

ATARI

COMPUTING

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Reviews

Rational Sounds 2

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Features

Mario Becroft

Image processing

CD-ROMs

Tutorials

Papyrus

Calamus

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2600 DJ, 2600 DK, 2600 DL, 2600 DM, 2600 DN, 2600 DO, 2600 DP, 2600 DQ, 2600 DR, 2600 DS, 2600 DT, 2600 DU, 2600 DV, 2600 DW, 2600 DX, 2600 DY, 2600 DZ, 2600 EA, 2600 EB, 2600 EC, 2600 ED, 2600 EE, 2600 EF, 2600 EG, 2600 EH, 2600 EI, 2600 EJ, 2600 EK, 2600 EL, 2600 EM, 2600 EN, 2600 EO, 2600 EP, 2600 EQ, 2600 ER, 2600 ES, 2600 ET, 2600 EU, 2600 EV, 2600 EW, 2600 EX, 2600 EY, 2600 EZ, 2600 FA, 2600 FB, 2600 FC, 2600 FD, 2600 FE, 2600 FF, 2600 FG, 2600 FH, 2600 FI, 2600 FJ, 2600 FK, 2600 FL, 2600 FM, 2600 FN, 2600 FO, 2600 FP, 2600 FQ, 2600 FR, 2600 FS, 2600 FT, 2600 FU, 2600 FV, 2600 FW, 2600 FX, 2600 FY, 2600 FZ, 2600 GA, 2600 GB, 2600 GC, 2600 GD, 2600 GE, 2600 GF, 2600 GG, 2600 GH, 2600 GI, 2600 GJ, 2600 GK, 2600 GL, 2600 GM, 2600 GN, 2600 GO, 2600 GP, 2600 GQ, 2600 GR, 2600 GS, 2600 GT, 2600 GU, 2600 GV, 2600 GW, 2600 GX, 2600 GY, 2600 GZ, 2600 HA, 2600 HB, 2600 HC, 2600 HD, 2600 HE, 2600 HF, 2600 HG, 2600 HH, 2600 HI, 2600 HJ, 2600 HK, 2600 HL, 2600 HM, 2600 HN, 2600 HO, 2600 HP, 2600 HQ, 2600 HR, 2600 HS, 2600 HT, 2600 HU, 2600 HV, 2600 HW, 2600 HX, 2600 HY, 2600 HZ, 2600 IA, 2600 IB, 2600 IC, 2600 ID, 2600 IE, 2600 IF, 2600 IG, 2600 IH, 2600 II, 2600 IJ, 2600 IK, 2600 IL, 2600 IM, 2600 IN, 2600 IO, 2600 IP, 2600 IQ, 2600 IR, 2600 IS, 2600 IT, 2600 IU, 2600 IV, 2600 IW, 2600 IX, 2600 IY, 2600 IZ, 2600 JA, 2600 JB, 2600 JC, 2600 JD, 2600 JE, 2600 JF, 2600 JG, 2600 JH, 2600 JI, 2600 JJ, 2600 JK, 2600 JL, 2600 JM, 2600 JN, 2600 JO, 2600 JP, 2600 JQ, 2600 JR, 2600 JS, 2600 JT, 2600 JU, 2600 JV, 2600 JW, 2600 JX, 2600 JY, 2600 JZ, 2600 KA, 2600 KB, 2600 KC, 2600 KD, 2600 KE, 2600 KF, 2600 KG, 2600 KH, 2600 KI, 2600 KJ, 2600 KK, 2600 KL, 2600 KM, 2600 KN, 2600 KO, 2600 KP, 2600 KQ, 2600 KR, 2600 KS, 2600 KT, 2600 KU, 2600 KV, 2600 KW, 2600 KX, 2600 KY, 2600 KZ, 2600 LA, 2600 LB, 2600 LC, 2600 LD, 2600 LE, 2600 LF, 2600 LG, 2600 LH, 2600 LI, 2600 LJ, 2600 LK, 2600 LL, 2600 LM, 2600 LN, 2600 LO, 2600 LP, 2600 LQ, 2600 LR, 2600 LS, 2600 LT, 2600 LU, 2600 LV, 2600 LW, 2600 LX, 2600 LY, 2600 LZ, 2600 MA, 2600 MB, 2600 MC, 2600 MD, 2600 ME, 2600 MF, 2600 MG, 2600 MH, 2600 MI, 2600 MJ, 2600 MK, 2600 ML, 2600 MM, 2600 MN, 2600 MO, 2600 MP, 2600 MQ, 2600 MR, 2600 MS, 2600 MT, 2600 MU, 2600 MV, 2600 MW, 2600 MX, 2600 MY, 2600 MZ, 2600 NA, 2600 NB, 2600 NC, 2600 ND, 2600 NE, 2600 NF, 2600 NG, 2600 NH, 2600 NI, 2600 NJ, 2600 NK, 2600 NL, 2600 NM, 2600 NN, 2600 NO, 2600 NP, 2600 NQ, 2600 NR, 2600 NS, 2600 NT, 2600 NU, 2600 NV, 2600 NW, 2600 NX, 2600 NY, 2600 NZ, 2600 OA, 2600 OB, 2600 OC, 2600 OD, 2600 OE, 2600 OF, 2600 OG, 2600 OH, 2600 OI, 2600 OJ, 2600 OK, 2600 OL, 2600 OM, 2600 ON, 2600 OO, 2600 OP, 2600 OQ, 2600 OR, 2600 OS, 2600 OT, 2600 OU, 2600 OV, 2600 OW, 2600 OX, 2600 OY, 2600 OZ, 2600 PA, 2600 PB, 2600 PC, 2600 PD, 2600 PE, 2600 PF, 2600 PG, 2600 PH, 2600 PI, 2600 PJ, 2600 PK, 2600 PL, 2600 PM, 2600 PN, 2600 PO, 2600 PP, 2600 PQ, 2600 PR, 2600 PS, 2600 PT, 2600 PU, 2600 PV, 2600 PW, 2600 PX, 2600 PY, 2600 PZ, 2600 QA, 2600 QB, 2600 QC, 2600 QD, 2600 QE, 2600 QF, 2600 QG, 2600 QH, 2600 QI, 2600 QJ, 2600 QK, 2600 QL, 2600 QM, 2600 QN, 2600 QO, 2600 QP, 2600 QQ, 2600 QR, 2600 QS, 2600 QT, 2600 QU, 2600 QV, 2600 QW, 2600 QX, 2600 QY, 2600 QZ, 2600 RA, 2600 RB, 2600 RC, 2600 RD, 2600 RE, 2600 RF, 2600 RG, 2600 RH, 2600 RI, 2600 RJ, 2600 RK, 2600 RL, 2600 RM, 2600 RN, 2600 RO, 2600 RP, 2600 RQ, 2600 RR, 2600 RS, 2600 RT, 2600 RU, 2600 RV, 2600 RW, 2600 RX, 2600 RY, 2600 RZ, 2600 SA, 2600 SB, 2600 SC, 2600 SD, 2600 SE, 2600 SF, 2600 SG, 2600 SH, 2600 SI, 2600 SJ, 2600 SK, 2600 SL, 2600 SM, 2600 SN, 2600 SO, 2600 SP, 2600 SQ, 2600 SR, 2600 SS, 2600 ST, 2600 SU, 2600 SV, 2600 SW, 2600 SX, 2600 SY, 2600 SZ, 2600 TA, 2600 TB, 2600 TC, 2600 TD, 2600 TE, 2600 TF, 2600 TG, 2600 TH, 2600 TI, 2600 TJ, 2600 TK, 2600 TL, 2600 TM, 2600 TN, 2600 TO, 2600 TP, 2600 TQ, 2600 TR, 2600 TS, 2600 TT, 2600 TU, 2600 TV, 2600 TW, 2600 TX, 2600 TY, 2600 TZ, 2600 UA, 2600 UB, 2600 UC, 2600 UD, 2600 UE, 2600 UF, 2600 UG, 2600 UH, 2600 UI, 2600 UJ, 2600 UK, 2600 UL, 2600 UM, 2600 UN, 2600 UO, 2600 UP, 2600 UQ, 2600 UR, 2600 US, 2600 UT, 2600 UU, 2600 UV, 2600 UW, 2600 UX, 2600 UY, 2600 UZ, 2600 VA, 2600 VB, 2600 VC, 2600 VD, 2600 VE, 2600 VF, 2600 VG, 2600 VH, 2600 VI, 2600 VJ, 2600 VK, 2600 VL, 2600 VM, 2600 VN, 2600 VO, 2600 VP, 2600 VQ, 2600 VR, 2600 VS, 2600 VT, 2600 VU, 2600 VV, 2600 VW, 2600 VX, 2600 VY, 2600 VZ, 2600 WA, 2600 WB, 2600 WC, 2600 WD, 2600 WE, 2600 WF, 2600 WG, 2600 WH, 2600 WI, 2600 WJ, 2600 WK, 2600 WL, 2600 WM, 2600 WN, 2600 WO, 2600 WP, 2600 WQ, 2600 WR, 2600 WS, 2600 WT, 2600 WU, 2600 WV, 2600 WW, 2600 WX, 2600 WY, 2600 WZ, 2600 XA, 2600 XB, 2600 XC, 2600 XD, 2600 XE, 2600 XF, 2600 XG, 2600 XH, 2600 XI, 2600 XJ, 2600 XK, 2600 XL, 2600 XM, 2600 XN, 2600 XO, 2600 XP, 2600 XQ, 2600 XR, 2600 XS, 2600 XT, 2600 XU, 2600 XV, 2600 XW, 2600 XX, 2600 XY, 2600 XZ, 2600 YA, 2600 YB, 2600 YC, 2600 YD, 2600 YE, 2600 YF, 2600 YG, 2600 YH, 2600 YI, 2600 YJ, 2600 YK, 2600 YL, 2600 YM, 2600 YN, 2600 YO, 2600 YP, 2600 YQ, 2600 YR, 2600 YS, 2600 YT, 2600 YU, 2600 YV, 2600 YW, 2600 YX, 2600 YY, 2600 YZ, 2600 ZA, 2600 ZB, 2600 ZC, 2600 ZD, 2600 ZE, 2600 ZF, 2600 ZG, 2600 ZH, 2600 ZI, 2600 ZJ, 2600 ZK, 2600 ZL, 2600 ZM, 2600 ZN, 2600 ZO, 2600 ZP, 2600 ZQ, 2600 ZR, 2600 ZS, 2600 ZT, 2600 ZU, 2600 ZV, 2600 ZW, 2600 ZX, 2600 ZY, 2600 ZZ

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Computer Shopper, issue 148, October 1999

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We will do our best to help you through the pages of the magazine but cannot enter into personal correspondence.

It would be very helpful if editorial, subscription and general enquiries are sent on separate sheets of paper or separate A5C9 format files on disk.

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Rite Scheduler & Rite Abilities

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ENTER SYSTEMS

ENTER 16

Atari Mario Becroft

22

YOUR FREE GIFT!

It's not everyday you get something for nothing but we wanted our first issue to be special so we're giving every subscriber a FREE copy of our millennium time.capsule CD-ROM worth £29.95.

The CD-ROM features the entire editorial output of Atari Computing since 1991 which also includes ALL the Reader Data so there's no need to worry when your magazine has been turned yellow or your Reader Data has become corrupted!

Added extras include the files we couldn't fit on the Reader Data, which were previously only available on the remagade CD-ROM, and three new exclusive audio tracks from Mick Jeffery.

Finally the millennium time.capsule CD-ROM can be accessed from Atari, PC or Mac machines (you'll always be able to enjoy the good old days.



MILLENNIUM time.capsule

FEATURES

- 11 Mark Wherry retrospective
- 12 Image processing
- 16 Join the CD-ROM revolution
- 20 Xav retrospective
- 22 Mario Giarrotto's projects
- 27 STs obituary
- 29 Mike Kerslake retrospective
- 34 Next OEM
- 44 Maggie



PD/SHAREWARE

- 50 News
- 54 ETime v0.83
- 59 Direct v1.05
- 61 App List
- 61 Magic PC Shutdown
- 62 Euro Translator
- 63 HTMLTEXT 2
- 63 Suji v1.00



REVIEWS

- 16 Rational Sounds 2



REGULARS

- 5 Reader Offers
- 6 News
- 6 Letters
- 10 Order form
- 21 Suggestive Remarks
- 26 Inside OEM
- 37 Reader Disk
- 40 Shortening
- 47 Q&A



TUTORIALS

- 18 Papyrus postscript
- 21 Calcestris Secrets
- 30 Enchant
- 34 RUP
- 35 MBSn BASC



All Good Things

Captain's log, stardate 26-09-89. Fans of the Star Trek universe will know the end is never really that end. We activated the self-destruct sequence back in AC14 to give anyone interested in affixing an alternative a chance to emerge and if you check out the memo pages you'll see it's just possible an alternative will appear. Like the Starship Enterprise never also travelled where no magazine has gone before with only the resources of our crew to depend on. Two people in particular deserve a special mention, skip forward Design Missing Ltd and Mark 'Winkey' Wherry - without their efforts we would have abandoned the mission some time ago.

