example program that will illustrate the key features for those interested in this area.

The example

In the tradition of Programmers' Forum of providing usable code, our example will be a complete, functional GEM application which could serve as a starting point for further development. Rather than simply rehearsing the list of AES window library functions and what arguments they take, and so forth, the example is intended to show how the pieces are put together to make something that works.

The program is a text file browser that reads in ASCII files, displays them in windows and allows the user to scroll through them at will (Figure 1). As written, the program permits up to seven files to be loaded and browsed at once, each in its own window. However, the program structure allows for an arbitrary number of files to be simultaneously processed: the limit of seven can be altered by changing one #define line and then recompiling.

All of the program's windows carry the complete set of basic gadgets: horizontal and vertical scroll bars, moving and sizing points, info lines and close boxes; and code is provided to animate all of these. The program also illustrates simple menu bar processing, and is fully MultiTOS-compatible.

Since a program of this complexity is made up of a reasonable amount of code, the listing has been split into two. In this article we'll look at the design of the program, and the influence that the requirement for multi-window operation has had on the structure. In next month's issue, the code dealing specifically with the window operation will be presented and discussed. Put the two together, and you should have a useful starting point for building complete applications. Also, next month it is hoped to feature a couple of modifications to show how easily the program can be enhanced.

Program structure

The first two-thirds of the C source code for the program appear as Listing 1. One of the key themes underlying the structure of the program is modularity. Tasks are broken down one level at a time and parcelled out into bite-size portions for separate functions to implement. This makes for a clean structure which is easy to debug and maintain. It also renders the program more readily understandable, in that it allows the top-level functions to describe what is to be done, without having to deal with the fine detail of how it is to be done.

As an example, consider the main() function. It consists largely of function calls, first to initialise the GEM environment and the resource data; then to perform the work of the program, and finally to clear up before termination.

Like most GEM applications, the file browser operates in an event-driven fashion. Once the initialisation phase is finished, the program spends most of its time waiting for the AES to notify it that something has happened.

The core routine is the animate_menu() function. This updates various menu items options (active/disabled) to reflect the current status of the program, and then waits for an event message from the AES. Depending on the type of message, it is dispatched to one of two specialist message handlers, menu_selection() and window_event(), which further analyse the message, and organise an appropriate response. Control then returns to the top of the event-handling loop, where the evnt_mesag() call waits for another message. The loop is only broken when the program is to be terminated.

This structure allows for easy expansion - by changing the evnt_mesag() call into an evnt_multi(), and adding appropriate handling functions, the program can easily be made to respond to other types of events, such as keypresses. More on this subject next month.

Data structure

The design objective of being able to cope with several files at once strongly influences the choice of how the program's data should be stored. For each file, the program needs to store the text itself in some usable format, along with information about the size and position of the window and so on. These variables will have to be accessible to more than one function.

If there were only a single file to be processed at once, the straightforward

approach would be to store the data in global variables which would then be consulted by the window-handling package. The problem with this approach is that it is not expandable - adding another set of variables to cope with a second window is not easy.

The method used in our file browsing program is to collect together all the variables associated with the representation of a loaded file, to make a single structure. Multiple files are then stored using an array of these structures. Global variables are reserved for parameters which are independent of files, such as the dimensions of the screen and so on.

To allow easy switching between one file and another, the window-handling functions do not refer directly to the global structure array at all, but receive a pointer to the element representing the 'current file' (the one associated with the top window) as one of their arguments. If the functions are passed a different pointer, they process a different window. Easy.

Essential to this approach are the routines get_current_file() and get_window_owner(). These are used to associate windows with file structures: when the user clicks on a window control element, the program needs to find out to which file it belongs in order to make an appropriate response. An example of this process at work is the code in menu_selection() that handles a click on the 'Close' item. The file associated with the top window is identified and a pointer to its structure passed to the close_file() function for removal.

The TEXTFILE structure specified in the listing is largely made up of members that control the window display. The text itself is stored as a doubly-linked list of LINE structures, and a pointer to the top of the list is one of the members of TEXTFILE.

The doubly-linked list approach was chosen as it allows files of arbitrary size and number of lines to be handled with reasonable memory efficiency. It also lends itself to the development of the program into a multi-screen text editor, as code to add and delete lines or blocks of lines from the linked list is easy to write. The major disadvantage is the need to traverse the list in order to navigate around the file. In use, this does not cause too many problems as pointer indirection is an operation easily compiled to efficient machine code. Certainly, on the development machine (Falcon), jumping from one end to another of a 2200-line document incurs no perceptible delay.

The Detailed Bit

Hopefully, the text above should have provided an insight into how the program was put together, and the ideas behind some of the code's features. The next stage is to look a little closer at a few of the more interesting functions.

The three functions initialise_GEM(), initialise_resource() and shutdown_GEM() are mostly generic housekeeping code, which could be used in almost any GEM application. During initialisation, several useful values are derived and stored in global variables for easy consultation if required. The resource initialisation code is provided in two forms: one for use with .RSC files, and another for use with embedded resource data. C's conditional compilation feature is used to select between these.

The open_file() function displays the file selector, and then opens the nominated file for reading. Text is read a line at a time into a temporary buffer, and then copied into a freshly-created LINE structure. The structure is then linked into the list structure using the li_last and li_next pointers.

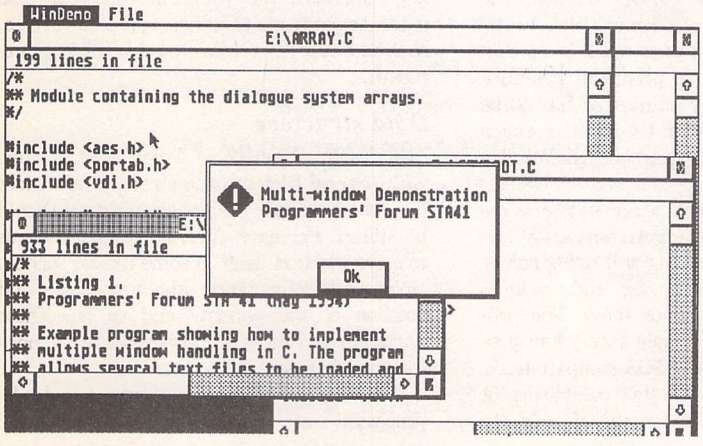
After reading in the data, a new window is created to display the text. open_window() specifies a window with the full range of gadgets (scroll bars, close boxes etc). wind_set() is used to place the filename in the window title area and to insert the info line text, prior to displaying the window frame with wind_open(). wind_set() requires four 16 bit integers as its last four arguments: the Lattice ADDR() macro performs the sleight of hand needed to turn a string pointer into two 16 bit integers to satisfy this requirement.

The final call is to a function which will appear in next month's listing: update_window(). Briefly, it sets the size and position of the horizontal and vertical scroll-bars to fit the area of text displayed. Notice that there is no explicit code to draw the contents of the window. As part of the open_window() call, the AES automatically generates a redraw message for the whole of the window's working area. This message is processed by the program in exactly the same way as for other redraw messages.

When a file is closed, its window must be closed, and the memory occupied by both the text itself, and the linked list structures, returned to the pool. This is the task of the close_file() function. After this is done, the global array of TEXTFILE structures is updated to delete the now unused entry, making space for a new file to be opened. If there are several windows open at once, closing the top window will cause the AES to automatically generate redraw messages for the windows underneath.

Porting to other compilers

This should be easy, as almost all of the functions in this listing are standard GEM library calls. An equivalent to the Lattice C ADDR() macro may not be provided by other compiler systems, but it's a simple enough matter to write a suitable macro.



◁ Figure 1

The file-browsing program in action. Four text files are loaded and displayed on the screen for viewing.

Next Month

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

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

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```
/*
** Listing 1.
** Programmers' Forum STA 41 (May 1994)
**
** Example program showing how to implement multiple window handling in C.
** The program allows several text files to be loaded and displayed in
** windows simultaneously, with full scrolling in both directions.
** This could serve as the kernel of a text editor. The program structure
** is expandable to cope with any number of windows.
**
** 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 16th March 1994.
*/

#include <aes.h>
#include <dos.h>
#include <portab.h>
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <vdi.h>


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

#define MAXFILES    7
#define MAXLINELEN  1024

#define FULL_MONTY
(NAME|CLOSE|FULL|MOVE|INFO|SIZE|UPARROW|DNARROW|VSLIDE|LFARROW|RTARROW|HSLID
E|SMALLER)

#define EMBEDDED_RESOURCE   1           /* Symbol defined if DERCS used
*/


/*
** Resource data - either embedded or from external
** resource files, depending on symbol EMBEDDED_RESOURCE.
*/

#ifdef EMBEDDED_RESOURCE                /* Defined to use embedded data
*/

#define MENU     0
#define DESKMENU 3
#define FILEMENU 4
#define DESKINFO 7
#define FILEOPEN 16
#define FILECLOS 17
#define FILEQUIT 19