While 'Chukster' Gervais has proved time and again two heads are better than one for the 12 former ACG members at making executive decisions and Al 'Wolf' Gould has always provided no-nonsense straight-talking when we needed it. Sadly, our skip, Derek, Brian Stanton, didn't get to return to Starbase with the rest of us and his bedside manner is surely missed.

During temporal anomalies this will be my last mission but I may make guest appearances elsewhere if I have something to say. I doubt I can keep quiet for long. For years the needs of the many outweighed the needs of the few but now it's time for the needs of the few to outweigh the needs of the many.

Live long and prosper!

Joe Connor

World News...

MILLENNIUM time.capsule

To commemorate the final issue of Atari Computing we've produced the time.capsule CD-ROM which features the entire additional output of Atari Computing since AC#1 including all the Reader Clubs. We've giving the permanent record of our work to all our subscribers **FREE** of charge as our thank you for your support.

Imagine the scene, on the eve of the next millennium, our grandchildren are gathered together, anxiously waiting for the Y2K bug to kick in, they'll be telling stories about the great computing pioneers, and some future-gEEK will re-discover the time.capsule and be transported back to a time when ASCII was typed into keyboards by hand and magazines were printed on trees.

Just in case you are reading this time.capsule in 2099 (Happy Millennium!) I'd like to explain this was meant to be the last CD-ROM ever produced in the last century. It was going to feature a slick interface with jaw dropping content fast back then (1999) the world was different. Believe it or not we just Atari Computing together for fun, in our "spare" time.

Sadly both commodities were in short supply towards the end so what you've got here is the entire Reader Club collection, which includes more than a few exclusive releases, along with a collection of ASCII, GIF and JPEG images and a few issues which we did get around to converting to HTML format.

We hope someone finds it useful - at least it makes a splash cover and what do you expect for **FREE** anyway?



New English Printed Magazine!

Atari Today is the first title planned by a new company called Portland Publishing with the first issue planned for May 1999 and will be priced at £1.95, which includes a cover disk including samples, demos, PC and more.

Each issue will be in A4 format with between 16 and 28 pages. The shorter format should make it easier to produce on a more regular basis, while the cover disk will allow more room space for additional editorial material where necessary.

Atari Today plans to feature a mix of news, hardware and software reviews, games reviews, "how to" articles as well as the usual letters, advertising, and reader classified sections. New software and hardware will get priority coverage.

Portland Publishing are looking for contributors, programmers, dealers with products for review, and anyone who would like more information to contact the editor, Bob Pease, at AtariToday@electrohome.freemove.co.uk

They plan to start AC#79. Keep an eye on the <http://www.atari.atari.com> newsgroup for more announcements.

renegade CD-ROM lives on!



Despite the closure of SPULAC, the renegade CD will continue to evolve and Joe Connor and Mark Wherry will take over responsibility for the project from 12th January 2000. New copies remain priced at £14.95 and anyone wishing to upgrade to the latest evolution should return their CD-ROM along with a cheque/PO for £8 made payable to Joe Connor to 48 Mill Road, Colchester, Essex, CO1 1UJ.
Email: renegade@liveactive.co.uk



Softjee Murals

Softjee have recently revised the prices for their software and announced a bundle deal offering all the products below, which total £118 PP for £90 PP (around 25%) - a 17% discount.

- 290 PP Digital Home Studio
- 90 PP Digital Tracker
- 90 PP A.F.S
- 90 PP Auctioned
- 180 PP Devil Studio (P&B)
- 90 PP Easy Beat Audio and MIDI
- 190 PP Expand 1
- 90 PP Muplay
- 90 PP Pretty (Basic)

For more information contact:

Softjee, Emmanuel Jancard,
SOFTJEE 47100 Longueville,
France
Email: softjee@softjee.com
<http://www.softjee.com>

FreeGEM

The current owner of the final version of GEM, Caldera Inc., has recently released the source code under the Gnu Public License. There is a project to update it, both to functional parity with Atari GEM and also to include all the features of all the different versions from the Atari-like v1.3 up to GEM3 supplied with some apps. For more information visit the FreeGEM project home page at: <http://www.delixsoft.com>

The GEM family tree has been recently added but they're short of information about the various ST versions and subsequent developments specifically they are interested in:

- TOC versions and the differences between them
- PlayG
- HADES
- HADT
- HADT
- Any open source projects on ST or GEM related platforms

Liam G. H. Prewin
Email: lpw@delixsoft.com
<http://members.atari.com/~liamprewin/>

Atari PD and Shareware News on page 38 in this issue!



Olympus

Dan Lecker in Switzerland has programmed this lovely needed application which can control the current generation of digital cameras including models from Olympus, Epson, Nikon, Agfa, Sony, Toshiba and others, all via the serial interface. Olympus v1.31 is available now and offers the following features:

- Download/Upload pictures
- Set the camera defaults
- Catalogue pictures (GIF, TIF, PNG)

- Catalogue thumbnails and info from the camera images
- Produces a thumbnail-overview for display in any HTML browser
- Print from pictures in different layouts (1, 2, 4, 8, 16 pictures per page, with/without info text)
- Whiteboard function
- Full GEM interface supporting the latest standards

Olympus runs on any Atari computer or TOS compatible from 486x100 (32-bit) high

resolution upwards and requires MINITMAGIC, NAVE II, MEMOCHEM, ST-Guide, an HTML browser (Cafe Adams) and a desktop which supports the AT protocol (present/Thing).

There's a demo version available online so you can make sure it works with your camera before parting with your money. A key costs DM 19 (around £30) which includes a CD-ROM/Book. For more details contact: AG Computertechnik, Axel Gehringer Schützenstrasse 10, D-4750 Moersheim, Germany. Email: AG_Comtech@t-online.de <http://www.t-online.de/888/afvnet/dan.lecker.1/personal.html>

User Group News

The "Melbourne Atari Computer Enthusiasts" club has now become a Special Interest Group (SIG) of the Melbourne PC User Group. We see this as keeping the Atari world alive, and enhancing it, because our members now have access to the vast resources of the PC group.

Like most Atari clubs around the world we were losing members, and a decision was looming as to the viability of the club, as we knew it, had to be made. The reducing numbers made it inevitable we moved to a cheaper site, but further to this we were finding it hard to attract members to the committee, or as office bearers.

We were meeting at a University which enabled us to utilize their TV screens in the lecture rooms to great advantage, but as we moved onto the VCR, screens with the Palace the advantage was becoming less. Along with this we had no storage, so every meeting we had to transport all of our equipment. This included a large urn, as well as our computer equipment. At our last annual General meeting it was decided by our members to become a SIG of the larger club, thus negating the need for office bearers, the need to look for another meeting place, and storage, glorious storage to store all of our equipment.

The Melbourne PC User's Group is the largest computer club in the Southern Hemisphere and with many of our members interested in both the Atari and PC we can offer them greater benefits - and maybe even tempt some of our ex-members back into our SIG.

We meet the second Sunday of the month (except January), at 10:00 am, at 27 Cervus St, South Melbourne. Everyone is welcome (coffee and biscuits supplied).

Contact: Melbourne PC User Group/MACE SIG,
PO Box 288, South Melbourne, Victoria, Australia 3208.
BBS: 03 9449 4411 (Australia) Tel: 0500 818 448 (Australia)



Translation

Several new members have recently joined the TransAction crew: Luis Manuel Asanin Roys (LMA) translates English/German to Spanish and is a member of the Asanin Club (Spain); Luis Manuel Asanin Roys luismmanuel.asanin@com.san.com.es <http://starline.star.org/>

Gustavo Golden (GG) has translated many German applications into Dutch including N.A.S., oed, Thing and CAD. Email: golden@kiss.nl

Translation can now offer translations between five languages: English, French, German, Dutch and Spanish and it seems they are in need of a new logo! The TransAction home pages are maintained at: <http://www.chi.co.uk/~inactive/Translation/>
Email: translation@inactive.chi.co.uk



LeftTers



Considering a PC?

I have been looking at some of the PC deals that can be bought now in the high prices, and I must admit they all looked very tempting. Out of curiosity, I borrowed a couple of PC magazines (PC Pro & Computer Active) to see what was going on in the PC world. Well, I can honestly say that reading them has cured me from any PC itch that I might have had. There were horror stories about mouse drivers that E-mail copies of your word documents to every one you know, reams of column inches on known software bugs (like Excel job charts that add up to 187%), and stacks of reader queries on how to get their system working properly (which usually entails them booting up in MS-DOS mode and hard editing a system file to call a new DLL, which has to be downloaded from the MS website). There were 12 stories that really got me. One was informing the readership about a new feature of NTFS, that let them mount HD partitions, and the other was about Windows 95. Apparently this recently erases the network card ID of your PC into every word document you produce, and can send this to MS HQ. Therefore MS can track the originator of most word documents created. Big brother or what? Finally, the debate was raging about a new system to fit the PC platform... Linux!

I think I will stick to my trusty Falcon. If I ever do upgrade, I will probably get a second hand PI and run PlayC PC and Linux. If you are having difficulties getting your ST to work, start your self lucky that you don't have a PC! And despite how this reads, I'm not trying to knock PC owners - just the hardware.

Goa, via CMA stamping conference

It's Not The End Until YOU Say So!

It was with great sadness that I heard of the impending closure of Atari Computing. Many magazines came and went since the ST was released in 1985 but few will be remembered like Atari Computing, the magazine written by Atari users for Atari users. Perversely enough, this publication would never have been launched if it had not been for the collapse of the "last" remaining Atari magazines.

It all goes back to the never-stand days when ST Forum, Atari ST Review and Atari ST User were all household names. The Atari market was a shadow of its

former self by the time that ST User closed down and Future Publishing had bought over ST Review with the sole intention of closing it down, which they did swiftly. These were the days of doom and gloom with ST Forum left as the last remaining Atari magazine. How much longer would it be before they too closed and we were left with nothing? By then, almost everyone said it was just a matter of time until we were left with no Atari magazine, but a few

months later Atari World surfaced and that got the enthusiasts stirred up again.

Atari World was the phoenix which rose from ST Review's ashes and it was all down to the dedication of a handful of enthusiasts who defied the critics and were determined to show that Atari was not dead and there was still enough life in the market to support two Atari magazines. Regardless of your opinion as to what were going at Atari World, Fred O'Hara, Vic Luzzard, Andrew Wings and the rest of the team genuinely believed in what they were doing and actually had the courage to "do" something, while everyone else was sitting around waiting for the inevitable.

It was not long before both Atari World and ST Forum (which lacked much longer than most had expected) had folded, leaving a huge gap in the market. At that point in time, Atari users had no means of obtaining news on the latest developments in Atari based software and hardware, nor of obtaining reliable reviews of these products. In fact it was nigh impossible to keep in touch with other Atari users unless you were on-line.

The original Atari Computing Group (just later Penangate Publishing) pulled off the impossible by launching a brand new professionally produced magazine into a so called "dead" market on a subscription basis. AMG making a success of it. The conditions were right for the type of magazine at that time. It would never have come about without the collapse of the never-stand titles, yet it is likely to be the publication we will all remember for many



years to come. Atari Computing has always been aimed and run by Atari enthusiasts. They had no axe to grind and no commercial interests to protect. They were more reliant on subscriptions than advertising revenue so their final loyalty was always to their readers.

Despite the fact that Atari Computing was run on a non-profit making basis, it could never have been described as an amateurish publication, just because the writers (and indeed proprietors) gave their time freely, did not retain they were a bunch of amateurs. Many of them came from professional backgrounds, all had been using Atari computers for many years and they knew their stuff. I always found Atari Computing to be well presented, factual and a joy to read. It brought together a whole community not only through the pages of the magazine but also by way of the Atari Computing Conventions, its support for local and national user groups and in its drive to get everyone connected to the others.

Although we will all lament the passing of Atari Computing, we must respect the decision of the team to call time, as did our customers when we bowed out earlier in the year. Joe Connor, Mike Karkkila, the late Brian Tanner, Al Gault and all the regular contributors have produced sixteen issues of this magazine out of a common love for Atari computers. Atari Computing has been a major part of their lives for the past three years and their contributions to the Atari community have arguably surpassed those who came before them. We cannot thank

them enough for their immense contribution to the Atari community.

The closure of Atari Computing is undoubtedly the end of an era. A third phoneix will not rise from the ashes and the Millennium will not bring with it an Atari revival. Atari computers were the best in their day and for several years they were technologically ahead of many of their rivals. Having said that, the many of us Atari computer owners do not completely carry out the tasks we purchased them for and we don't NEED more. In conclusion, please remember this is the end of Atari Computing magazine, not of Atari computing as a culture. That will only end why YOU decide to call it a day!

Steve Delaney (ex Pippinphile)

Imaginary AC Covers

I have been watching the trends at *Wired* magazine, and Hammer has some stories on his strip which look just like the Atari logo – maybe it could be used on the cover of AC! I've also had an idea for a while which would be fun to see, that is three staircases set up like the Atari logo. Like the song if I were a rich man, one staircase going up one going down and one more going nowhere just for fun, just a couple of suggestions – I'm not offering because I can't "Do At".