OBJECT menu_tree[] = {
/*0*/   {-1,1,5,G_IBOX,0x0,0x0,(void *)0x0,0,0,80,25},
/*1*/   {5,2,2,G_BOX,0x0,0x0,(void *)0x1100,0,0,80,513},
/*2*/   {1,3,4,G_IBOX,0x0,0x0,(void *)0x0,2,0,12,769},
/*3*/   {4,-1,-1,G_TITLE,0x0,0x0," WinDemo", 0,0,9,769},
/*4*/   {2,-1,-1,G_TITLE,0x0,0x0," File ", 9,0,6,769},
/*5*/   {0,6,15,G_IBOX,0x0,0x0,(void *)0x0,0,769,80,19},
/*6*/   {15,7,14,G_BOX,0x0,0x0,(void *)0xff1100,2,0,22,8},
/*7*/   {8,-1,-1,G_STRING,0x0,0x0,"  About WinDemo...", 0,0,22,1},
/*8*/   {9,-1,-1,G_STRING,0x0,0x8,"----------------------", 0,1,22,1},
/*9*/   {10,-1,-1,G_STRING,0x0,0x0,"  Desk Accessory 1  ", 0,2,22,1},
/*10*/  {11,-1,-1,G_STRING,0x0,0x0,"  Desk Accessory 2  ", 0,3,22,1},
/*11*/  {12,-1,-1,G_STRING,0x0,0x0,"  Desk Accessory 3  ", 0,4,22,1},
/*12*/  {13,-1,-1,G_STRING,0x0,0x0,"  Desk Accessory 4  ", 0,5,22,1},
/*13*/  {14,-1,-1,G_STRING,0x0,0x0,"  Desk Accessory 5  ", 0,6,22,1},
/*14*/  {6,-1,-1,G_STRING,0x0,0x0,"  Desk Accessory 6  ", 0,7,22,1},
/*15*/  {5,16,19,G_BOX,0x0,0x0,(void *)0xff1100,8,0,11,4},
/*16*/  {17,-1,-1,G_STRING,0x0,0x0,"  Open...", 0,0,11,1},
/*17*/  {18,-1,-1,G_STRING,0x0,0x0,"  Close", 0,1,11,1},
/*18*/  {19,-1,-1,G_STRING,0x0,0x8,"-----------", 0,2,11,1},
/*19*/  {15,-1,-1,G_STRING,0x20,0x0,"  Quit", 0,3,11,1},
};

#else                                   /* Use normal resource file method
*/

#include "window.h"

#endif

/*
** Define the types used by the program...
*/

typedef struct  {
        char fsel_title[64];            /* File selector title          */
        char fsel_path[FMSIZE+2];       /* File selector path           */
        char fsel_name[FNSIZE+2];       /* File selector file           */
        char fsel_extension[FNSIZE+2];  /* File selector extension      */
        char fsel_full[FMSIZE+FNSIZE+2];/* File selector full path      */
                }
    FILE_SELECTOR;

typedef struct _line    {
                struct _line *li_last;  /* Pointer to previous line     */
                struct _line *li_next;  /* Pointer to next line         */
                char *li_text;          /* Pointer to text on line      */
                int li_length;          /* Length of text on line       */
                int li_number;          /* Line number                  */
                        }
    LINE;

typedef struct  {
                char *tf_name;          /* Filename of file             */
                char tf_info[32];       /* Info line for window         */
                int tf_lines;           /* Number of lines in file      */
                int tf_maxwidth;        /* Length of longest line       */
                int tf_display;         /* TRUE if file displayed       */
                int tf_whand;           /* Window handle for file       */
                short tf_wx;            /* Window working area coords   */
                short tf_wy;
                short tf_ww;
                short tf_wh;
                short tf_ch;            /* Height and width of window   */
                short tf_cw;            /* in characters                */
                LINE *tf_text;          /* Pointer to line head         */
                LINE *tf_top;           /* Line at top of window        */
                int tf_col;             /* Column at left of window     */
                }
    TEXTFILE;


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

char *file_selector(FILE_SELECTOR *spec);
int initialise_GEM(void);
int initialise_resource(char *);
int menu_selection(short *);
int open_file(TEXTFILE *);
int redraw_block(TEXTFILE *,GRECT *);
int window_event(short *);
void animate_menu(void);
void close_file(TEXTFILE *);
void move_top(TEXTFILE *,int);
void open_window(TEXTFILE *);
void scroll_window(short *,TEXTFILE *);
void shutdown_GEM(void);
void update_window(TEXTFILE *);
LINE *add_line(char *);
TEXTFILE *get_current_file(TEXTFILE *);
TEXTFILE *get_window_owner(TEXTFILE *,int);

int main(int,char **,char **);


/*
** Declare the global variables...
*/

short ap_id;                            /* AES application identifier   */
short handle;                           /* VDI workstation handle       */
short char_width, char_height;          /* Dimensions of character cell */
short screen_width, screen_height;      /* Dimensions of screen         */
short ux, uy, uw, uh;                   /* Usable max window size       */
short screen_planes;                    /* Number of colour planes      */

short VDI_active = FALSE;               /* TRUE if VDI workstation open */
short resource_active = FALSE;          /* TRUE if resource file loaded */

int files = 0;                          /* Number of open files         */
OBJECT *menu;                           /* Pointer to main menu tree    */
FILE_SELECTOR open_sel = {"Select file to read","","","\\*.C",""};

TEXTFILE buffer[MAXFILES];              /* Structures holding files     */


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

int main(argc,argv,envp)

int argc;
char **argv, **envp;

{
    if (initialise_GEM() == FALSE)
        return(0);
    if (initialise_resource("WINDOW.RSC") == FALSE)
        {
        form_alert(1,"[3][|Window demo program|cannot find .RSC
file.||[Abort]");
        shutdown_GEM();
        return(0);
        }
    animate_menu();
    shutdown_GEM();
    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)
        {
        appl_exit();
        return(FALSE);
        }
    VDI_active = TRUE;
    screen_width = work_out[0] + 1;
    screen_height = work_out[1] + 1;
    vq_extnd(handle,1,work_out);
    screen_planes = work_out[4];
    wind_get(DESK,WF_PXYWH,&ux,&uy,&uw,&uh);
    ux++;
    uy++;
    uw--;
    uh--;
    vst_alignment(handle,0,5,&dummy,&dummy);
    graf_mouse(ARROW,NULL);
    return(TRUE);
}


/*
** Function to shut down the GEM resources used by the program.
** The function relies on the values placed in the global variables by
** initialise_GEM(). If initialisation was successful, shutdown_GEM()
** must be called before the program terminates. There are no arguments
** and no return values.
**
** Usage:   void shutdown_GEM(void);
*/

void shutdown_GEM(void)

{
    if (resource_active == TRUE)
        rsrc_free();
    if (VDI_active == TRUE)
        v_clsvwk(handle);
    appl_exit();
}


/*
** Function to handle the loading and initialisation of a standard GEM
** resource file. The argument is a string that specifies the filename to
** be loaded. The function returns TRUE if all went well, or FALSE if not.
** The function also initialises the object tree pointers.
**
** Usage:       success = initialise_resource(filename);
**
**              int initialise_resource(char *);
*/

int initialise_resource(filename)

char *filename;

{
#ifdef EMBEDDED_RESOURCE                /* Defined if embedded data used
*/

    int f;

    resource_active = FALSE;            /* Can't use rsrc_free on this data
*/
    menu = menu_tree;
    for (f=0; f<20; f++)
        rsrc_obfix(menu,f);
    return(TRUE);

#else                                   /* Use normal resource file method
*/

    if (!rsrc_load(filename))
        return(FALSE);
    resource_active = TRUE;
    rsrc_gaddr(MENU,R_TREE,&menu);
    return(TRUE);

#endif
}


/*
** Function to supervise the user interaction with the menu bar.
** There are no argument and no return values. The function returns only
** when the user selects 'Quit'.
**
** Usage:   void animate_menu(void);
*/

void animate_menu(void)

{
    int no_quit = TRUE;
    short pipe[8];

    menu_ienable(menu,FILEOPEN,files<MAXFILES);
    menu_ienable(menu,FILECLOS,files>0);
    menu_bar(menu,TRUE);
    do
        {
        evnt_mesag(pipe);
        if (pipe[0] == MN_SELECTED)
            no_quit = menu_selection(pipe);
        else if (pipe[0] >= WM_REDRAW && pipe[0] < AC_OPEN)
            no_quit = window_event(pipe);
        menu_ienable(menu,FILEOPEN,files<MAXFILES);
        menu_ienable(menu,FILECLOS,files>0);
        }
    while (no_quit);
}


/*
** Function to handle a menu selection. The argument is the event pipe that
** caused the return from evnt_mesag(). The function returns TRUE if the
** program should continue, or FALSE if it should be terminated.
**
** Usage:   continue_prog = menu_selection(pipe);
**
**          int menu_selection(short *);
*/

int menu_selection(pipe)

short pipe[];

{
    TEXTFILE *current;

    if (pipe[3] == DESKMENU && pipe[4] == DESKINFO)
        form_alert(1,"[1][|Multi-window Demonstration|Programmers' Forum
STA41|][  Ok  ]");
    else if (pipe[3] == FILEMENU)
        {
        if (pipe[4] == FILEQUIT)
            {
            while((current = get_current_file(buffer)) != NULL)
                close_file(current);
            return(FALSE);
            }
        else if (pipe[4] == FILEOPEN)
            {
            if (open_file(&buffer[files]) == TRUE)
                {
                open_window(&buffer[files]);
                files++;
                }
            graf_mouse(ARROW,NULL);
            }
        else if (pipe[4] == FILECLOS)
            {
            current = get_current_file(buffer);
            if (current != NULL)
                close_file(current);
            }
        }
    menu_tnormal(menu,pipe[3],1);
    return (TRUE);
}


/*
** Function to handle a request to open a file. The file selector is
** displayed, and a file read in, and then displayed. The argument is
** a pointer to a file structure to initialise, the return is TRUE if all
** went well or FALSE if the file was not loaded.
**
** Usage:   loaded_ok = open_file(file);
**
**          int open_file(TEXTFILE *);
*/

int open_file(tptr)

TEXTFILE *tptr;

{
    char temp[MAXLINELEN];
    char *filename, *s;
    FILE *fp;
    LINE *last, *newline;

    if ((filename = file_selector(&open_sel)) == NULL)
        return(FALSE);
    graf_mouse(BUSYBEE,NULL);
    if ((tptr->tf_name = strdup(filename)) == NULL)
```

```
        tptr->tf_name = "Nameless";
    tptr->tf_maxwidth = 0;
    if ((fp = fopen(filename,"ra")) == NULL)
        {
        form_alert(1,"[1][|Cannot open file for reading.||][Cancel]");
        return(FALSE);
        }
    tptr->tf_lines = 0;
    tptr->tf_text = last = NULL;
    tptr->tf_col = 0;
    temp[MAXLINELEN-1] = '\0';
    while (fgets(temp,MAXLINELEN,fp) != NULL)
        {
        if (temp[MAXLINELEN-1] != '\0')
            {
            form_alert(1,"[1][|Input line too long. Data wrapped
around.||][Cancel]");
            temp[MAXLINELEN-1] = '\0';
            }
        s = temp + strlen(temp) - 1;
        if (*s == '\n')
            *s-- = '\0';
        if ((newline = add_line(temp)) == NULL)
            break;
        if (tptr->tf_text == NULL)
            tptr->tf_text = newline;
        newline->li_length = strlen(newline->li_text);
        tptr->tf_maxwidth = max(tptr->tf_maxwidth,newline->li_length);
        if (last != NULL)
            {
            last->li_next = newline;
            newline->li_last = last;
            }
        last = newline;
        newline->li_number = tptr->tf_lines++;
        }
    tptr->tf_top = tptr->tf_text;
    fclose(fp);
    return(TRUE);
}


/*
** Function to handle the opening of a window, and the managing of its
** interaction. The argument is a pointer to the TEXTFILE structure
** representing the file. There are no return values.
**
** Usage:   open_window(text);
**
**          void open_window(TEXTFILE *);
*/

void open_window(tptr)

TEXTFILE *tptr;

{
    if ((tptr->tf_whand = wind_create(FULL_MONTY,ux,uy,uw,uh)) < 0)
        {
        form_alert(1,"[3][|Cannot open window. No handles left
!||][Cancel]");
        return;
        }
    sprintf(tptr->tf_info," %d lines in file",tptr->tf_lines);
    wind_set(tptr->tf_whand,WF_NAME,ADDR(tptr->tf_name),0,0);
    wind_set(tptr->tf_whand,WF_INFO,ADDR(tptr->tf_info),0,0);
    tptr->tf_display = TRUE;
    wind_open(tptr->tf_whand,ux,uy,uw,uh);
    update_window(tptr);
}


/*
** Function to handle a request to close a file. If the text is associated
** with an open window, the window is closed. The memory occupied by
** the text is freed. There are no return values.
**
** Usage:   close_file(text);
**
**          void close_file(TEXTFILE *);
*/

void close_file(tptr)

TEXTFILE *tptr;

{
    LINE *s, *t;
    int index, below;

    if (files == 0 || tptr == NULL)
        return;
    if (tptr->tf_display == TRUE)
        {
        wind_update(BEG_MCTRL);
        tptr->tf_display = FALSE;
        wind_close(tptr->tf_whand);
        wind_delete(tptr->tf_whand);
        wind_update(END_MCTRL);
        }
    if (tptr->tf_name != NULL)
        free(tptr->tf_name);
    for (s=tptr->tf_text; s!=NULL; s=t)
        {
        if (s->li_text != NULL)
            free(s->li_text);
        t = s->li_next;
        free(s);
        }

    index = tptr - &buffer[0];
    below = index + 1;
    while (below < files)
        buffer[index++] = buffer[below++];
    files--;
}


/*
** Function to handle the creation of a new text line. The argument is a
** pointer to a string containing the text for the line. The function
** returns a pointer to a new malloc()ed LINE, or NULL if the creation
** fails.
**
** Usage:   line = add_line(text);
**
**          LINE *add_line(char *);
*/

LINE *add_line(text)

char *text;

{
    LINE *temp;

    if (text == NULL)
        {
        form_alert(1,"[3]|INTERNAL ERROR|Null text pointer.||[Cancel]");
        return(NULL);
        }
    if ((temp = (LINE *)malloc(sizeof(LINE))) != NULL)
        {
        if ((temp->li_text = strdup(text)) != NULL)
            {
            temp->li_last = NULL;
            temp->li_next = NULL;
            return(temp);
            }
        else free(temp);
        }
    form_alert(1,"[3][|Cannot get memory for new line.||][Abort]");
    return(NULL);
}


/*
** Function to determine the file whose window is uppermost on the screen.
** The argument is a pointer to the list of loaded files. The return value
** is a pointer to the relevant file structure, or NULL if none found.
**
** Usage:   active = get_current_file(list);
**
**          TEXTFILE *get_current_file(TEXTFILE *);
*/

TEXTFILE *get_current_file(tptr)

TEXTFILE *tptr;

{
    short top_window, junk;

    wind_get(DESK,WF_TOP,&top_window,&junk,&junk,&junk);
    if (!top_window)
        return(NULL);
    return(get_window_owner(tptr,top_window));
}


/*
** Function to determine to which file, if any, a particular window belongs.
** This is called often to associate an event with a file. The arguments
** are a pointer to the file list, and a window handle. The return is a
** pointer to the file structure or NULL if there is no match.
**
** Usage:   file = get_window_owner(list,handle);
**
**          TEXTFILE *get_window_owner(TEXTFILE *,int);
*/

TEXTFILE *get_window_owner(tptr,whand)

TEXTFILE *tptr;
int whand;

{
    int counter;