Belton, via the UK ataricomputing conference

Nice ideas, too late now though and unless some other magazine would like to use them these ideas will go to waste as well. The first three were thought up by Mike Marshall:

- ⊕ Leopard skin design, but with Fuji logo spots instead of normal spots.
- ⊕ Snowman in garden being looked at from inside a frost-proof window, with window cleared in Fuji shape.
- ⊕ The back of someone's head with the Fuji logo shaved in.
- ⊕ Stars in the sky in the shape of Fuji logo – this idea was actually included by David Howard on the AC7 cover between the C.B.80 and the STfirstOS logo but was so subtle means noticed it [it's near-invisible on some copies but clear on others].
- ⊕ The wake of a speedboat with water skiers in the shape of a Fuji – I actually saw this live on TV, if only we'd taped the program.
- ⊕ A Trojan Horse, cross-sectional (rear view) in shape of Atari logo going through gates of Troy where the walls of Troy are adorned with FC logos.

Sorry To Hear The News...

As the title says, Hay – I was shocked! But if you really can't make a go of it and at least cover your costs, understandable. I don't suppose a cheaper paper would have helped?

In any case, all the Atari community's thanks are due to Joe and his team for their sterling work over the years – it must have been a hard slog for little thanks. So a big thank you from me – and I hope we can keep in touch via TransAction if that!

Peter Miles, via UK Email

Thanks Peter, really the problems are more to do with less time than production costs. At least the controlled closure means we won't be taking any of our customers' money down with us and we have this opportunity to say thanks and goodbye to everyone who has helped us over the last three years.

Dear Atari Friends

It was sad, but no real surprise, to read that Atari Computing is to close. The show in Stafford last Autumn hardly gave the impression of an Atari scene with lots of life left in it – and this is now translated as a criticism of the organisers. So maybe I shall have to learn that Generalist is not the only useful program available for Windows.

Where do we go from here? For my part I have invested too much time and money into MagC, Papyrus, Papyrus (did Soft Logic help to kill the Atari market, or did they just make a sound commercial decision?) and various others to want to change platforms. There is still some software development in the German market, though even that appears to be declining slowly. It is not helped by the time lag in producing English language versions (Papyrus 3, Tool 3 and Arwara 2, to name three excellent Applications which are still not translated). Can the Milan network (if in your interview Al Gockstein appeared optimistic – but then he would, wouldn't he? And, in terms of current ST Computers/Atari inside can more than fill the gap Atari Computing will leave – in my view it and its predecessors have always set the standard in the serious Atari press, being way ahead of ST Format and the like, and having the edge on ST Applications. The most obvious problem is one of language. Less obvious problems are:

- ⊙ All the advertisements are oriented to Germany or Switzerland
- ⊙ The European banks and postal services still seem to be doing their best to discourage trading in the serious European market.

Even so, would there be enough interest for Atari Computing to distribute the

German magazine in England? If not, is there scope for a (generally) translated edition? Despite the extra costs of printing and the delays in publication, I could offer some help with the translation, for the world, no doubt, not for viable if professional translation had to be paid for. Or, maybe, any version in English would have to be produced on the internet to save printing and distribution costs. These are just a few ideas, thrown out almost randomly, in response to your request. Behind it all is the fact that, if the Atari market is still viable, it is probably only on a European wide scale, so any solutions have to be looked at in that way.

De Brian Malhot, via Email

And finally...

"Amazing" and "wonderful", two words I use to describe AC. From inception on, as Joe Connor wrote in issue #14, "This fat little thing", we have seen an extraordinary output of Atari material for Atariheads to absorb, use and enjoy. This is no accident. The required committed efforts of everyone associated with AC, making all the good stuff available in AC, is commendable.

By itself, the preceding is a lot. However, this final issue #16, heralds an unusual in Atari history, that of its imminent demise being announced well in advance. And while the final issue will be the end of AC as a publication, it is not the end of a several year run and a history of fun and fun dealing with the readership, right up to the final mailed out, AC#16. Such has only not been true of Atari publications, hardware or software, generally speaking.

So in advance, thank you for your spirited enthusiasm, good production values, delivery of products, all a testimonial to the hard work that dedicated, personal investment always delivers. Last but not least, AC magazine has been and remains, a fair deal.

Best wishes in the future to each and everyone of you at Atari Computing.

Gary C. Morrison, Projeb,
Albuquerque, USA, via email

Thanks to all our readers who have sent us their views and comments over the last three years!

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£ 5.49	☐	Cyber Control
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Image Processing on the Atari

Dave Barkin goes through the process of tweaking some images...

Anyone here ever use Photoshop? I have Photoshop 5.0. It's a great program with lots of bells, whistles and even the odd randomiser! I actually sometimes use it on my Mac. A very impressive piece of software, still I prefer my Atari and it's own image processing programs. As with Desktop Publishing, there's no need for me to go elsewhere for randomisation. After all, why do you use this kind of software anyway?

Image Processing

The overwhelming use of image processing software is simply for the correction of photographs for final printed output. My software is perfect for this task, the largest inherent limitation being the transformation of a visual display consisting of RED, GREEN & BLUE (RGB) on your monitor to a printed display of CYAN, YELLOW, MAGENTA & BLACK (CMYK) on hard copy. Yes, yes, of course we also work with black and white photos. But the above represents 90 percent of the reason for manipulating images. The Atari machines, anything from Falcon on up have more than enough power to accomplish this task. In fact, ANY Atari machine has the speed.

Is Image Processing on an Atari slow? The answer is no. Naturally the faster the machine the quicker you get the job done, but in practical terms even the oldest Atari is fast enough to make Image Processing practical. Some programs are faster at this than others. One Atari program, Photoshop, is probably the fastest program on any platform. Memory is a much more important question. Do you have enough memory to load really large images, 10-20MB or more? The program Des Picture can handle images much larger than available memory. Thus there are actually Atari solutions to all these image processing problems. There's a tremendous diversity of software out there, some quite shocking in their power. Power even some Photoshop users are envious of.

Atari Software

I typically depend on two programs for my image processing needs. Photoshop, by Computerwise which, contrary to rumours, is still being developed and Des Page, by Digital Arts. (Formerly Renaissance CD) which ran out of steam in 1993. There are at least twenty other Atari image processing programs that I've heard of and I'm sure quite a few that I haven't. Photoshop can do almost everything that Photoshop on my Mac can do. It is only in the special effects department that Photoshop leaves most of my programs behind. But basic filters are embedded in the Photoshop program. And Photoshop is fast. On a TT it will run almost as fast as

Photoshop on a 800MHz 6800 Mac. On my machine there's no comparison. On the Atari, processing images is much more efficient than on the Mac.

Des Page is still the best piece of software on any platform for colour correcting and separating images. Its algorithms are legendary and it's long out of print, but remains a powerful addition to anyone's software library. Despite its steep learning curve Page is a godsend for other aspects of image processing such as collage.

Both of the above programs depend on RAM memory. Page does include an option to use your hard drive as virtual memory but it's very slow and I would



▲ Filter and Special Effects. From top left, first row: Original Image, Embossed Image, Gaussian Blur. Second row: Gaussian Blur Background, Image mapped to grid in Des Page, pixelated image from Photoshop. Third row: Wide filter, Strial effect and simple sharper filter.



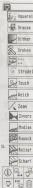
▲ A collage of three images created in Bar Picture

▶ Inverse Mode's Filter Module for Colours XL

recommend the virtual memory program Outside for use with either program as if memory is tight. However, Das Picture, also by Digital Arts, allows images far larger than available memory to be loaded and edited in real time. They're programmed as incredibly fast virtual memory hard-disk routines - so fast it's often transparent to the user, if the image is larger than memory, and that can include images MUCH larger than memory, that image is divided into segments and the segments actually being viewed is in RAM memory. Other programs out there include Studio

Paint, TruePaint, Repro Studio, Crunch Art, Apex Photo, Positive Image, Vector, Papillon, and a host of others. Imaginosity is still supported and allows basic image processing along with useful conversions between many different graphic formats and GEMView, a shareware program, does much the same.

Colours XL, the desktop publishing program, also features many basic image processing functions with advanced



capabilities available as optional extras. Colours allows connecting contrast and brightness and intensity from its built-in histogram functions. Colours's run file put together using the Vector and Photo Modules. Optional modules include a full featured Paint Program and Merge, a collage making module. Really there's an optional Filter module and extra Filter packs which include a large number of professional filters. Not bad for a program best known for its Desktop Publishing abilities.

On Layout, another powerful DTP program, includes basic image correcting tools and an optional monitor correction module which allows the monitor to be corrected to match printed results and is truly a powerful tool for colour printing.

Filters, Special Effects

Image processing doesn't stop with colour correcting. Special effects and collage are favourites with both amateurs and professionals - see the screenshots for some examples.

There are mini programs which alter your image in ways conventional film developing has difficulties with. For example, Sharpen or Soften increase or decrease the contrast between neighbouring pixels and they can take this a stage further and alter the contrast between groups of pixels, or alter the pixel structure itself to enhance some areas. Many other variations of just these two filters exist along with a host of other filters.

Summary

This article is merely an introduction to the image processing software available for the Atari platform and barely scratches the surface. It does not want to close this article by leaving the reader with the impression that image processing on the Atari has ALL the options available in programs on other platforms. For example, Photoshop allows you to overlap images into collages while maintaining the images as separate layers and as far as I'm aware only Pajillion on the Atari platform supports layers. Photoshop (and many other programs) also offer hundreds of optional (usually tag loaded) special effect filters. The Photoshop History Palette allows a virtually unlimited Undo buffer. The point I'm trying to get across is that Atari programs are fast and reliable and offer some options other platforms lack. Das Repro allows an exact calibration of the monitor with your printer and allows saving files to reflect each monitor/printer combination. No other program on any platform comes close to being able to do this, trust me. Finally, most of these programs can just live on Mac/PC machines running PlugPC/PC. □



▲ Screenshot from top left: Bar Picture, PhotoLine, Bar Repro and Studio Photo

Studio Photo

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Requires:

- 512k memory (1mb recommended)
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- SpeedyGEMOS library support.
- TT version of compiler supports MMIO, maths co-processor and TT BAH.
- Toolkit for easy GEM programming.
- 800 pages of documentation in two volumes (User manual is ring bound, Technical Reference manual is in TT Guide for real).

Requires:

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ENCHANT

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Papyrus postscript

papyrus

Michael High distills some reader feedback on the Papyrus Tutorial...

Two types of Atari users write to me via Atari Computing. There are the "enthusiasts" who spend long, unpaid hours preparing articles, screen dumps and files for the Reader Disk. Their labours inspire the "experts" who then write in to point out errors, suggest better practice and so on. Together they improve the quality of understanding for us all. So my thanks to those who write, email and even send me materials on disk.

Use this for quality, not quantity



Not only the quality, use the layout!

Barriers on Pin Printers

Steve Hill took great pleasure in telling me how his trusty laser LC-10 can achieve that which is impossible on my HP LaserJet. He produces notices for his local Church, and from time to time has to produce long banners. Because his printer can handle tractor feed paper, he simply uses the "Documents... Paper Formulas" command to set up a very tall piece of paper which is then used in landscape mode.

Which printer driver to use?

In ACP I I said "I have found no significant speed or quality difference between the external and internal drivers...". Well, that was the experts going. I have to admit that after much experimentation, particularly with printing graphics, I now feel the PPD driver

delivers better print quality. It does so at the penalty of a 200% increase in printing time. My initial preference for using Papyrus's internal printer driver stemmed from the fact that I did not understand how to get multiple copies from PPDs. The control panel is used for choosing the printer resolution, however, the control panel setting for number of copies is overridden by that in the Papyrus Print Document dialog.

The quest for speed

When I progressed from a 180dpi pin printer to a 600dpi laser, I found that printing times became very lengthy. My little Atari STc was having to calculate over eleven times as many dots! My first attempt at improving speed was to register a copy of PPDs.



Save time with multi copies on laser printers!

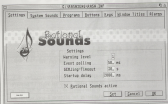
This does clever things to the software controlling the parallel port that feeds the printer. It cut printing times from typically 100 seconds per page to 32 seconds.

The next change came with the fitting of the excellent TUG Helios+ board. Now the worded the Atari was an absolute flying machine as far as display, running speed and general responsiveness is concerned. However it totally restored the PPD to software. So if there are any experts who know how to combine the TUG Helios+ board with a software parallel port speeder, my email address is high@compulink.co.uk

papyrus

Rational Sounds 2

Joe Connor rationalises his desktop...



Rational Sounds adds "Soundscape" or "Aural Themes" to your working environment. Sound samples in HIFI or WAV format are played via the freeware GEMMing utility, programmed by Gabe Hallari, which is included in the distribution.

Rational Sounds runs on any TOS compatible operating system capable of playing samples via GEMMing which includes the Atari ST/2/Plus/TT/Falcon and Mac/PC/Mac/Plus for starters. A multibank TOS with AV protocol support is desirable for full functionality.

Using the excellent GEM Setup utility programmed by Joachim Farnitz, installation is a straightforward point and click operation with options to install GEMMing, BubbleGEM and the alternative resources needed for a single TOS installation. Manual installation is covered in detail but since it involved copying files to various locations and configuration of environmental variables in

MAC/IN/IN_AIS.CMP I decided to let GEM Setup take the reins.

Lights, Camera, Action!

After installation your desktop begins to life with many desktop actions setting off sounds. After the novelty of iconing and shading windows just to enjoy the samples when off you're left wondering how big a hit on overall system performance Rational Sounds makes.