    for (counter=0; counter<files; counter++,tptr++)
        if (tptr->tf_whand == whand)
            return(tptr);
    return(NULL);
}
```

Shareware Column

This month Joe Connor launches another supported Shareware scheme and brings you up to date with the latest developments for existing supported Shareware.

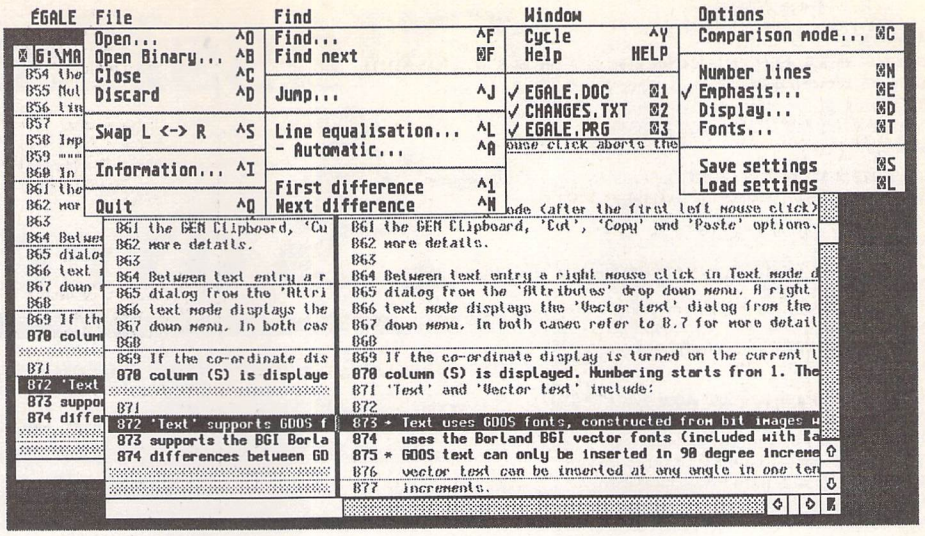
Kandinsky: still at version 1.57e but Uli has promised a major release V1.7 which should be ready by the time you read this so send in your disks and I'll add the latest ASCII version of the manual to your disk. The new version includes a number of features requested by UK users with over sixty registrations (around a fifth of the overall userbase) Uli has to take notice of us!

Selectric: still at v1.10e but the documentation is now completely anglicised. Lots of new features are planned in response to our wishlists but with around fifty UK users we make up a much smaller percentage of the 1200 registered users. Obviously English speaking users are still enchanted with UIS. Don't forget I used to be a UIS user but after trying Selectric I think it's even better!

Two-In-One: the latest version v1.06 includes a number of minor bug fixes and now features complete English documentation.

Everest: a much awaited update to v3.2e sees the inclusion of a number of small but significant changes including WINX support, saving of back-up files, more flexible cursor handling and saving of marked blocks. UK users are in danger of outnumbering the rest of the world with over forty users from an overall user base of 130. I've encouraged Oliver to add a key and some extra 'registered user only' features, and so if you haven't registered already you'd better do so soon if you don't want to miss out on some promised tasty features.

That's it for another month. I'd like to thank everyone who's registered so far: it's pleasing to see quite a few names appearing more than once and I've received a number of multiple applications. The postman rarely cycles straight past the house these days! Special thanks go to Peter West and Keith Frisby whose help with translations have been most welcome and of course the registered CIX guys who get to try the pre-release versions.



Egale: There's No Comparison!

Égale (French for equal) is designed to establish the differences between two files. Despite the French name Égale is programmed and developed by David Reitter and Christof Schardt in Germany.

Have you ever lost track of the latest version of a program or text you've working on? Or have you found two files with the same name in different locations and have no idea which one is the latest or what the difference between them might be? Maybe that killer application you're programming has sprouted an extra few bytes and you're not sure why. Most of us experience these events frequently. Égale helps solve these mysteries, offering a stylish and intuitive interface which makes comparing files fun. I use it to maintain and find the differences after manual revisions. Here's a rundown of the main features:

* Files to be compared are divided by a customisable vertical slider which can be freely positioned as desired.
* Files of any size (limited only by the available memory) can be loaded in either binary or text mode.
* Smooth scrolling both backwards and forwards through files combined with flexible jump and search features makes it easy to navigate even the largest files.
* Double-clicking on any line will display the individual line in a separate window with the differences highlighted.
* Optional line numbering can be toggled on/off as desired.
* Automatic line synchronisation can bridge the 'gap' between large areas of differences between two basically similar files. The parameters of the 'gap' are fully user-definable.
* Files can be evaluated either as characters or by interpreting each line as a numerical value.
* Égale is fully compatible with the Atari ST, TT and Falcon030 computers using all major TOS and multitasking operating systems. All resolutions from 640x200 pixels (ST medium) upwards are supported.

A few non essential features are reserved for registered users and these are currently being changed so I can't let you know which ones they are! In addition to the features listed above the next registered version will include Save and Print options. You can also order the PD version from the FaST Club on disk UTI.323.

UK Support and Registration

Égale is Shareware and may be freely distributed for non-commercial purposes. You can register in the UK as follows:

a) Make a cheque for £6.00 payable to J. Connor

b) Include your name and address in the form you wish it to appear in the Registered user dialog

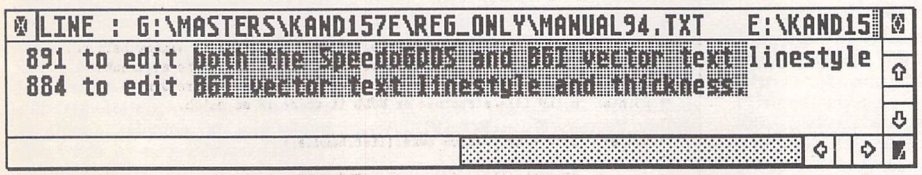
c) Enclose unlabelled floppy disk

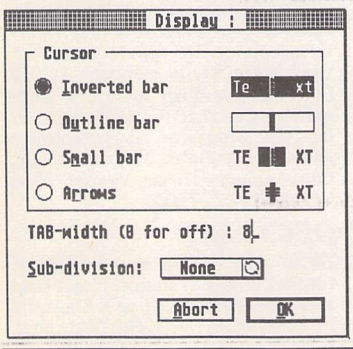
d) Send to: 65 Mill Road, Colchester, Essex CO4 5LJ, England

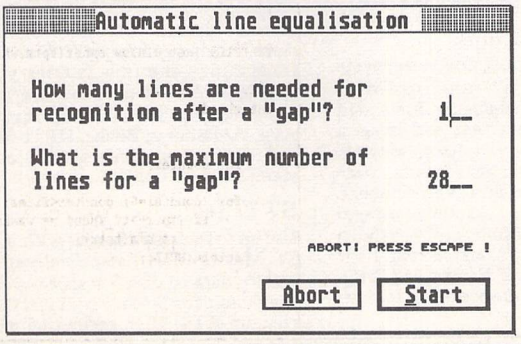
Please do NOT send cheques to the FaST club as this causes unnecessary delay and expense.

After registration you will Emailed or posted your personal 'Key' which unlocks the registered only users features. Keep it safe as it can also be used to update future versions.

Registered users can obtain the latest English Version at any time by sending a Stamped Addressed Envelope enclosing an unlabelled floppy disk. The author, David Reitter, reserves the right to sell the rights to Égale and to charge an upgrade fee for future versions.







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For Sale

Atari 520STE, 2MB memory, Cumana external FDD, Forget-Me-Clock II; software including NeoDesk 3, Quick ST, Lotus 3, Lemmings, F19 stealth fighter: £180 inc. P&P. 0506 883652 after 6pm. (41)

Mega ST 2.5MB RAM, 20MB external hard drive, SM124 mono monitor, replacement mouse, all boxed with manuals; original software includes Calligrapher, K-Spread 3, Superbase plus many others, all boxed with manuals, plus HP DeskJet 500 still in warranty, complete with accessories, etc. The lot for £550. Phone Simon on 081 848 7102. (43)

Hard drive components: 40w PSU (12volt/5volt) – £15; 50w PSU (12volt/5volt) – £20; 60mm brushless fan (12volt) – £5. All work perfectly and are designed to power hard drives (except the fan); price includes P&P. Phone David Haider on 061 764 2442 after 5pm and before 11. (44)

ST Club Newsletters issues 26–31 and full set of ST Applications issues 1–39 £15. Tel Coventry (0203) 404927. (41)

520 STE TOS 2.06 4MB RAM, box + manual, SM124 mono monitor, SM1224 colour monitor, Protar 20MB HD, Cumana 354 external 3.5" drive, Forget-Me-Clock II, joystick: £600. Tel: 081 291 0504. (43)

SM125 monitor with tilt/swivel base £55; Rombo Vidi ST colour digitiser complete with RGB splitter £50; Speedo GDOS with 14 Bitstream fonts £25. Tel. Graham on Derby (0332) 832829. (41)

PageStream 2.2 – latest version – brand new and unused (purchased in haste before deciding to go PC); cost new £159. Sensible offers considered. 0704 894513. (45)

Warp 9 £10, NeoDesk 3 £10, View II £7, Imagecopy 2 £10, Mortimer Plus £8, Mousetricks 2 £5, UIS 3 £5, NeoDesk 2 £5, DC Desktop £5, DC Utilities £5, UVK 5.9 £5. All complete with manuals. ROM clock £5. Tel 0772 795782. (42)

SVGA 14" colour monior with Falcon adaptor £150; Viewtec 12" greyscale monitor with stereo speakers and STE cables £40. Colour/mono monitor switch £10. Phone Colin 0256 896879. (42)