On my Mac/PC Mac/PC setup I haven't noticed any significant performance loss. After months of testing Rational

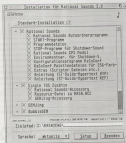


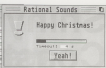
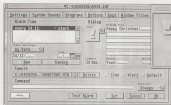
Events overview

Samples can be assigned as follows:



- On system start
- On system shutdown
- For the following window actions: Open, close, move, resize, move, unhide, top, move, click an arrow, move sliders
- On keypad
- To individual keys or key combination
- Instead of default system ping
- To any selectable buttons. For example, different sounds can be assigned to the OK, Cancel and Help buttons and wildcards are supported.
- To window titles
- On program launch different start-up sounds can be added to each of your favourite applications.
- On program exit
- On displaying application windows.
- Alarm sounds. An appointment diary can be assigned sounds to play after a fixed number of days, on a specific date, monthly or yearly.
- On displaying the file selector.
- For menus, different sounds can be assigned for pop-up menus and for menu selections.
- On displaying BubbleGEM buttons.
- On displaying alert boxes
- When a program booted
- Every quarter of an hour and on the hour a sample can be played.
- A speaking clock can speak the time every three minutes in different languages and dialects or by calling a GEMScript plug-in for jones 1.





Sounds hasn't caused any problems and I still haven't grown tired of hearing the sounds - take that as a recommendation!

Sound samples are assigned to actions using a simple configuration application which provides a point-and-click interface complete with BubbleGEM and ST-Style help. This can be run from the desktop, renamed as a desktop accessory (called under Single Folders) and called via the Rational Sounds CFX (see screen grab at top right of the page).

Apart from the speaking clock samples there are around 50 samples to select between and naturally you can add your own. If you're planning to use Rational Sounds with MacG PC you need version 3 or later - earlier versions cannot play sounds via GEM-filing.

Rational Sounds understands GEMScripts. This capability was built-in so "soundscripts" could be loaded from scripts - optionally along with the desktop settings. There's an example SRC script which, once added to the (new) 3 plug-ins folder, appears on the contextual menu and can be used to speak the time on request.

What's the time?

A speaking clock feature supports offers a choice of pronunciation between formal ("The time is one thirty pos") or casual ("The time is half past one") in several languages. I'd prefer a very female voice to the German male voice but I don't think my wife would agree to a session playing speaking clocks with a microphone!



Conclusions

Rational Sounds is a remarkable tool. The authors point out there's no legal way to achieve its functionality so they manage around in global allocated memory, local vectors and interstage AES-messages to add another dimension to the desktop.

Plans for future releases include a PD "Server" which other programs could register with in order to manage its sounds from a central manager which controls like a stable next step but it's already a mature product eagerly waiting to entertain an English audience. ☺

What's new in Rational Sounds 3?

- More events can be assigned sounds
- Speaking clock
- Alarm feature
- Completely revised configuration utility
- CPU-Module to deactivate
- New 2.0-Context menu plug-in support
- Many new GEMScripts commands implemented



Rational Sounds 3

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Fax: +49 30 21 75 02 00
http://www.rational.com
©1997 Rational Sounds v3.0 GEM 79
(around 22k)

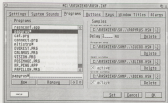
Updates from v1.0: DPM 39 (around 21 k)
VGA cards and memory orders accepted
with dropping to UPG or post

System requirements: 1MB
memory minimum, 4MB memory and
16-bit sound or better is recommended
and 640x480 (ST-high) resolution or
higher needed to run the configuration utility.

Pros: Unusual product which offers
great entertainment, loads free
installation using GEM Set up,
comprehensive setup utility

Cons: Doesn't enhance productivity,
no very female voice for the speaking
clock!

91%



Individual programs can be assigned when start-up, exit and window open/close samples.

Shiny Coasters!

Matthew Bacon joins the CD-ROM revolution...



With the current crop of low cost, high performance CD-ROM drives, I recently found out there has never been a better time to add a CD-ROM drive to your Atari system.

Over recent years, the CD-ROM has established itself as the PC platform's most popular distribution storage media. As virtually every PC manufactured over the last few years includes a CD-ROM drive, the hardware cost has dropped dramatically.

CD-ROM drives have appeared in many guises since their birth. The original CD-ROM drives were single-speed drives capable of a maximum transfer rate of 150k per second, however, with technology being what it is, double-speed and quad-speed drives soon appeared.

A few years on, we now enjoy blindingly fast 40x speed drives which offer maximum transfer rates of 6Mb per second!

Software CD-ROMs offer a maximum storage capacity of 640Mb which provides magazines and software publishers with an excellent method of distributing large amounts of data, which explains its rapid rise in popularity.

Although the PC/Mac platforms are bursting with CD-ROM titles from games to multimedia encyclopaedias, the Atari market is far from struggling!

There are CD-ROM titles available for all ages, budgets and machines. As a Falcon3000 owner, I was particularly interested in the several Falcon specific titles that are now available.

Thanks to early standardisation in the CD-ROM format, most CD-ROM titles available for the PC or Mac platform can

be read by your Atari - you won't be able to run the software but you will be able to read the contents of the CD-ROM. There are thousands of CD-ROM titles packed with Clip Art, JPEG photos, web-ready GIFs and TrueType fonts and your favourite Atari can use all of them with Atari software such as GAB, Imagecopy, Pageplus and so on.

Furthermore you can get your holiday snaps digitised onto CD-ROM disks via Kodak PhotoCD technology and send them to your friends by email, print them out to colour printers or use them in your favourite DTP package - all on your Atari! Cool! There are two points I'd like to stress:

- I strongly recommend purchasing a hard drive before you splash out on a CD-ROM drive as some software refuses to run straight from the CD-ROM or needs decompressing to a hard drive.
- Purchase your CD-ROM system from an Atari dealer to ensure it will work on your machine - trust me, shopping around, unless you know exactly what you need, is not worth the hassle (as to save a few pounds!)

Plug and Play

I'm pleased to report this early typed phrase was justified in my case! To connect the CD-ROM drive to your machine you need a spare SCSI connector and lead (if the connector without a free SCSI connector will need a SCSI-to-SCSI adapter - the ICD Link comes recommended) then all you need to do is select a free ASC/SCSI ID number and install the driver software.



Jargon Buster

- **CD-ROM** - Acronym for Compact Disc Read Only Media
- **Quad-speed** - 4x speed drive offering 600k per second transfer rate (slow by today's standards)
- **Transfer rate** - The amount of data that can be read from disk in one second.



Like printers, without a suitable driver, your Atari cannot "communicate" with your CD-ROM drive. There are various different CD-ROM drivers available, so take a look at the reviews in previous issues of Atari Computing and make your own mind up.

I opted for ExtendedPro which was intuitive to set-up and the CD-ROM drive was up and running within minutes (after reading the manual of course!)

After using my CD-ROM drive for several months I'm still finding fun using it. It's great to play audio CD's while I get on with other tasks and I consider it one of the best additions to my system. I've read and heartily recommend you treat yourself and your Atari [Rob And enjoy your copy of our **MILLENNIUM** drive capsule CD]. ☺



A ROM with a view

Mark Wherry unravels the mysteries of using a CD-ROM drive with your Atari...



More than any other hardware device the CD-ROM drive unleashed the multimedia revolution on an unsuspecting world, now it's our turn. Let's start by exploding a few myths.

Speeds and Sessions

People like to hear about the speed of their CD-ROM drive but in many cases the speed of the drive exceeds the maximum transfer rate of the interface card. In fact a double-speed speed-drive with multi-session abilities will get the job done in almost all applications.

All modern drives support multi(session)() but what does this mean? Normal audio-CD-ROM players are single-session devices, meaning that when the CD is written any information added subsequently will not be recognised by the drive. This isn't a problem for audio CDs as they must computer CD-ROMs, but it can be restrictive.

Multi-session drives, as you might have guessed, can recognise discs added to a CD-ROM later on. However, only special CDAs (Compact Disc Recordable) can be written to in this way. A practical example of a multi-session disc is a Kodak photo CD, where pictures can be added to the original disc later on.

Let's Interface!

TT/Falcon owners are lucky enough to have built-in SCSI sockets so you can connect a SCSI CD-ROM drive directly using a suitable cable. Owners of other Atari machines have a choice between adding an internal IDE interface which can be used to connect an external IDE CD-ROM

drive or to use a SCSI-IDE adapter to connect a SCSI CD-ROM drive to the SCSI port.

Not all SCSI-IDE adapters are created equal! I found my Toplink interface didn't allow me to access the audio abilities of my CD-ROM drive yet a friend's KCD Link2 interface worked perfectly.

Find The Driver

Getting CD-ROM-driver software to work has tried my patience. I bought a second-hand copy of ExtensDOS v3.9 at a store and it worked perfectly under TOS and Magic II on my STx. When I bought Magic II the problems began. ExtensDOS 2 was not compatible and none of the various free patches available to upgrade ExtensDOS to v3.9 solved my problems either.



I also couldn't get ExtensDOS to work on my Falcon. I tried a patched version of MegaDOS for the Falcon and, although it mounted the drive, it would only let me see or copy files (textures) - I couldn't even read a text file from a CD-ROM, which was very annoying! What I wanted was a loadable CD-ROM file-system for Magic.

At the last show I asked if anyone knew of a Magic XPS CD-ROM driver. Spirit they all said. Spirit is programmed by Julian 'Magical/Extra' Resnick so it was optimistic, but it still didn't work! In desperation I installed both Spirit and MegaDOS and everything started working. To do this you will need

MILLENNIUM time.capsule

- Spirit: Julian Resnick's MINT(Magic) CD-ROM driver.
- MINT(MAGIC): Julian's patched Falcon version of Atari's MegaDOS.
- SCSI2V-PIC: an extra folder SCSI driver by Stefan Engel. This can be found in either the Master or CDHD distribution and will run fine with your existing driver, for example, HD-Drive.

Installation

- Copy SCSI2V-PIC, MINT(MAGIC), CONFG.1ST, SPIH_ID.SOS and ISO9660.DOS into your auto folder.
- Edit CONFG.1ST to suit your requirements. The physical "SCSI" driver should be SPIH_ID.SOS, and the virtual "CDHD" driver should be ISO9660.DOS. Other DOS drivers can also be installed to handle the Plus filing system, for example.

Where To Go...

Magic Mac/PC users can access CD-ROM drives like any other drive but the rest of us will need to use some CD-ROM driver software. Apart from ExtensDOS all the software mentioned here is freely available on the internet and Julian Resnick's home page is a good place to start: <http://www.tdip://www.resnick.de/~resnick/>

CD-ROM driver software

- ExtensDOS Gold: Commercial software reviewed in AC#12 p11211 by Barry McAllen, rated 87%.
- Spirit: Free/shareware software reviewed in AC#10 p1611 by Marco Beccot, rated 91%.



Those were the days...

Xav goes all dewy eyed and reveals his nostalgic side

My earliest memories of Atari revolve around my uncle's purchase of a 1608 games console. I was awe-struck by its high-resolution colour graphics and state-of-the-art sound. Much peering around, and eventually my parents found enough pennies down the back of the sofa for us to buy our own.

Back in those days we were a one TV family, and we had to stop commanding missiles whenever Coronation Street was on. So, much peering ensued, until I received a ZX80 (with 16k RAM pack) and a black and white TV for Christmas. Now no amount of sleep could diminish the thrill of spending hours rolling my fingers over the less-than-responsive keyboard as I copied some code from a magazine – only to find that the resultant game was usually crap.

And there my drive for ever more power began. I needed colour, I needed sound, I needed the loading speed that only a cartridge could provide. Oh come, to get all this I had to drop down to a machine with only 6k of RAM, but Radar Rat Race on my Vic 20 taught meh: synopses from my mind.

In an attempt to discover its secrets I bought a copy of the 8-bit magazine Page 6, and there it was – the Holy Grail of computing, a picture of an STPM. That picture adorned my wall for almost a year as I suddenly concluded no amount of peering would persuade my parents to part with the ZX80 I needed. There was no option – I would have to get a job!

For six weeks during the school holidays I slaved at a bookshop. Each evening my wounded hands began to heal, and I spent them the following day to the razzle-dazzle sound of a hundred paper-cuts all tearing loose. But I survived and, clutching a vast pile of cash, took a trip to the nearest Atari stockist. "Of course," I was informed, "for an extra tenner you could have our bonus pack!" Much peering ensued. My parents had no the money. Retrospectively, they should have held out – the bonus pack consisted of some mouse/joystick extenders, a mouse mat and a copy of Metamorphosis BASIC. The extenders lasted two years, BASIC was dumped after a week but the mouse mat is still in use.

Some time later...

As the years passed I spent many hours with that STPM. Even after I had purchased a Falcon, it was still the machine I chose to take to university. But I was used to more power and more speed, so I upgraded it. First my DIY rack conversion, then more RAM. Next came 33 MHz ports and a TCE upgrade. The TCE accelerator proved too much for it, leading to a slightly unstable system which I externally replicated with a dirt cheap deal on a Mega STx. Nevertheless, the STPM still served as a great terminal into my flatmate's Linux box – via a home-made serial lead which ran out of his sixth floor window, round two corners and into my fifth floor room. I'm just glad nobody caught us hanging precariously from the

window, taking for cables with a broom. That first year at university also saw the purchase of a second-hand Jaguar. I "accidentally" bought it just as I was supposed to be reading for my exams, and the whole flat decided to universally abandon work in favour of Tempest 3000 and Alien Vs Predator. Unfortunately these didn't lend themselves well to multiple players, so my Linux owning flatmate was persuaded to buy an old STx. A quick bit of soldering later, and six of us were hooked up to Cyclonix123. Reverse? Who needs it!

In fact the more I think about it, the more I realise just how large a part the age of the Fuji has played in my life. The formation of my wheezy band was a direct result of my need to use the music department's STx to print out some homework. One of my best friends introduced himself because he quoted me reading a copy of Atari World. The Mega STx bore the brunt of my project reports at university, while the crystal clear display of my SH121 meant many the many hundreds of hours I spent writing a novel (unpublished). And during those times when life was too tough and I needed some escapism, there was Warcraft. Atari's beautifully GEM'd version of NetHack.

These days my Falcon sits in a tower case. Alongside it stands a PMac (primarily for music, but also running MegaPlex and Delta, the 1600 emulator). Alongside that stands a Linux box running STx64 (an ST emulator) and Delta (again) – whenever I'm not playing Warcraft. Atari's beautifully Linux'd version of NetHack of course!

You see, things don't change so much. I've personally got two months history tied up with the Atari name to put around the platform. I'll be running an Atari system, in one way or another, for many years yet. And there's always the internet to keep me in touch with like-minded people via the newsgroups – but I apologise if I'm not around much. I've got plans you see. As soon as someone releases a Linux-based system, I'll be for two busy playing Tempest 3000. Because, whatever has happened to the company, the spirit of Atari and the people it has touched, still lives on. ☺



With my technical beeping ever more developed, it wasn't long before my eye began to wander. I spotted an Atari 800 at a £45 local sale, and much peering ensued.

Calamus Secrets with Dave Barkin



If you have a Mac and MacGPlus you can make use of any Mac driver which you selected in the Chooser. I can say it works beautifully! It even allows inserting some Mac controls to allow the user to make use of Calamus format. Caddy enough if you make use of the Epson line of printers and wish to print laser formatted images, produced at 720 dpi you MUST select 1440 mode on the Mac side.

Other support options

To be competitive in this world you must be able

to import files from other platforms and programs. So Calpus is a Calamus Module which allows the import of PS, EPS and WPG documents directly into Calamus. Once imported you can work on them as one would work with any Vector file. Calpus comes in two flavors: A high version which imports only EPS files and the full version which imports all sorts of PS files. Ask your store or friend to save the file from Quark or PageMaker as an EPS document or export it as Postscript and you will be able to load (and work on it) in Calpus.

Bridge 3 allows exporting Calamus documents as PS or EPS documents (besides its many other capabilities). Bridge 4 is already out in Beta form and will allow exporting documents WITH THE FONTS! As you can see Calamus is still being developed and supported.

Image processing capabilities include the optional Paint, Merge and Filter Modules as well as the standard Histogram, Mask and CLUT modules. All are quite powerful and allow Calamus users to alter or correct photographs and other images already in Calamus SL.

There is a complete optional Vector program, the Line Art Module, or the standard Vector Module, which despite being free has powerful capabilities of its own.

Included with the latest release of Calamus (which I recommend highly) is a Ben Card Module, a light version of their text editor, (bible) (through the older Pkt Write still works). A curve editing module, Franklin Light, which allows users to edit histograms, using better curves, as well as color depth and contrast, and the curves of the Color Separation Module.

With the latest release of Calamus W it is now possible to make FULL use of Postscript Type 1 Fonts! You are no longer dependent on the Letter (harder to get) GPM format. Calamus now directly imports PPD files and raster CO as well as a host of others.

It is impossible in this space to list, let alone describe the enormous number of standard but also optional capabilities of Calamus. It is by far the best DTP program available. As with all competitors, no doubt there are things Quark can do that Calamus cannot. However, as a Quark user, I know of what I speak. The fact that Calamus runs as well on a Mac as it does on an Atari is enough reason to take it seriously. The Mac Print Driver which allows access to Mac drivers eliminates the single largest problem for Mac users and the VDI driver should be of help to many Atari computer owners. Its incredible power makes it easily the program of choice for any serious user. Contact Iwema at: atari@calamus.net

To all those the Atari platform has to little support, I make a lot of the statement that "If you build a better mouse trap the world will find a path to your door." Instead marketing in this new field of computers has made the worst platform the most popular. Well, I've enjoyed and continue to enjoy my hardware and software. I hope I've added something to your enjoyment. I certainly haven't been doing this for the money.

So let me say good-bye to all you fans of Calamus. Health and a long and happy life... ☺

This "have a nice day" column is NOT a good-bye to Atari software, nor even Atari Hardware. I expect my present machine to be competitive if not cutting edge for quite a while. Since I own a Mac and MacGPlus I expect to make full use of many of my Atari programs for the foreseeable future. Since this is the Calamus Secrets column I will take the time to mention what some of the available options are, and how they make Calamus SL worth investing in. Keep in mind that Calamus is STILL being supported and updated.

The VDI Printer Option

The VDI Printer driver allows Calamus users to take advantage of any driver supported by HYDR or versions of GDCS. In other words you are not dependent on specific Calamus printer drivers. You can print via HYDR.

The Mac Print Driver

The Mac print driver allows owners of Calamus (only the latest release, Calamus W) to access the Mac Printer Driver. This

CALAMUS File Options Window



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1 PS/2 keyboards are supported via a low cost adapter, some PS/2 mice are supported via adapter. 2 CD-ROM drives require proprietary driver disc supplied. 3 Mega STE's require no soldering or pin cutting. STEFM and Mega ST installation requires soldering.

UK Distributor: Abingdon Synthesis Projects

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Email: chrisc@netnet.co.uk

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Don't hesitate to contact us - all enquiries welcome!

Mario Becroft

PROFILE

MARIO BECROFT

A brief look at Tariland and some exciting new hardware...



A brief history of Tariland

The local Atari club in Auckland, New Zealand has been running since 1982 when the 8-bit computers were still state of the art. It is called Tariland, which represents Atari with the A removed in order to avoid infringing Atari's trade mark. In the past the club had a large membership but in the 1990's, along with everything to do with Atari, it began to fall into decline.

My father and I came into the club in around 1992 and when the membership consisted of about 10 enthusiasts. At the time Tariland was to be dissolved, but we took it up and revitalised the monthly magazine and all the other services which Tariland provided. In a couple of years we had reached a peak of 180 members, our meetings in Auckland were regularly attended by many Atari users, and interesting articles filled our magazine which gained a considerable reputation among various Atari clubs around the world.

Since then we have had to reduce our efforts and our membership has fallen from that peak, but we still manage to publish a small monthly newsletter and assist a number of Atari users from around the country.

Atari made some very good decisions and some big mistakes, but what ever you may say, their machines were ahead of their time in many ways, and even now I find I still use my TT for the largest part of my work.

It forms the centre of our computer room which also includes four Pentium PCs and other Atari equipment. However it is true that the TT would long ago have

fallen into disuse if it was not for the excellent MINIT operating system which is continually being updated and provides net working facilities comparable with any modern LINUX system, which is simply far in advance of anything else available on the Atari.

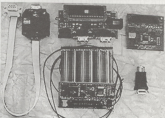
Although there is little Atari development going on, vast amounts of up to date software from the LINUX world can all be used on the Atari thanks to MINIT.

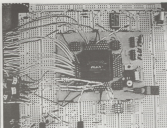
Since the hardware can be maintained indefinitely, I see no reason why Atari computers, and of course the new clones, will not continue to be used for many years.

Hardware developments

Apert, from publishing Tariland's monthly magazine and attending to other club business, during the past few years I have been able to develop several useful hardware devices for Atari computers.

In the first place I designed the Serial Mouse Interface. With Atari mice becoming scarce, an interface to enable the abundance of PC serial mice, trackballs and touch pads to be used seemed useful.





▲ Most of my projects start out on this "breadboard"

A serial mouse has a MICU serial interface, this being totally different to an Atari mouse which is a passive device. The serial mouse interface is based on a Motorola microcontroller, or MCU, which contains essentially a complete AT computer on a chip. The MCU is programmed to transform the serial data into 2 Atari mouse signals per axis. The phase relationship of these signals allows the computer to determine the direction of movement. Although the concept is simple obtaining smoothness of movement presented some difficulties, but these were overcome and the result was very successful.

Initially I had no particular idea of making this product available for sale, but when many people enquired about it I folded the design and made it presentable. Until now this has been the most popular of my products having sold close to 150 units, and although the initial rush is over, I am still selling more each month.

The next project that I completed was an IDE interface for the ST. Atari already used an IDE interface in the ST Book and Falcon, and my one is compatible with these. There is really only one way to design such an IDE interface and there is not much to it in principle.

However fitting the board in the ST proved to be difficult. The board attaches to the CPU, but there is very little room above the CPU in most STs, and there are no less than three different locations for the CPU depending on the motherboard revision. Making the board fit every combination was difficult, but I think I have succeeded by using a short (although expensive) ribbon cable to connect the board to the CPU.

I have completed an STE version, which is fundamentally the same but as the STE's CPU is almost invariably locked, I was able to make the installation much easier by having the board attach to the CPU socket with no soldering or pin cutting required.

Despite all this, I have been working slowly on a fourth project for over a year now, and although it has proved to be one of those nightmare projects that never seem to end, I have finally completed it during the last few weeks. I am referring to my PC AT keyboard interface, called Quattro. The Atari keyboard contains a microprocessor known to programmers as the RBO,

which handles all keyboard, mouse and joystick operations, in addition to several other behind-the-scenes functions. Quattro completely replaces the RBO with an 8-bit Motorola MCU containing my own program. This program provides the same RPT as the Atari RBO, but PC AT keyboard, serial mouse, and mouse and Atari joystick interfaces, as well as a configurable keyboard map stored in EEPROM and a number of other features. All of this is configured with a GEM program. Developing and debugging the firmware took a lot of work, but I am very pleased with the results.

Future projects

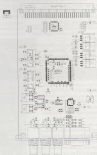
Currently I have two Atari projects "in the works," namely, a SCSI Ethernet adaptor and a VME graphics card, both of which I hope to finish towards the end of the year, if all goes well.

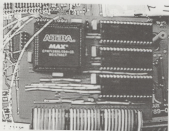
The Ethernet adaptor connects to an Atari computer via the SCSI port, and works with the Atari ST using a SCSI host adaptor, as well as the TT and Falcon with their built-in SCSI interfaces.

A possibility is an ACS version for attachment to STs without a SCSI host adaptor. With this device and software such as MINITel or ITING (for which drivers would be provided) the Atari computer could connect to any IS imagine ethernet using TCP/IP. This enables data to be transferred between computers at speeds approaching a megabyte per second under optimum conditions, which is not much slower than some hard disk drives. With appropriate software, hard disk drives and printers can be accessed via the network, and an Atari computer could easily operate in a network with PC, Macintosh or other computers.

The VME graphics card suits any A24-Dix VMEbus system, including the Atari TT and Mega STs, and provides colour graphics capability suitable for connection to a (3) VGA monitor or another video display screen.

The advantage of the card is that it provides much higher resolutions and more colours than are otherwise available. Resolutions up to 1280x1024 pixels are achievable at 48,136 colours without loss of speed.





The heart of the VME graphics card is a large Altera FPGA and 4 or 16 megabytes of high-speed SRAM. This means engineers could use the card for all kinds of other purposes, apart from graphics output, and the card is designed to be very flexible in this respect. But for most users, the card would be pre-configured for VGA graphics output.

A device that I designed some time ago but never fully finished is a CPU

accelerator board with cache, which enables a 68000 CPU to be attached running at any clock speed, limited only by the speed grade of the CPU being used. Large speed improvements are possible because the 256Kb of cache memory operates at the full speed of the CPU, ensuring that the CPU is not slowed down by the ET's 8 Mbit memory subsystem.

Later I intend to combine many of the above designs, including the CPU

accelerator (which would be updated to utilize a 680 processor), into a single card for Atari ST and STE machines, forming a single comprehensive upgrade.

In conclusion

I have already written at length and I have not yet mentioned my various Atari programs, including the Gummy Converter and several GEM games, however you can read about these and my other projects on my WWW site or contact me by Email. I have not had much contact with other Atari developers but I would be most interested to hear from anyone who would like to talk about any of the projects I have been working on.

My Internet addresses are changing, and so I write this and I don't know what they will be so please refer to my advertisements in this issue. This will also mean that by the time this magazine is published you should see me around on the net again, from which I have been absent during this year owing to problems with my main server.

I would also like to take the opportunity to thank all the people who have put such a great deal of effort into publishing this excellent magazine and wish them all the best. And thanks to all the dedicated Atari enthusiasts who keep the platform alive, and will continue to do so for the foreseeable future. ☺



ABINGDON SYNTHESIS PROJECTS

Many thanks to the Atari Computing team and best of luck in their future projects.