ST software: GFA Assembler £12. Using Assembler and GFA Basic book + disk £10. HiSoft C £20. Quartet £15. Turbo ST (1–82) £10. Twist £5. Digita DGbase £15. STOS Maestro software £7. K-Word 2 £12. Phone Paul on 0703 617711 (evenings). (41)

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)

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)

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)

STFM 4MB Ram; 90MB hard disk with ICD interface; TOS 1.4! all in Lighthouse Tower case. SM124 monitor. Software inc. Timeworks Publisher 2, Superbase Personal, Protext 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)

Upgrading to Falcon. STE 1040 upgraded to 4MB with PC Speed chip for PC DOS. Excellent machine in good condition, only £230. Tel: 081 553 3780. (41)

A Meico 200w power supply suitable for powering hard disks and other peri-

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. Phone (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 programs supplied with a printed picture catalogue of every image. Cost: £3 per disk plus P&P: total of £23 for the set. Cheques payable to Peter Kempley, KemCom Designs, 21 Chart House Road, Ash Vale, Aldershot GU12 5LS.

Circuit Designer

Create good quality circuit diagrams quickly and easily. Comes with laser printed manual. Works with any ST or STE computer with mono 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 for £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 Peckarmans 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, Delly End, Hailey, 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 SAE + 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 Curriculum AT4. High resolution only. Software and manual with full details £20. Cheques payable to: F.J. Wallace, 9 High Elms Road, Hullbridge, Essex SS5 6HB.

Scanner Manager

A specialised database system for all scanner owners, this software has been designed to be very easy and quick to use. For further details contact: Stuart Coates. 9 Links Road, Kibworth Beauchamp, Leicester LE8 0LD.

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. EUCLID enables you to draw any geometrical configuration including conics, circles, perpendiculars, bisectors, etc. STACK is an arithmetic calculator (HP type) for use with very large whole numbers. It will factorise smallish numbers quite quickly. Cost: £10 for a disk containing the programs, documentation and some examples. Michael Girling, Camel Quarry House, Wadebridge, Cornwall PL27 7HZ.

DEGASART

Demo disk of the above compart tutorial is now available. Please send a cheque/P.O. for £1 or a blank DS disk and an SAE to Keith Markland,

pherals £40 plus postage. 081 553 3780. (41)

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)

Amstrad FX6000AT Fax/answermachine, approved for connection to telecommunication system. Facsimile Modem Group III. Automatically detects whether to accept a fax or initiate the answermachine. Numerous functions, too many to list here. Will accept offer around £225 or may swap for a hard disk drive (minimum 80meg) or Multsync 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)

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)

HiSoft C Interpreter £25, HyperPaint £6, VIDI-ST (mono) £35. Tel 0709 895707. (41)

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, Wercs, 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

HP DeskJet empty cartridges or a set with CYMK inks and refills. Contact Graham Nash on 071 234 5098, 9am - 6pm weekdays. (43)

PageStream v2.2, must be original and complete. Tel Mike on 0524 63270 after 6pm. (41)

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)

PageStream v2.2 with Page Assistant. Also That's Write v2.07 or better. Ring Russell on 0277 373823. (41)

Private buyer wants ST hardware, including upgrades etc., and professional software. I can only pay about the same as a dealer would for second-hand goods or will swap FOUR times dealer price in new Quartz watches, stationery, watch batteries, brass plant stands, rawlbolts, etc. If you send me a list of what you've got and what you want for it (please look up a current price and ring up a dealer) I'll send you a list of what I have for you to choose from. Jon Skrine, 17 Carlisle St., Cardiff CF2 2DQ. (42)

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)

BBS

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)

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.

Call the Fractal BBS on 0305 266304. 14400+bps. Now running RATSOFT ST 2 fresh from the States. Any time after 9pm. (R)

The Bird Brain BBS - 0305 860245 10pm to 10am every night; all welcome. (R)

I'll Try That Once! ST-based BBS. Loads of file areas, 60-70 message echos, 10 on-line games. All speeds V326 V426. Give it a go! on 0453 765378 8pm to 8am. (R)

General

PDP magazine: a non-profit making venture for the Atari and Amiga owner. A serious publication covering reviews, general computer talk, programming, graphics and lots more. A new international look for 1994. Only 70p for a trial issue: 22, The Birches, South Wootton, King's Lynn, Norfolk PE30 0JG. Make cheque payable to J. Briggs. (53)

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 weekend/evenings. (45)

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)

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)

'Alternatives' fanzine - Quarterly. £1 per issue. Issue 9 out now (Autumn), Issue 10 out soon. Send £1 (which includes p+p) and address to Alternaties, 39 Balfour Court, Station Road, Harpenden, Herts. AL5 4XT. Writers, visionaries, artists needed. Details to the above address.

Contacts

Atari contacts wanted in Surrey/South London. Ring Paul on 081 542 8350 evenings or weekend.

Information swap. I need to know how to use a modem properly. I can supply information on Artwork and Printing, e.g. the most important piece of information needed for a posted piece of commercial stationery is the size and position of the window on your client's envelopes - there are at least four standard positions on a D/L alone. Write to Jon Skrine, 17 Carlisle St., Cardiff CF2 2DQ. (41)

15 Stourton Road, Ilkley, W. Yorkshire LS29 9BG.

Morse/RTTY Transceive

Atari STE - Morse and RTTY transceive. 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 1

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

SciSet is now available for Calamus. 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. From: Dr. Graham McMaster, Retsum Computing Solutions, 12 High Street, Turriff, Aberdeenshire AB53 7DS; 0888 62328.

FALCON FACT FILE

The Falcon Fact File is a free-to-join Membership Club set up to encourage users to help users. Application forms can be obtained by sending a stamped self-addressed envelope to:

FFF, 11 Pound Meadow, Whitchurch, Hants. RG28 7LG.

The completed form should be returned with a High Density disk and stamped return envelope. The member's details will be added to the FFF and the disk returned along with a selection of the best Falcon PD and Shareware to fill the disk.

May the FFForce be with you!

Price List and Overseas Postage Surcharges

FaST Club - 7 Musters Road - Nottingham - NG2 7PP - UK

Subscriptions

		Price	Post Rate
☐3STA	3-issue ST Applications trial sub	£5.00	F

Subscriptions - UK

☐SSUB	ST Applications sub (12-issues)	£24.00	Z
☐DSUB	Disk Mag subscription (6-issues)	£12.00	Z

Subscriptions - Europe

☐SSUB	ST Applications sub (12-issues)	£27.00	Z
☐DSUB	Disk Mag subscription (6-issues)	£13.00	Z

Subscriptions - Rest of World

☐SSUB	ST Applications sub (12-issues)	£37.00	Z
☐DSUB	Disk Mag subscription (6-issues)	£11.00	Z

Accessories

☐AACK	Disk Drive cleaning kits	£2.45	A
☐AAMB	Mouse Bracket	£1.95	B
☐AAMM	Mouse Mat	£2.49	C
☐AARB	A5 Ring Binders	£2.25	F

Disks

☐ADB1	Box of 10 3.5" DSDD Branded disks	£8.00	F
☐ADU1	10 unbranded 3.5" DSDD disks	£5.00	E
☐ADU5	50 Unbranded 3.5" DSDD disks	£22.00	L
☐AHB1	Box of 10 3.5" DSHD Branded Disks	£10.00	F
☐AHU1	10 Unbranded 3.5" DSHD Disks	£7.00	E
☐AHU5	50 Unbranded 3.5" DSHD Disks	£28.00	L

Disk Labels

☐ALDL	Disk Labels (100)	£1.50	D
☐ALSL	500 sprocket fed labels	£9.50	J

Disk Boxes

☐AB12	Slimpac Disk box for 12 disks	£1.40	B
☐AB40	Disk box for 40 disks	£5.95	H
☐AB80	Disk box for 80 disks	£7.45	L

Cables - General

☐AASB	Aerial switch box	£2.95	A
☐ACAF	Aerial Lead (Computer to TV)	£2.50	C
☐ACCM	Mouse Cable	£3.55	B
☐ACD1	1m Disk Drive Cable to open end	£9.45	C
☐ACD2	2m Disk Drive Cable to open end	£18.95	E
☐ACFP	Four Player Adaptor	£4.95	B
☐ACHF	Hi-Fi Stereo System lead	£2.50	B
☐ACJE	Joystick Extender for Mega ST	£4.95	B
☐ACMA	Monitor Cable: Commodore 1084S	£8.10	C
☐ACMB	Monitor Cable: Commodore 1084D	£8.65	C
☐ACMC	Monitor cable to open end	£5.95	C
☐ACML	Mains Lead for STFM	£1.95	C
☐ACMS	Monitor cable to Multisync	£4.95	C
☐ACPC	Centronics printer Cable	£5.95	H
☐ACRS	RS232 Cable	£6.95	C
☐ACSC	Monitor cable to SCART	£7.95	C
☐ACTJ	Twin J/Stick & Mouse 6" extension	£4.95	B

Cables - Monitors

☐AMCC	Monitor Cable: Commodore 1084SD	£9.65	C
☐AMCD	Monitor Cable: Commodore 1084SPI	£8.75	C
☐AMCG	Monitor Cable: Hitachi TV	£8.45	C
☐AMCH	Mitsubishi/Thompson 4375M	£18.85	D
☐AMCI	NEC 3D with switchbox	£17.05	D
☐AMCJ	Monitor Cable: NEC 3D	£7.45	C
☐AMCK	Philips 8533 RGB Monitor	£9.10	C
☐AMCL	Cable with switchbox: Philips 8873	£19.00	D
☐AMCM	Monitor Cable: Philips CM8833 II	£9.30	C
☐AMCN	Sony KX-14 RGB Monitor	£9.10	C
☐AMSB	Monitor switching unit	£18.95	C

Cables - Falcon

☐FCAB	Falcon SCSI Cable	£29.95	I
☐AMCE	Video Adaptor: ST Monitors	£9.95	D
☐AMCF	Video Adaptor: VGA Monitors	£9.95	D

Dust Covers - Ready Made

☐AVFA	Dust Cover: Falcon	£5.45	A
☐AVFM	Dust cover for STFM\STE	£5.45	A
☐AVP_	Dust Cover: HP DeskJet	£7.95	B
☐AVS4	Dust Cover for Atari SC1435	£6.95	C
☐AVSC	Dust cover for Atari SC1224	£6.95	C
☐AVSM	Dust cover for Atari SM124/125	£6.95	B

Dust Covers - Made to Order

☐AVP_	Dust cover: dot matrix printer	£6.95	B
☐AVQ_	Dust cover: dm + cut sheet feeder	£7.95	C
☐AVM_	Dust Cover: 14" Monitors	£7.95	C

Many other shapes and sizes available - write/phone for details.

Books

☐BAL2	Atari ST Machine Language	£18.45	H
☐BAL4	Introducing Atari ST Machine Code	£19.75	H
☐BAL5	ST Assembly Language Workshop v1	£14.95	G
☐BAP1	Atari ST Tricks and TipsTips	£18.45	H
☐BBG1	A Users' Guide to 1st Word	£6.95	H
☐BBG2	Your Second Manual to the Atari ST	£8.95	H
☐BBP2	The Game Maker's Manual	£12.95	H
☐BBP3	Your First BasicBasic	£14.95	H
☐BCP2	Atari ST Basic to CC	£18.45	H
☐BCP5	C-Manship Complete (Atari ST)	£14.95	G
☐BDP1	Desktop Publishing: The Book	£6.95	E
☐BDP2	Design for Desktop Publishing	£12.50	H
☐BDP3	Looking Good in Print	£21.95	K
☐BDP4	Users' Guide to Timeworks DTP	£9.95	G
☐BGP1	Atari ST Programmer's Guide	£22.95	J
☐BGP3	Compute!'s ST Artist	£17.45	H
☐BGP4	Computers and Chaos (Atari ST)	£12.95	G
☐BGP5	Program by Example (Atari ST)	£14.95	G
☐BGP6	Program Design Techniques (Atari ST)	£14.95	G
☐BGR1	Real Time 3D Graphics	£12.95	H
☐BGR2	Atari ST 3D Graphics Programming	£22.95	I
☐BLO1	Atari ST Logo User's Guide	£18.45	H
☐BSM2	Musical Appl's of the Atari ST	£5.95	F
☐BTR3	Presenting the Atari ST	£15.95	G
☐BTR5	Technical Ref. Guide Atari ST Vol 2	£19.95	H
☐BTR6	Technical Ref. Guide Atari ST Vol 3	£22.95	I
☐BTR7	The Atari ST Explored	£9.95	F

Inkjet Refill Kits

☐RC1	Ecojet Refill Kit for Canon BJ10E/20	£12.50	F
☐RC3	Ecojet Refill Kit for Canon BJ300/33	£14.50	F
☐RHPD	Ecojet Refill Kit for HP 51626A	£14.50	F
☐RHPS	Ecojet Refill Kit for HP 51608A	£12.00	F

Commercial Software Products

☐X3DC	3D Calc Plus	£24.95	H
☐XADR	Address	£12.95	G
☐XAST	Astronomy Lab	£24.95	G
☐XCAA	Calamus Assistant	£19.95	D
☐XCAS	CalAssistant SL	£29.95	D
☐XCAU	Cal Assistant Upgrade	£5.95	D
☐XCC1	Clip Art guide 1	£2.00	C
☐XCC2	Clip Art guide 2	£2.00	C
☐XCFT	C-Font	£9.95	B
☐XCP1	Clip Art Pack 1	£8.95	G
☐XCP2	Clip Art Pack 2	£8.95	G
☐XCP3	Clip Art Pack 3	£8.95	G
☐XCP4	Clip Art Pack 4	£8.95	G
☐XEDH	EdHack	£9.95	G
☐XETP	Easy Text Plus	£19.75	G
☐XFK4	Fontkit Plus 4	£24.95	K
☐XFKM	Fontkit+ upgrade M: 3 to 4	£8.95	H
☐XFKN	Fontkit+ upgrade N: 2 to 4	£10.95	H
☐XFKO	Fontkit+ 4 Upgrade: v2A or Trimfont	£18.95	K
☐XFKP	Fontkit Plus 4 Upgrade to 4.1	£3.95	D
☐XFKS	Fontkit Plus 4.1 Supplementary Disk	£1.25	X
☐XFPA	Fontpac Plus Redacteur Set	£6.95	C
☐XFPD	Fontpac Plus Derwent Set	£9.95	D
☐XFPN	Fontpac Plus Newsletter Set	£14.95	D
☐XFPR	Fontpac Plus GEM Roman	£9.95	D
☐XFPS	Fontpac Plus Signum Set	£6.95	C
☐XFS4	Fontswitch 4	£14.95	H
☐XFTY	Fonty	£11.95	B
☐XGDA	GDOS - A: for 9-pin printers	£2.95	X
☐XGDB	GDOS - B: for 24-pin printers	£2.95	X
☐XGDC	GDOS - C: for Opus & 9-pin	£2.95	X
☐XGDD	GDOS - D: for Opus & 24-pin	£2.95	X
☐XGDE	GDOS - E: FontGDOS + drivers	£2.95	X
☐XGDF	GDOS - F: Atari 300dpi printer fonts	£2.95	X
☐XGED	Gemulator Deposit	£171	Z
☐XGEL	Gemulator One Month Loan	£29.50	M
☐XGEM	Gemulator + TOS 2.06	£195	M
☐XGIN	Gemulator Info Book	£0.00	D
☐XIC2	Imagecopy 2	£19.95	G
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☐XICB	Imagecopy Colour u/g to v. 2	£5.00	G
☐XICC	Imagecopy Colour	£14.95	D
☐XIMC	Imagecopy	£9.95	B
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☐XMG2	Molgraph 2	£24.95	G
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☐XRU1	Redacteur Junior to 3.15	£60.00	D
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☐XRU3	Redacteur Junior to Lite	£30.00	D
☐XST1	STC Fonts Set #1	£14.95	D
☐XST2	STC Fonts Set #2	£14.95	D
☐XST3	STC Fonts Set #3	£14.95	D
☐XST4	STC Fonts Set #4	£14.95	D
☐XST5	STC Fonts Set #5	£14.95	D
☐XST6	STC Fonts Set #6	£14.95	D
☐XSTB	STC Fonts Brochure	£0.00	Z
☐XSTC	STC Fonts Catalogue #1	£2.95	C
☐XSTC	STC Fonts Catalogue #2	£2.95	C
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☐XTC2	TypeWrite Clip Art Guide #2	£1.95	C
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☐XTST	Textstyle	£19.95	D
☐XTW1	TypeWrite Clip Art Set 1	£8.95	D
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☐XTW4	TypeWrite Clip Art Set 4	£8.95	D
☐XTW5	TypeWrite Clip Art Set 5	£8.95	D
☐XUS3	Universal Item Selector III	£14.95	G
☐XUSA	UIS upgrade: v2 to v3.32	£7.50	B
☐XUSB	UIS upgrade: v3 to v3.32	£3.50	A
☐XVK6	Ultimate Virus Killer v6	£12.95	B
☐XVW2	View II	£14.95	F
☐XWP9	Warp 9	£29.95	G
☐XWPB	Warp 9 Upgrade B (from 3.x to 3.8x)	£16.95	G
☐XXDB	X Debug	£24.95	K

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☐XRDC	Redacteur 3 Demo - Colour	£0.75	X
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☐XD02	Fonty Demo	£0.75	X
☐XD03	Fontkit Plus 4 Demo	£0.75	X
☐XD04	Imagecopy Colour Demo	£0.75	X
☐XD09	Textstyle Demo	£0.75	X
☐XD10	X Debug Demo	£0.75	X

PD and Shareware Disks

☐DN	PD/Sh'ware Disks (non subscribers)	£1.25	X
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☐D2	Standard Range Disks (Subscriber)	£2.00	X
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☐L275	Licenseware @ £2.75	£2.75	X
☐LCW1	Licenseware @ £1.95	£1.95	X
☐LCW2	Licenseware @ £2.95	£2.95	X

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☐PCA1	Calamus Font Pack #1	£8.95	G
☐PCA2	Calamus Font Pack #2	£8.95	G
☐PPG1	PageStream Font Pack	£8.95	G
☐PTX1	TeX Pack #1	£8.95	G
☐PTX2	TeX Pack #2	£8.95	G

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☐XBD1	Books on Disk Set #1	£2.95	D
☐XBD2	Books on Disk Set #2	£4.95	D