Old Inventory

- ACM-Burner: Turn a PC card into a soft drive. ACM box (1000) £80 for 1-6 drives.
- RAM-Driver: Use 32 MBs with your Atari - at £24. Drivers for Falcon 030 to use 37 drives (no PC limit) at standard (also) flat options available from £8
- PowerDriver: Use PC format discs etc with your Atari emulator. No software to install, just plug, and play. 100% compatibility of compatible discs etc available from £60
- Master2: Internal ROM board for A500 and A6k from £20
- Atari/Amiga switchable disc only £8
- 4PB upgrade for A6k A5 (based on A6k)
- Falcon-Connect: Atari Falcon 030
- 40TV serial board £2

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QUANTA: Mario Berio's experts use AT synthesized serial buses and their prehistoric memory. Use PC keyboards and your choice of Atari or PC format discs, also loads all most present internal or external options. Drivers from £20

Mac-Target: New tower access to be at 68K, Falcon and 68010 and Mega versions (no Jan 2000). Lots of tape, 48000 for all your applications and drive files, base £2 (base, 68K) and adaptor, floppy external from £60

Custom Apps

Timexx A6k 68Kx graphics card, ACM-Driver board and a big AT accelerator.

Abingdon Synthesis Projects, 40 Eyns Road, Abingdon, Oxon, OX14 4D
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other domains	£25.00

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dial-up internet access from £ 120.00 pa

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Atari STe: 1989 - ?????



**One
man's
tribute-ary**

Newspapers maintain obscurities of the great and the good on an ongoing basis. They do not wait for the demise of the worthy, but keep articles up to date so that when the inevitable happens, the editor immediately has the copy to hand. As the Atari Computing editor is occasionally short of articles, I thought "Why wait for my trusty Atari to die. Submit the article for publication now..."

Purchased on 18th December, 1988, just in time for Christmas, this was one of the first of the 1040ST's to be sold by Miles Shop. This it had the buggy TOS 1.60 and the sluggish DMA chip, but it proved to be reliable. It cost £395, with the 5M12H monitor. It seemed cheap, compared with the two grand my sister paid for a 386 PC with 640K of memory.

The first expansion of the system came in February 1991 with the purchase of C-Lab Postcard software. It had taken over a year to save up the £450 to buy this top of the range music software, but it was worth the wait.

In 1993 we spent £140 upgrading the memory to 4Mb. This led to fruitful experiments with RAM disks. Scan Papper and SpeedyGDX were being run from a RAM disk that took a full five minutes to boot up. Scalable fonts, image handling and speed checking had arrived.

1995 saw significant changes in the High family computing. My sister scrapped her first PC, and we treated the Atari to a

hard disk, WDC and TOS 2.06. Expenditure on Atari hardware had now risen to £1001. The hard disk transformed the way the machine worked. Unfortunately the TOS upgrade killed off the original C-Lab Postcard, but by then the upgrade path had led me to EPlagic Logic v2. This kept the software up to date with the introduction of GEM Plus and other technical goodies.

Access to the internet came along, bringing the delights of HENSA and WFSCH. These gold mines of quality software and resources led to the regular dispatch of cheques to InterActive to register shareware. I am indebted to Joe for the quality of the support he provided, and the aggregation with dollars and benchmarks he used me.

From 1996 onwards, the Atari took on increasing hammering from two daughters responding to the demands of GCSE and A-Level courses. It did not flinch!

Obtaining a "free" SCSI two-speed CD-ROM in 1997 led to the expenditure of £205 at the April Atari show. This brought an L48H floppy drive, the hard drive and CD-ROM all into the next (but difficult to fit) GreatTapper case. The AT Key interface proved my sisters' resistance. PC keyboard back into action. Towards the end of the year, the Star

24-pin printer began to wear out and was replaced by an HP laser printer.

The quality of the new printout at 600 dpi was a tremendous improvement. But the printer, with a 66000 internal processor running at 20MHz, spent far too long waiting for the Atari to calculate all these tiny data. So in June of 1998, the TUS Velocir came to the rescue. This gave a three-fold improvement in speed and proved to be compatible with all my software, except one mono game - a version of Breakout that stubbornly ran too fast. For the first time, the computer displays possible with EPlagic Logic could actually keep up with the music!

By the tenth anniversary of its purchase, total expenditure on software and computing hardware had reached £2,506. The word processing and MIDI recording performance matched or even exceeded that available on current domestic PCs. The only area where the Atari could not keep up with the pace of technological change was the video display.

The Atari STe was greeted with derision by the press because it did not play all the old STMP games. Yet it was a powerful piece of kit, crying out to be taken seriously. Sadly, software like Papper and Logic came five years too late to sustain it. To those who know it, it was a reliable and trusty friend that cost less than £1 a week to purchase and run.

Michael High



The Console Centre Price List (Jaguar New)

All following prices are £11.95: Club Drive Carnival Stage Carnival Galaxy Street sports football Club Play-Box Checkered Flag	All following prices are £13.95: White Man Club Jump White Team Top Rugby Football Jazz Solider Football Woolfords 93 Dragon Street Las Vegas	All following prices are £14.95: Eliza Verbena L'Esse Tomb Raider Horse Soccer New Beach Soccer Maidie (Continental) 93 Hawthorn 93 (Only)
All following prices are £15.95: Lighter 1/2 Adults 100 Motor Penguins Highlander (CD Only) Hawthorn 93 (Only) Dragon Car (CD Only) Woolfords (CD Only)	All the following items: 1-Hour 1/2, or 3/4 £1.99 Long Handed 1/2, or 3/4 £1.99 New Ball Cap £1.99 Jazzers Guide £1.99 Woolfords £1.99	All following prices are £17.95: Street Club 2000 Tomb Raider Jazz 1 Jazz Solider 1/2 only at £15.95 Woolfords Team Soccer (CD Only)
All following prices are £19.95: Club Drive Tomb Raider Horse Lightening (CD Only) Vice Squad (CD Only) White Man Club Jump (White Team Top)	All following prices are £11.95: Carnival Galaxy Street sports football Checkered Flag Carnival Stage Troy allstars Football	All following prices are £19.95: Tomb Raider 2000 Rugby the Ball Car Jazz Solider Woolfords 93 Jaguar Hammer Dragon Street Las Vegas
All following prices are £14.95: White Solider (CD) Carnival Solider Jazzers Horse Park Football Penguins Woolfords Soccer	All following prices are £20.95: Hawthorn (CD Only) Flash Back Rugby Power Drive Rally Jaguar Ann (CD Only) Eliza Verbena	All following prices are £21.95: Eliza Verbena Rugby Highlander (CD Only) Rugby Squad 1/2 (CD Only)

2nd Hand Jag Games

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Cases AT Mini Tower Pro £21.00	Monitors Semi 18" Semi SVGA Digital £87.50
Memory SGRAM 32Mb (32mb) PC 100 £35.00	Soundcards PCI Pro Schubert 3064 Win95 only £9.85
Hard Disk Drives 4.5Gb Master / Fujitsu IDE0 UDMA £67.12	Speakers 30 Watt PMPO Speakers (8000) £7.44
Graphics Cards 4Mb AGP 53 Tris £13.50	Modems 144 Internal Longline (Rockwell) £26.18
Floppy Disk Drives 3.5 Floppy Disk Drive 1.44Mb £8.87	Printers Hewlett Packard Design 610 £71.90
CD Rom Drives 40 x Sony CDROM IDE £25.15	Scanners Mitsumi ScanImage 6000P (600x300) £37.80

PC Computers built to your requirements, please phone for details if you usually visit main dealers

Please ring, regarding any Jaguar or PC item not listed here as there is too much to list. Each item is sent by first class recorded delivery with insurance where needed. Please ring during working hours to check price and availability. Tel/Fax 01484 544826 Mon-Fri 8.00am to 5.30pm. Cheques and Postal orders made payable to Shire Link LTD. Major credit cards accepted.

Shire Link LTD: The Console Centre, Halfon Road, Birchcliffe, Huddersfield, West Yorkshire
England: HD3 3HS

E-Mail Me At morgan.majors@jcdt.nl.com

From DJ to ST!

Mike Kerslake remembers, and says thank you...

My involvement with a radio magazine in the mid-80's led me to work for Radio Caroline on the east and literary North Sea. One of the other guys working for Radio Caroline was Chris England, a self-confessed computer and games freak.

One stormy eve I visited Chris's home to see his "computer shack". The room was filled with all sorts of computer stuff, but on a desk was an Atari 520ST coupled up to a TV. It had been recently replaced with a PC, and was surplus due to non-availability on the Atari platform of certain software required by my friend (yep, even in 1989 you could hear that word!). However within minutes I was using I ChitChatPlus and being told of a DTP program called Timesworks which could lay out the new radio magazine I was planning to publish.

The swap

That was it. I just had to have this magical A few minutes discussion and then a surplus audio mixer of mine was being exchanged for the Atari. I was also introduced by Chris to a guy called Steve Hilditch who also worked on ST. Later Steve would become briefly famous in the Atari world for his ST3000 live racing program which appeared on one of Atari's productivity packs.

A subscription to ST Applications followed and some may remember my steadily lengthening (3) letters to the magazine about one thing or another. The glossy Atari magazines were always a magnet for me every month as well.

Reputation of shareware brought me into contact with the likes of Danny Brubaker, Joe Connor and John Charles. With time the internet became available to me. It was a whole new world and I felt less isolated as all around bought PCs.

Then Atari World came and went, and discussions both in public and in private focused on the idea of setting a new Atari magazine up.

The start

The early days of AC are very hazy, but I do have some very old emails and some postings which seem to suggest that I was the first person to have publicly the idea of a magazine being produced by enthusiasts for enthusiasts after the closure of Atari

World and the obvious plan to start a new quarterly Atari publication. Shortly afterwards came news of the closure of ST Forum and then the fun started!

Before long we had 13 Atari enthusiasts willing to pay for the printing of the first issue. A club was formed and for some unknown reason I was appointed chairman and publisher! We enrolled Danny Goodmark to do the layout because he was the original owner of my Palco! Joe Connor was then "persuaded" to handle the editorial side, and I limited myself to handling potential advertisers and taking subscription enquiries and orders from eager Atari fans. The start of a great relationship with Mike Goodman led to the launch of the magazine on the Atari Show in Birmingham and London in 1994.

Was it worth it?

Producing the magazine and being generally involved with the Atari scene over the last three years has become a full-time job (without the pay!). I'm really not sure if I would do it all over again knowing now what I has costed. However, I don't regret what I've done so far.

However, as with anything, there are pros and cons. I am disappointed that major Atari dealers like Hilditch and First Computer Centres didn't advertise with us once, despite our best efforts. I am also disappointed that one dealer would not display our magazine or publicly material for fear of losing business to our other advertisers.

The negative atmosphere created by a few members in the computerist's internet group has been bothering to me and entering their hostile and inaccurate postings was very time-consuming.

I have also been frustrated at the non-release of many fine Atari programs originating in Germany because the company that holds the distribution rights for English language versions has for unknown reasons put on them. Sadly, the



impression I have got from some users is that their switch to another platform was influenced to a large degree by the lack of English language versions of Atari software they knew was well up to the job, if only they could buy it!

Thank You!

The pros far outweigh the cons though, and I'd like to thank the many readers that have bought and supported the magazine in some way over the years, and the original members of the AOC, who stumped up the money and gave invaluable help in the early days. Thanks are due to the advertisers that have supported us, many from day one. My thanks also to our printers, Catford Print Centre in London originally, and more recently Sigapec in Sheffield who have handled us with good humour and patience! Our distributors and agents abroad also deserve a huge thank you. I'd also like to thank readers whose feedback kept us in touch with what readers thought and wanted. These conversations were our "nuggets" and I'll miss them!

I'd like to thank our team of contributors who have earned us a reputation for quality and honesty. I would also like to pay tribute to Al Gould, Joe Connor and the late Brian Stanton for giving their time so freely to the magazine despite often horrendous pressures on them. Their families and my own also deserve a big wave of thanks for letting us devote so much time to a "hobby" which took over our lives and, ultimately, our houses!

Many thanks to you all and please do stay in contact!

ENCHANT and GEM

A match made in heaven?

Paul Jones and Matthew Bacon think so...

This article follows the development of EnchantTer, an encryption program, and explains how it makes use of the ENCHANT GEM Toolkit and Modules. EnchantTer, its source code, and accompanying files are all included on the Reader Disk.

If you have been following the Basic BASIC series, you'll be aware of the steps needed to create an application and should appreciate how time consuming it can be.

ENCHANT (EnchantCed Head Application Toolkit) is a collection of routines and libraries which enables programmers to concentrate on developing application features without worrying about the peculiarities of GEM (see review in ACQ115 p38).

The starting point when developing any application using ENCHANT is its shell listings and resource file. These provide the foundation for your application and include vital data required by the GEM Toolkit routines.

For the purposes of this article we'll assume the resource file and BH contents file have already been created and are already available to ENCHANT. Before you can start writing the source code for the features of your application, you must first customise the shell listing:

- The resource file BH CONST file must be included (requirements of HBASIC see ENCHANT).
- HyProgram should contain the name of your application, in this case "EnchantTer". It is used by ENCHANT within a mainmaking environment and when displaying error messages.
- HowManyButtons (optional) is another global variable of ENCHANT. The value 2 indicates that both the resource features are available to ENCHANT (also for object selection and flags for BubbleGEM help).
- The parameters of StartProgram should contain the following: + Path of your resource file. + Resource file index to be used as the menu bar. + Resource file index to be used as the quit item within the menu bar. + Resource file index of the object to be displayed when a window is created.