☐XBD3	Books on Disk Set #3	£3.95	D
☐XBD4	Books on Disk Set #4	£3.95	D

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☐SST1	ST Applications Set 1: Issues 1 to 12	£9.95	M
☐SST2	ST Applications Set 2: Iss. 13 to 24	£9.95	M
☐STA	ST Applications sample copy	£2.50	F
☐STAB	3+ Back Issues @ £1.25 each	£1.25	C

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☐ATZ	ST Club A to Z Catalogue Disk	£0.75	X
☐XC01	Standard Range disk catalogue	£0.75	X
☐XC02	ST Computer disk catalogue	£0.75	X
☐PDCT	FaST Club Catalogue (printed)	£1.95	F

Catalogues are free but postage is payable on catalogues sent to non subscribers outside the UK.

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	AP.100	Databases
	AP.101	FastBase
	AP.102	Supercard
	AP.130	Sp Purpose Databases
	AP.140	Address Books
	AP.150	Spreadsheets
	AP.170	Hypertext #1
	AP.171	Hypertext #2
	AP.190	Personal Organisers
	AP.200	Graph Makers
	AP.210	Plotters
	AP.250	Label Makers
	AP.251	Label CAD
	AP.252	Sticker III
	AP.300	Mathematics
	AP.310	Chemistry and Electricity
	AP.320	Business #1
	AP.321	Business #2
	AP.340	Sport
	AP.350	Genealogy and Mag
	AP.360	Word Puzzle Makers
	AP.380	Astronomy #1
	AP.381	Astronomy #2
	AP.382	Astronomy #3
	AP.383	Astronomy #4
	AP.390	Miscellaneous
	AP.391	Calendars and Body
	AP.400	Demo's
	AP.900	Uniterm and Vanterm
	AP.901	Comms Terminals
	AP.910	Comms: Utilities
	AP.930	Comms: BBS Stuff
	AP.950	Radio Utilities #1
	AP.951	Radio Utilities #2
		ART - COLOUR
	AC.100	Page3
	AC.101	Planets
	AC.102	Fantasy
	AC.103	Misc TNY #1
	AC.104	Misc TNY #2
	AC.105	Misc TNY #3
	AC.106	Freds
	AC.107	Doug Herring Portfolio
	AC.108	Misc TNY#4
	AC.109	Animal World
	AC.110	16+ Picture Show
	AC.111	Birds
	AC.200	Page 3
	AC.201	Misc SPC #1
	AC.202	Photofile Demo #1
	AC.203	Photofile Demo #2
	AC.204	Samantha Fox
	AC.205	Samantha Fox
	AC.206	Gigabyte Show
	AC.250	Animals #1
	AC.251	Animals #2
	AC.252	Fantasy
	AC.253	People #1
	AC.254	People #2
	AC.255	Raytrace
	AC.256	Things 1
	AC.280	SPX #1
	AC.281	SPX #2
	AC.282	Hotbabes #1
	AC.283	Hotbabes #2
	AC.284	Hotbabes #3
	AC.285	Hotbabes #4
	AC.286	Hotbabes #5
	AC.287	Hotbabes #6
	AC.288	Hotbabes #7
	AC.289	Hotbabes #8
	AC.290	SPX #3
	AC.291	SPX #4
	AC.292	SPX #5
	AC.300	GIF Pictures #1
	AC.301	GIF Pictures #2
	AC.302	GIF Pictures #3
	AC.303	GIF Pictures #4
	AC.400	Art of Tobias Richter
	AC.401	Art of Tobias Richter
	AC.402	Wildlife Slideshow II
	AC.403	Photochrome Slideshow
	AC.450	Amiga IFF Pictures
		ART (CLIP ART)
	AM.101	Animals
	AM.102	Animals
	AM.103	Animals
	AM.104	Animals
	AM.105	Animals
	AM.106	Animals
	AM.107	Animals
	AM.108	Animals
	AM.131	Cartoons
	AM.132	Cartoons
	AM.133	Cartoons
	AM.134	Cartoons
	AM.135	Seymour's Sketches
	AM.136	Seymour's Sketches
	AM.140	Office Art
	AM.141	Office Art
	AM.151	Teddy Bears #1
	AM.152	Teddy Bears #2
	AM.160	Kids #1
	AM.161	Kids #2
	AM.162	Kids #3
	AM.180	Christian #1
	AM.181	Christian #2
	AM.182	Christian #3
	AM.201	DTP Items #1
	AM.202	DTP Items #2
	AM.203	DTP Items #3
	AM.204	DTP Items #4
	AM.205	DTP Items #5
	AM.206	DTP Items #6
	AM.250	Engravings #1 and #2
	AM.271	Fantasy #1
	AM.272	Fantasy #2
	AM.273	Fantasy #3
	AM.274	Fantasy #4
	AM.290	Plants #1
	AM.291	Plants #2
	AM.301	Food #1
	AM.302	Food #2
	AM.321	Greetings Cards #1
	AM.322	Greetings Cards #2
	AM.323	Greetings Cards #3
	AM.324	Greetings Cards #4
	AM.351	Houses #1 and #2
	AM.361	Music #1
	AM.362	Music #2
	AM.381	People #1
	AM.382	People #2 and #3
	AM.384	People #4
	AM.400	Entertainment #1
	AM.401	Pin Ups #1
	AM.402	Pin Ups #2
	AM.403	Pin Ups #3
	AM.404	Pin Ups #4
	AM.421	Sports #1 and #2
	AM.441	Transport #1
	AM.442	Transport #2
	AM.443	Transport #3
	AM.461	Work #1
	AM.462	Work #2
	AM.481	World #1
	AM.482	World #2
	AM.601	ClipIt #1
	AM.602	ClipIt #2
	AM.603	ClipIt #3
	AM.604	ClipIt #4
	AM.605	ClipIt #5
	AM.606	ClipIt #6
	AM.607	ClipIt #7
	AM.608	Cooper Clip Art
	AM.609	Cooper Clip Art
	AM.610	Cooper Clip Art
	AM.611	Cooper Wacky Cartoons
	AM.651	Misc #1
	AM.652	Misc #2
	AM.653	Misc #3
	AM.654	Misc #4
	AM.655	Misc #5
	AM.656	Misc #6
	AM.657	Misc #7
	AM.658	Misc #8
	AM.659	Misc #9
	AM.660	Misc #10
	AM.661	Misc #11
	AM.662	Misc #12
	AM.663	Misc #13
	AM.612	Grin Clip Art
	AM.613	Grin Clip Art
	AM.614	Lise Bis Jensen Portfolio
	AM.615	Panthersoft Smart Art
	AM.701	TNY #1
	AM.702	TNY #2
	AM.703	TNY #3
	AM.704	TNY #4
	AM.705	TNY #5
	AM.900	EPS #1
	AM.901	EPS #2
	AM.950	GEM Art #1
	AM.951	GEM Art #2
	AM.952	GEM Art #3
	AM.953	GEM Art #4
	AM.970	CVG Clip Art
		DISK MAGS
	DM.30	July '92
	DM.31	September '92
	DM.34	March 1993
	DM.35	May 93
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	DM.37	September 93
	DM.38	November 93
	DM.39	January 94
	DM.39	March 94
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	ED.101	Education #1
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	ED.105	Education #5
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	ED.108	Education #8
	ED.109	Education #9
	ED.110	Education #10
	ED.111	Education #11
	ED.112	Education #12
	ED.113	Education #13
	ED.114	Education #14
	ED.115	Education #15
	ED.116	Education #16
	ED.117	Education #17
	ED.118	Education #18
	ED.201	Languages
	ED.301	School Stuff
	ED.401	Death of a President
	ED.402	Death of a President
	ED.403	Death of a President
	ED.402	Search
	ED.404	History File
		ENTERTAINMENT
	EN.100	Games:Flying and Sports
	EN.110	Games:Casino & Quizes
	EN.120	Tetris
	EN.121	Tetris Clones
	EN.130	Word Games
	EN.140	Strategy Games
	EN.141	Strategy Games #2
	EN.150	Puzzle Games
	EN.160	Card Games
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	EN.210	Game Menu 1 and 2
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	EN.212	Games #1
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	EN.215	Games #4
	EN.301	Mono Games #1
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	EN.801	Adventure Games #1
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	EN.804	Adventure Games #4
	EN.815	Grandad 2
	EN.840	Michaels Big Adventure
	EN.861	Dungeon & Dragons #1
	EN.862	Dungeon & Dragons #2
	EN.871	Adventure Game Help #1
	EN.872	Adventure Game Help #2
	EN.890	Games Help
	EN.900	Demo Disk #1
	EN.901	CyberStudio
	EN.902	Lost Boys Definitive
	EN.903	Demo Collection #1
	EN.980	California Beach Girls
	EN.981	Golden Girls
		FONTS
	FN.100	Font Utilities
	FN.101	Fontkit v3.31
	FN.201	PageStream Fonts #1
	FN.202	PageStream Fonts #2
	FN.203	PageStream Fonts #3
	FN.204	imageArt PageStrm Fonts
	FN.301	PostScript Fonts #1
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	FN.303	PostScript Fonts #3
	FN.304	PostScript Fonts #4
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	FN.401	Calamus Fonts #1
	FN.402	Calamus Fonts #2
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	FN.404	Calamus Fonts #4
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	FN.407	Calamus Fonts #7
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	FN.409	Calamus Fonts #9
	FN.410	Calamus Fonts #10
	FN.411	Calamus Fonts #11
	FN.412	Calamus Fonts #12
	FN.413	Calamus Fonts #13
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	FN.501	GEM Fonts 300-dpi #1
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	FN.503	GEM Fonts 300-dpi #3
	FN.504	GEM Fonts 300-dpi #4
	FN.550	GEM Fonts 360-dpi #1
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	FN.552	GEM Fonts 180 & 360
	FN.580	GEM Fonts 9-pin
	FN.601	That's Write 300-dpi #1
	FN.602	That's Write 300-dpi #2
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	FN.604	That's Write 300-dpi #4
	FN.640	That's Write Fonts
	FN.650	That's Write Fonts 360
	FN.680	That's Write Fonts 9-pin
	FN.701	Signum Fonts 24-pin
	FN.702	Signum Fonts 300-dpi
	FN.703	Signum Fonts
	FN.751	German Signum Fonts
	FN.752	German Signum Fonts
	FN.753	German Signum Fonts
	FN.754	German Signum Fonts
	FN.755	German Signum Fonts
	FN.756	German Signum Fonts
	FN.757	German Signum Fonts
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	GR.100	Paint Packages #1
	GR.110	Crack Art 1.0
	GR.111	Synthy v2.026
	GR.112	Kozmik 4
	GR.150	Mono Paint Packages #1
	GR.151	Mono Paint Packages #2

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	GR.153	PAD 2.4
	GR.200	3D Graphics & CAD
	GR.210	CAD Packages
	GR.220	Effects Packages
	GR.230	Animation Packages
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	GR.301	Persistence Of Vision
	GR.302	Persistence Of Vision
	GR.303	Persistence Of Vision
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	GR.321	AIM 3.0
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	GR.381	Fractal Chaos
	GR.400	GemView 2.4
	GR.401	DMJ GIF
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	GR.420	Image Tools #1
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	GR.422	Image Tools #3
	GR.440	TT Graphic Utilities
	GR.450	File Format Specifications
	GR.501	Graphic Demo's #1
	GR.502	Graphic Demo's #2
	GR.503	MegaPaint Demo
	GR.504	DynaCADD Demo
	GR.505	DynaCADD Demo
	GR.550	Drawing Support Disk
	GR.560	Graphics for Teachers
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	GR.620	Animations #1
	GR.621	Animations #2
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	IN.122	Digests 3 and 4
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	IN.202	World Digitised
	IN.203	Misc Info Files
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	IN.281	Old Testament
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	IN.283	Old Testament
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	IN.501	ST News Issue 6.2
	IN.502	ST News Issue 7.2

	IN.503	ST News Issue 8.1
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	IN.533	STEN Issues 8 & 9
	IN.534	STEN Issues 10 & 11
	IN.535	STEN Issues 12 & 13
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	IN.552	Inside Info 52 & 53
	IN.553	Inside Info 55 & 56
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	MU.172	MOD File Players #2
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	MU.506	MIDI Utilities #6
	MU.507	MIDI Utilities #7
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	MU.550	Accompanist
	MU.600	MID Files
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		PROGRAMMING
	PR.100	GNU C++
	PR.101	GNU C++
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	PR.104	GNU C++
	PR.110	GNU C
	PR.111	GNU C
	PR.120	MJC
	PR.130	Heat and Serve C
	PR.140	ANA Modula 2 v1.01
	PR.150	ST ICON

	PR.151	ST ICON
	PR.170	Assembly Language
	PR.201	Prog Languages #1
	PR.202	Prog Languages #2
	PR.203	Prog Languages #3
	PR.204	Prog Languages #4
	PR.205	Prog Languages #5
	PR.301	Programmers Tools #1
	PR.302	Programmers Tools #2
	PR.303	Programmers Tools #3
	PR.304	Programmers Tools #4
	PR.305	Programmers Tools #5
	PR.350	RSC File Utilities
	PR.400	Learn to Program
	PR.401	C Source Codes #1
	PR.402	C Source Codes #2
	PR.403	C Source Codes #3
	PR.450	ST Applications Listings
	PR.455	HiSoft Basic Sources
	PR.460	STOS Source & Tools #1
	PR.461	STOS Source & Tools #2
	PR.465	ST Basic Source Codes
	PR.481	GFA Utils & Sources #1
	PR.482	GFA Utils & Sources #2
	PR.483	GFA Utils & Sources #3
	PR.484	GFA Basic Sources #4
	PR.485	Your 2nd GFA Manual
	PR.490	Pascal Source Codes
	PR.491	Modula 2 Source Codes
		UTILITIES
	UT.100	Format Disks
	UT.110	Disk and File Copiers
	UT.121	Disk Utilities #1
	UT.122	Disk Utilities #2
	UT.140	Sagrotan 4.17
	UT.141	Virus Tools
	UT.160	Disk Cataloguers
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	UT.180	Hard Disk Utilities
	UT.190	Hard Disk Backup
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	UT.201	Desktop Icons
	UT.210	Program Launchers
	UT.220	CLI
	UT.221	MiNT
	UT.230	System Utilities
	UT.240	Unix-like Utilities
	UT.300	Boot-Up Utilities
	UT.301	SuperBoot 8.1
	UT.310	File Viewers
	UT.320	Password Utilities
	UT.331	File Utilities #1
	UT.332	File Utilities #2
	UT.350	Mouse Utils & TOS Fixes
	UT.360	Screen Utils, Silly Stuff
	UT.370	Mem Utils, RAM Disks

	UT.380	CP's, File Sel's and Dir'y
	UT.390	Calc's, Clocks and Kbd
	UT.501	File Compression #1
	UT.502	File Compression #2
	UT.503	File Compression #3
	UT.601	Emulators #1
	UT.602	Emulators #2
	UT.650	DMJ Utilities
	UT.660	Support Disk
	UT.670	TLC Utilities 2.0
	UT.901	Printer Drivers #1
	UT.902	Printer Drivers #2
	UT.903	Printer Drivers #3
	UT.910	HP DeskJet
	UT.911	HP DeskJet and LaserJet
	UT.980	Printer Utilities
		WP and DTP
	WP.100	1st Word and ST Writer
	WP.101	Wordprocessors
	WP.150	Text Editors
	WP.151	JOVE and MicroSpell
	WP.152	GNU Emacs
	WP.153	Micro Emacs 3.10
	WP.154	Everest 3.0e
	WP.201	Wordprocessing Utils #1
	WP.202	Wordprocessing Utils #2
	WP.203	Wordprocessing Utils #3
	WP.250	Text File Printing Utils
	WP.251	IdeaList
	WP.300	Translation Programs
	WP.400	Words
	WP.501	WP Demos #1
	WP.502	WP Demos #2
	WP.600	DTP Packages
	WP.650	PageStream Support
	WP.660	Calamus Support
	WP.661	Calamus Winners
	WP.670	Timeworks/GDOS
	WP.690	Easy Text Plus Support
	WP.695	Publishing Partner
	WP.700	GhostScript
	WP.701	Ghostscript Fonts
	WP.702	Ghostscript Fonts
	WP.720	PostScript Utilities
	WP.800	Calamus Demo
	WP.801	Calamus S Demo
	WP.802	Calamus SL Demo
	WP.810	PageStream 2 Demo
	WP.815	DTP Demo's
	WP.951	TeX Utilities #1
	WP.952	TeX Utilities #2
	WP.953	TeX Utilities #3
	WP.954	TeX Utilities #4

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STA41

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Ed-Hak

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.
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£9.95
includes a 60-page printed manual

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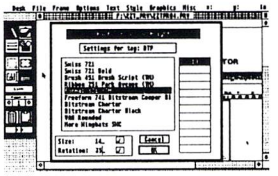
Easy Text Professional

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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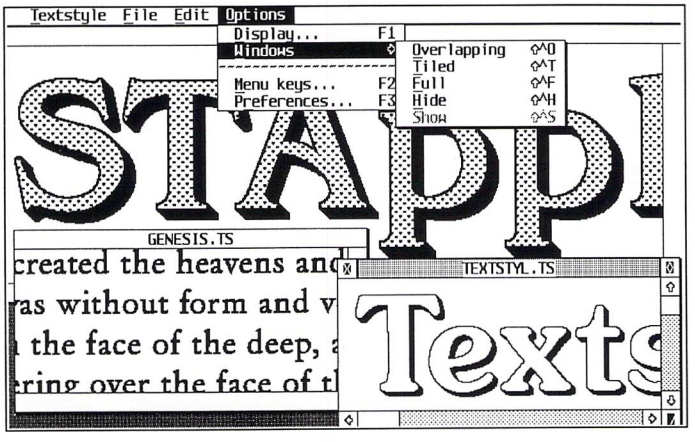
Textstyle

Text styler for Atari ST/TT/Falcon computers



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

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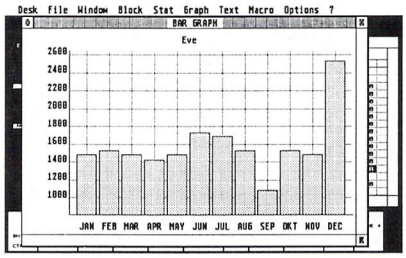
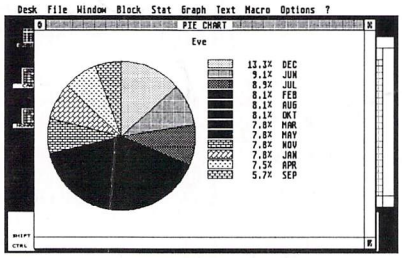
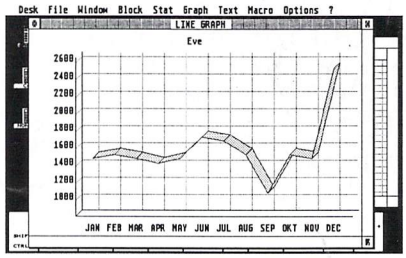
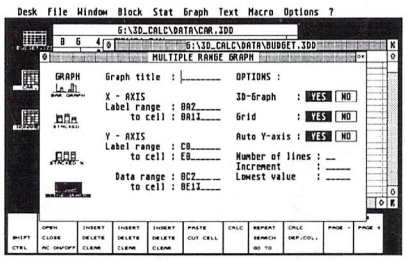
- ❒ Create headlines and logos from GEM fonts or Calamus fonts.
- ❒ Import ASCII text containing up to 200 characters, or edit text within Textstyle.
- ❒ Text size and resolution can be adjusted freely.
- ❒ Font sizes can be selected in tenths of a point from 1.0 to 999.9 points (13 inches).
- ❒ Text 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.

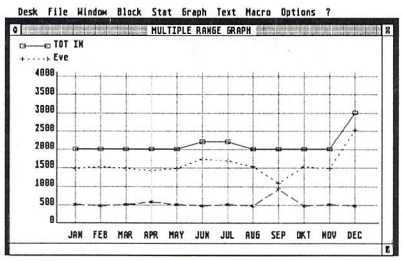
3D Calc Plus

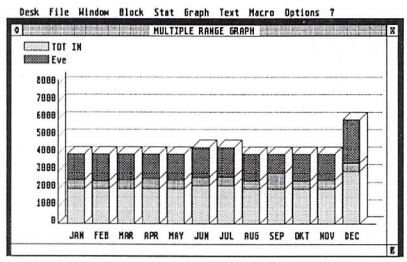


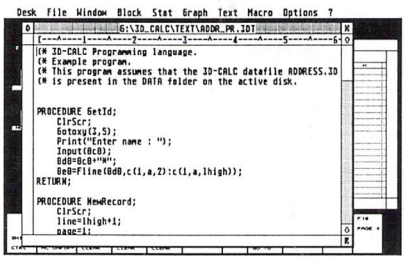


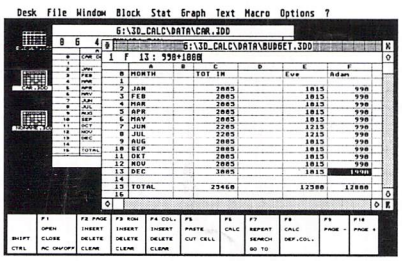












£24.95

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

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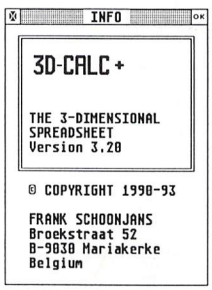

3D-Calc menu bar
3D-Calc: the 3-dimensional spreadsheet
Append file - Merge file
ASCII text option
Automating 3D-Calc
Averages and percentiles
Bar, line and pie graph
Block menu
Calculations: manual - automatic
Cell addresses
Cell font options
Clear block
Clear cell
Clear data
Clear text
Command line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

More than a Spreadsheet