At present, the shell listing does nothing more than load the resource file. For your application to respond to user input, the following subroutines should be

customised (or ignored if not required). EnchantTer uses the HandleUserMessages and HandleUserMenu subroutines:

- HandleUserClose, is called if the global variable `enabled=100` when any window is closed.
- HandleUserMessage, is called if ENCHANT receives a pipeline message that it does not understand. This routine is, as shown later, ideally suited to provide OPGA protocol support.
- HandleUserKeys, is called if the global variable `keys_enabled=1` when a key is struck.
- HandleUserClicks, is called if the global variable `clicks_enabled=1` when a mouse button is clicked.
- HandleUserMenus, is called when a menu item is selected.
- HandleUserHints, is called if the global variable `hints_enabled=1` every `n` milliseconds determined by the global variable `hints_timeout`. ENCHANT provides many powerful form handling routines. One of which allows dialogs to be displayed in non-modal dialog using the OpenFormWindows function.

OpenFormWindows takes several parameters as follows:

- ```
hand | object | window | index | resource file | resource | id | title | owner | style | flags | color | style
```
- WindowName parameter should contain the title window string.
  - owner should contain the resource file index of the object to be displayed in the window.
  - title, obj should contain the text object (must be suitable) to be added when the object/window is opened or zero.
  - cancel\_obj should contain the object that will be returned if the window closes close box (top left-hand corner of window) or zero.
  - closeproc should contain the address of a sub-routine which will be called when the window is closed or an exit button (or in shorthand) is selected by the user or zero.

Whenever the menu item information is selected, ENCHANT will now display the non-modal dialog FORM (INFO).

Whenever this form window is exited, the sub-routine closeFORM (INFO) will be called. As this routine is not yet defined, it

should be written by the user - it should look similar to the closeGEM (INFO) code.

To give your application the professional edge they deserve, ENCHANT provides modules to enable your programs to include BubbleGEM, OPGA and ST-Dialog support and it couldn't be easier. Simply include the following lines of text at the start of your source code and that's it!

```
REM include BUBBLE.GEM
REM include OPGA
BASIC REM include STDIALOG.BAS
ENCHANT defaults all the calls available. The only calls we are concerned with for EnchantTer are:
```

```
SubstGEM ("Basic: Acctage")
STDialog (path of STD file, name of mode in STD file)
```

The final steps are to fully test your application on as many TOS compatible machines and across a wide selection of environments (TOS, Magic MINT etc.) and create a suitable TT-Guide hypertext.

Hopelully, this glimpse of ENCHANT in action has demonstrated how HBASIC developers can save many hours work using ENCHANT. If you have any questions or would like more information please do get in touch. ☺

## ENCHANT revision 3

### Publisher

Caldera Software  
49 Douglas Road, Sarnsey,  
Sarnsey, KT8 7RZ, UK  
Email: calderasoft@btinternet.org  
http://www.caldera.com/uk/eng/eng.htm  
Price: £15.00 plus P&P (x1 UK, £3 ROW). Alternatively ENCHANT can

be purchased with a brand new copy of HiSoft BASIC v3.10 for only £45 plus P&P (x1 UK, £15 ROW). UK P&P includes courier service.

Please make cheque/personal orders payable to "Matthew Bacon".



## Suggestive Remarks

Mike Kerslake with a look back at what we have achieved so far and some more ideas for programmers

Finally this is going to be the final Suggestive Remarks column to be published in *Asa! Computing*, but I'm hopeful that something similar can be carried on via my web site in tandem with "The Contact File". I'll come back to this at the end of the article.

Let's take a final look now at some **EXTENS** file columns that match up. The accompanying table shows where something notable has been written, or an alternative has been found, and also where there is still a need for a particular answer.

As can be seen from the table below we have had a reasonable amount of success, either with completed programs, work in progress or an alternative has been found which will handle some if not all the requirements. There's still room for new programs though and I look forward to future software releases. My personal everyday front end is HTML Expert. Stamp Values and A-Z Browser. AUTOLINK also comes in useful when setting up new label documents, and has saved much time and money!

Please here's a small few suggestions for  
 2000's winners to get their teeth into.

The **HigiC Desktop Themes** extension in AC#-B changes the look of HigiC's windows by manually replacing the **WMFRAME.HRC** file which controls how the window appears on screen.

However, because WINFRAME.RSC is a standard RSC file, it's also possible to load this into Inetutils or Rascalsoft's *Real* and edit the window, gauges and even mix and match themes as well.

Instead of manually editing the various DOS files, it would be much nicer, and far more flexible, to configure the individual window gadgets from a small utility. The COLCUBE GPM is halfway there already. It may also be possible to extend the scope of a configuration utility to handle changes to the device and OPM I/O<sup>2</sup> files.



A complementary suggestion would be to substitute the translation of every phrase using the standard GEM documentation.

The last suggestion from me personally is for a program that will catalogue and convert vector graphics files. Something like Image Copy would be ideal, although I'd go without the

advanced layout and editing functions that programs offer. The formats able to be handled could include GEM, CVC, BH, CVC (Acorn's), CDB, and WHAP.

Going back to my opening paragraph, what is not for me? We have devoted an entire page of the magazine-over to "This Contact File". This feature should be a reasonable source of help and advice for Atari users for a while after the magazine is published. However, things change and TCP will be out of date in parts before too long as I've seen on the case of maintaining and adding to the file for as long as possible into the future. You can read more about my plans in TCP itself further on in this issue. What I would like to do is add another part to the file and that is a continuation of this column. In other words if anyone has an idea for a program, then I will publicly post that idea in TCP and get some feedback from programmers as to whether or not the idea is feasible. If you want to contribute then please use the contact points in TCP.

And now, time to say goodbye. I hope the column has been an interesting read, and that some of the programs that have resulted from it will benefit the users for a long while to come. My thanks to both the originators of the idea, and the hard-working programmers that have produced the work.

Let's make one thing abundantly clear: the

| Idea                              | Result                               | Other full or partial solutions                       |
|-----------------------------------|--------------------------------------|-------------------------------------------------------|
| Email address book                | -                                    | Address program and then out and postal!              |
| Swap value calculator             | -                                    | It's an unique program so nothing else available!     |
| 5.2 Server                        | Swap Value CPU by Mark Baines        | There's an extremely TTP available that does the job! |
| Power window monitor              | A 2 Server from Matthew Jap.         | Only on Windows actually! Right!                      |
| HTML as Timesworks-GTP style text | Imported by Neil Mattingly           | Pagelet 7 also converts HTML to text or RTF           |
| Various CPU's                     | -                                    | By and large suitable. Access to or apps available    |
| CPU to GEM                        | -                                    | Access is, perhaps, too tightly GTP!                  |
| Printer handler                   | -                                    | Mark Baines suggests drivers for HPVET and GDCS       |
| AC Bookdown                       | -                                    | Just a local or online chat group for help and advice |
| Local compiler for Pagelet        | Agony struck by time!                | Do a manually which can be used and automatic         |
| HTML to text                      | Available from Gary Harbridge        | HTMLTEXT by Thomas Sabini                             |
| MSCH as well as HPV help files    | HTML Import by Mark Wilbury          | UCD can translate HTML into ASCII (at a price)        |
| Price utility for ET-Guide        | Some programmers are doing this      | Use the HPVSDGOS TTP utility if your German is good!  |
| Price editors in ET high res      | -                                    | Mark Baines might have a hardware solution too!       |
| Help directory                    | Not technically possible with a/wave | The Content File may be able to help                  |
| Book, under information program   | Unreal response                      | -                                                     |
| Page-table program                | Guest Hilfer is working on it!       | -                                                     |
| Record/CD database                | -                                    | -                                                     |
| Personal Base CPU                 | -                                    | Accessing database program, might do.                 |
| Multiple (opposed)                | -                                    | -                                                     |
| Text file merger                  | -                                    | Clipboard by Catherine Ellis                          |
| Multiple text file viewer         | -                                    | Append ignored with ET-Guide                          |
| GEM based and the GDC             | Nothing I'm aware of                 | Remove Document (Display), Textview and ET-Guide      |
|                                   |                                      | local PRINT!                                          |



## New Atari D/C++ Compiler

A brand new Atari development tool is now available featuring a modern Integrated Development Environment (IDE), but don't let a catch - it only runs on a Mac! Anyone who programs the Mac will be aware of CodeWarrior, it's a powerful standard Mac development tool from Metrowerks, who incidentally have recently become part of Motorola.

What makes CodeWarrior special is a plug-in architecture, for which a development kit for programmers is widely available. With the traditional compiler's current source code directly into machine code, CodeWarrior uses a linker and compiler to create an "intermediate representation", which is then translated into machine code by a back-end code generator.

This then allows different back-end code generators to be used to create instructions for different machines, whilst still taking advantage of CodeWarrior's front-end C/C++ compilers. With the appropriate plug-ins, CodeWarrior can be used to create code for MacOS, PalmOS, Linux, Windows and, wait for it, Atari!

TOS Linker, programmed by James author Manfred Lippert is a back-end code generator plug-in to create Atari programs within CodeWarrior.

Now this all sounds too good to be true for AtariMac developers. A modern development system to create Atari projects - but it gets even better. TOS Linker includes newly written TOS libraries that provide full support for the latest HagiC and HWGDI features.

However, there are a few limitations. The current release does not implement C++ exceptions or C++ standard libraries and there's no floating point support - although Manfred does have floating point arithmetic working for inclusion in a forthcoming update.

I'm sure some readers will be aware CodeWarrior is also available for Windows but TOS Linker currently isn't - a Mac is required. Furthermore although CodeWarrior also supports Pascal and Java the TOS Linker libraries are currently only provided for C/C++ compilers.

These limitations are best summarised by Manfred himself, "if you understand the limitations it is very timely to write Atari programs with CodeWarrior."

They say the proof of the pudding is in the eating and while James isn't programmed with TOS Linker all of Manfred's utilities are. The list includes Monitor, Battery, KeyWatch, MenuBar, the

UI-Coder is James, MacGHT, and others.

TOS Linker is currently only available directly from ASH in Germany, but at the bargain price of only 30 DM (around £10) so you really can't really grumble. Take a look at their web pages for more details.

<http://www.application-systems.de>

CodeWarrior Professional (MacOS) is available from their UK distributor Full Moon. For more details point your browser at: <http://www.fullmoon.co.uk>

## Visual Tools for Pure C

One type of programming that is extremely popular on other platforms is the so-called "visual" approach. This method can and does fill huge boxes on the subject. I prefer to think of this as the programming equivalent of "Wash and Go" - take multiple development tools into the shower, a resource editor, a source editor, an application framework, and a compiler/linker, etc...! Not me, I just want to... well, you get the idea!

Although there is no real visual development tool for the Atari platform, there is one that comes close. ACS Pro is basically an application framework that comes with a GUI editor and uses PureC to make the final product. The GUI editor is the important bit as it effectively replaces the resource editor with a much more flexible tool.

The problem with this way user interface solutions have been boiled onto the Atari, is that they are achieved through cobbling together other resource types, instead of providing an all in one solution. The GUI editor for ACS Pro effectively "takes" bits from the developer, but does a lot more besides.

It's well worth any interested programmers taking a look at the web pages which include a step-by-step guide with full screenshots to create a simple "Hello World" application using the system.

[http://www.atari-computer.de/martin\\_glassner/index.html](http://www.atari-computer.de/martin_glassner/index.html)



## GEM-Setup

With news of new and improved development tools, programmers also need a better way to distribute them. If you've ever installed applications on other operating systems, you'll be familiar with installer Vies for MacOS and/or install Shield for Windows. These tools are generic installers - programs which can be customised by developers to automatically install packages on your computer.

Such tools simplify the installation process for users, as the installer automatically puts the files in the right place, for example, CFX files are copied to the CFX folder. While many Atari packages such as those from ASH already include a custom installer, there has never been a truly flexible generic installer for the Atari platform - until now.

GEM-Setup, programmed by Joachim Farnkner, offers many powerful features including support for targeting multiple languages, LDM archive handling and the ability to customise which parts of the package to install. Shareware and commercial authors will be particularly interested to note that GEM-Setup includes a build in interface for you to be able to build your registration routines into the installation process.

Since its release, GEM-Setup has been adopted by Atari and is also now used to install applications such as Amplexy, Apert, Calamus III, Rational Sounds, H.A.D.S and more. There's even an unconfirmed rumour ASH products will switch to GEM-Setup in the near future.

As I write, a new version which will support multiple languages more effectively is close to release. This will also feature improved password handling, optimised code and some bug fixes. For more information, and to download the latest version, visit Joachim's homepage at <http://www.atari.de/efio.de/~jfoenik/gemsetup.html>

## The End

I hope you've found these columns interesting. By the time you read this, the InsideGEM pages will finally have made it online at: [http://www.cis.ru.uk/~mark\\_chenry/](http://www.cis.ru.uk/~mark_chenry/) Email: [mark@ataricomputing.com](mailto:mark@ataricomputing.com)

# Xav presents a few final ideas...

When I wrote my first article for AC, back in the very first issue, it was intended purely as a one-off. It was a simple DIY article taken straight from my own work on EPs purely to help Ki66-start the magazine. Little did I realise that it would lead directly to such a long-running series of articles.

In this series I have extensively covered a number of pieces of hardware based around the standard Atari joystick. There's been a comprehensive discussion of the joystick itself, DIY construction details for a Team Tap clone, and enough information for the intrepid experimenter to build a Tampex 2080 compatible rotary controller. Where appropriate, there has also been programming information so that even if you are not the sort of person who can safely wield a soldering iron, you can still write software to suit people who can.

While these articles have (I hope) proved informative, they only scratch the surface of the EPs. For instance, everything I have covered so far has been digital in nature, but each EP also includes two analogue-to-digital converters, enabling you to readily interface temperature or pressure sensors, analogue potentiometers or PC joysticks to your computer. Furthermore, these inputs come alongside the digital inputs, so it would be entirely feasible to construct an analogue joystick with joystick style fire buttons. In fact it could also be possible to convert an Atari joystick, complete with its analogue controller, into a device suitable for use with an EP.

If you'd like to try messing around with analogue inputs, a simple circuit like one of those in Figure 1, using nothing more than a variable resistor, some wires and a plug, should be enough to get you started. To read the input, simply look at memory locations \$DFF2/\$DFA4, which correspond to EPs A, X and Y.

In analogue, then EPs A, X and Y co-ordinates. You'll notice that the values don't drop right down to zero, nor do they reach 255. Also, different variable resistors will yield different ranges. If you write a program that allows an analogue input, don't forget to include a calibration routine to take this into account - you just need to read the values for the extreme positions of the resistor and map your output range accordingly.



▲ Figure 1: Hooking up a variable resistor

Another project idea may prove invaluable to players of Theme Park on the Jaguar, or anyone who uses one of the programs which allow the joystick to control the GEM mouse cursor. Basically it's a circuit which converts the output from a resistor into a series of up/down and left/right joystick button presses. I have found a rather elegant circuit idea in a hobby electronics book, which might do the job. It simply uses a pair of D-type flip-flops, which are available pre-packaged as a 74HC74, to convert from the mouse's quadrature signal to a series of pulses. Because of the way a joystick works, it may be necessary to use these pulses to drive relays, which will then fit into the joystick circuit in place of the D-pad. If anyone wants to play around with the idea, the basic circuit is shown in Figure 1.



▲ Figure 2: Mouse to joystick circuit idea

Don't be too scared to experiment, the EPs are quite robust parts, and it's highly unlikely that you'll permanently damage them with these sorts of projects.

## Power without the price

Besides which, STs are available quite cheaply on the second-hand market, and they represent remarkable value for money, given their flexibility. If you have even just a little C programming, you can

use an STs to perform the sort of real-time data manipulation which could cost a fortune if purchased as a standalone solution. Let's suppose you wish to keep track of temperature changes in a greenhouse. You could buy a dedicated temperature sensor with a printer output and the ability to store the data in disk for several hundred points. Or you could build a thermometer as an EP, write a lot of code which doesn't even use GEM, and put it in the AUTO folder of a floppy so that you don't even need a monitor. Total cost: less than £100, including the computer.

If data logging and greenhouses seem a little far-fetched, how about the more down to earth example of a multiplier using HCD. A dedicated patch change unit will see you back over forty pounds for very limited functionality. Use a joystick as an EP, however, and you can have patch changes, panel buttons, volume controls or anything else you like to program. And HCD programming on the ST is a breeze, so yet again you could write an auto-loading TOS program and forget the monitor. Then why not add a couple of foot pedals hooked into the analogue pins, and maybe a Team Tap so that you can

include more digital inputs for additional foot controls. You could even write the code so that it copies the HCD messages from the input to output, modifying them according to what's happening on the EPs. There you go: real-time transcription, one-finger chording, or any other HCD effect.

The point is that the series was always intended to give you ideas for you to take further. The hardware's cheap, there's more than

enough power for the price, why not give it a go? If you need more help, or if you have any success stories to tell, you can always email me. My own experiments will be continuing for some time yet, so if you're not the adventurous kind, but you do want to build some cool and weird EP projects, keep an eye on my EP FAQ - then follow the Atari link, [www.computer.maa.ac.uk/~xav/index.php3](http://www.computer.maa.ac.uk/~xav/index.php3) Email: [xav@computer.maa.ac.uk](mailto:xav@computer.maa.ac.uk)

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# Basic BASIC

"Whatever you did, that's what you planned" -  
 Featherkile's Rule. Paul Jones stands by it...



## Archive

As the last HIBASIC tutorial in this magazine, I have decided to write about how to contact other HIBASIC programmers should you encounter a problem or wish to offer help or advice.

The good place to start is, of course, the internet. In the "Comments" box, you'll find two email addresses. One for myself, and another for Matthew Bacon. On Matthew's site, you'll find a wealth of HIBASIC information including links to other HIBASIC sites, a message board (where questions and information can be posted for others to read and respond to) along with details of the HIBASIC user group. The site also contains over 5000 of HIBASIC (or Atari related) programming information and source code which is a real must!

A further source of Atari related programming information (including HIBASIC) is the ICTARI disk magazine. ICTARI has been running for a long time now and has reached over 50 issues. Issues are available from the internet and all good PD libraries.



For those that do not have access to the internet, but still can use a modem, there is another solution. If you get connected to a BBS (Bulletin Board System), ask your system administrator for connection details about HiNet (HiNetwork ST). This message system has a "programming" section which usually features all sorts of coding chat (but is not strictly an HIBASIC).

Those without a modem will have to rely on the good old snail mail service for



## User Group

information. As postal mail is costly compared to email, posting could be infrequent. However, Matthew Bacon has kindly agreed to provide the "HIBASIC archive" to anyone who sends a SASI + stamp together with five SASI.

Version 2.0 users are also welcome to contact Matthew regarding the HIBASIC Technical manual (which he has turned into STGuide format). However, due to copyright restrictions, the document cannot be posted onto the internet. Users should contact him (email or SASI) + disk and stamp (copying the first paragraph on p 108 of the HIBASIC User manual).

Matthew is also interested in creating a dedicated Atari BASIC Website (HIBASIC, GFA, ABC etc.). He states "I am interested in developing a site dedicated to purely Atari programmers but I need their input and support". Those who are interested should send articles (reviews of programs written in BASIC), source code, ideas for applications, Q&A/S&Q, anything related to programming". ☺

### Contact points

**Paul Jones**  
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**Matthew Bacon**  
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 http://www.colsona.dti.net/bacon.htm  
 The items used on this page are from  
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 http://www.dcs.demon.co.uk/ictari/  
 ctari.htm

# Fun Without The Effort

George Crisman reconsiders "Power Without The Price" as he ponders the personal computer...

Looking around at the world of computing it seems to me personal computers aren't as "personal" any more. Most machines made the transition to "business" mode several years ago leaving computer enthusiasts to adapt corporate tools for personal use. So how did that happen?

## Over my shoulder

The original home computers, the ones which came by mail-order as a bunch of components requiring "come" assembly (soldering) were directly aimed at the hobbyist. These machines couldn't do much more than the pocket calculator at their day but they clearly appealed to many people.

The fascination of "controlling" a computer and being in control was there also in playing with building blocks than running a business but it was the new enthusiasm that fueled ongoing development. A steady stream of new machines supporting faster and better peripherals were created but it was the introduction of built-in BASIC like programming languages which led to explosive growth and turned a hobby into an industry.

Not only was it easy to write your own programs, but you could record them and share them with other! User groups spring up, people get together to share tricks and tips and the rest is history.

## The Beginning Of The End

Home computers with GUIs (Graphic User Interfaces) like Mac and Atari machines made computers fun to use and programming became cool.

This ease of use caused an influx of new users whose primary interest in computing was "How can this thing make it possible for me to go to lunch on time?" The hobbyist's thrill of discovery and joy of accomplishment was foreign to such people. Demands such as "Why doesn't this thing do what I mean?" and "Call Tech Support!" replaced the hobbyist's inquisitive "I wonder what I can make this do?" This dearth of user knowledge, coupled with the follow-the-leader attitude of many companies led to a small group of software and hardware companies dominating the market and the rest is history. It's an alarming situation!

## Time for a rethink!

It's time to reclaim a personal computer for hobbyists. For one and this is what I want:

- 1 Built-in operating system. Disk-based operating systems inevitably get corrupted.
- 2 Built-in programming language. A nifty modern BASIC makes sense. Many computer gurus started with BASIC because it was easy to use so it got used.
- 3 Built-in networking and software to handle LAN (Local Area Network) built into the OS enabling simple cable or wireless connection between machines. Ideally the networking software would also be able to handle connections to multiple IP (Internet Service Provider).
- 4 A choice between single-tasking and multi-tasking operating systems or some way to gently introduce newcomers to the flexibility and benefits multi-tasking can provide without confusing them. Maybe a third choice - test-mode instead of waitmode? Test-mode still provides the fastest performance and some tasks can be performed faster and more efficiently from a command line.
- 5 A built-in selection of applications so the computer is ready for use out of the box. Apart from the obvious Word processor, Spreadsheet, Art Package, Database combination I'd like to see all the Teletext, terminal and FTP utilities well needed to access the web fully made available in some easy-to-use package. A "device manager" application to take care of ALL peripherals would also very useful.

## The Future Today?

- 1 TOS and GEM are already in ROM so, apart from updates and limited OS space, we've got the problem solved! The Milan solves the upgrading problem by using a software upgradeable Flash ROM.
- 2 We still haven't got a perfect BASIC, something that supports very high level calls such as:

read in <dir>\_<path>\_<obj> <the path>

read in <dir>\_<path>\_<obj> <the bytes in>



▲ George on the side of the road at "Santa Pass", just north of Santa Barbara, within 100 feet of the Pacific Ocean

However, with software like INCHWIT, H&W BASIC is getting closer.

- 3 The networking and internet connectivity solutions for the Atari platform are still evolving but the introduction of iFusion and ongoing development does look promising. Getting a total solution into ROM is still some way off though.
- 4 We are close on this one, too. GEM offers various single and multi-tasking options but the sheer choice also leads to confusion and makes it hard for programmers to support all possible implementations. With growing interest in unit style operating systems we might be better off starting from scratch and adding TOS compatibility - the Phoenix workstation seems to be taking this approach.
- 5 Standard applications are expected these days but the demands placed on them by most users doesn't justify the bloatware provided on other platforms. "Plain vanilla" implementations complemented with upgrade paths to more comprehensive solutions for those that need them would be an ideal solution. Standardization of functions and the user interface across all applications is the key to sustain here.

Atari has recently abandoned development of its next-generation multimedia computer which leaves the Milan and Phoenix projects looking even more attractive as "Personal" computing platforms. Add to that the growing public acceptance of Unix-like multi-tasking operating systems such as Linux and BSD Unix and one could conclude we're using on The Next Generation in Computing. There's never been a better time to be an Atari enthusiast!

George Crisman describes his real job as "an email clerk for a computer company"

[But Thanks for all your help George!]



# ATARI

## COMPUTING

### Reader Disk 16

Around half our subscribers take the Reader Disk. The combination of material files, listings, PC/Shareware and exclusive software is unbeatable and not available anywhere else. Individual back-issue copies of the Reader Disk are still available.



#### HTMLSTAT 2

Atari, Registerware, Thomas Sabin

HTMLSTAT 2 converts HTML files to ASCII text files. The interface offers batch conversion options, logfiles, identification and both BubbleGEM and ST-Style help.



#### Networker

EXCLUSIVE™ Preview, All Atari (c) Cadence Software

Networker is an encryption program offering up to 256 bit encryption. The program runs written to demonstrate how easy it is to program GEM applications using H-BASIC v2.1 and ENCHANT to accompany a tutorial in ACPI 16. The application, source code and accompanying files are all included.



#### Interact 101

EXCLUSIVE™ All Atari

(c) Paul Jones

Interact 101 is an interactive text story adventure with an Atari Computing theme. Make sure the songs are in the INTERACT folder and INTERACT101 is in the parent directory; then run INTERACT101. The first page of the story is displayed that you make a selection to choose the next page of the story. You continue through the story in this manner until the Game Over screen is displayed.

#### Unpublished Articles

EXCLUSIVE™

Rather than waste the remaining unpublished articles submitted to Atari Computing we have included as many as possible on the Reader Disk. The remaining unpublished articles are included on the HIGHLIGHT disc capsule and repackage of CD-ROMs. Any copyright claims which may have existed on these articles is hereby formally returned to their original authors and these articles may not be published or distributed anywhere without their permission.

#### Features

ATARI-80 folder: Open The Box! It's your first drive feature, guess! With plans between Jack, Colin Wilson takes the plunge.

CAR\_TIPS folder: CAR Tips! If you're surfing the net with an Atari then these tips from Ray going will help you to get the best value from your on-line time.

CONVERT folder: Introduction to color conversion. David Barker provides an objective description of image processing and desktop publishing (DTP) for the purpose of converting color images.

RELIQUIOUS folder: Animal features. Features are the focus of current, Simon Myerlin takes mammals on alternative future.

PULPIT folder: Atari Life. Simon Coward runs a small relation using Atari.

GENOLOGY folder: Genealogy hints for Engineers. Layoff this explains how to track down family records.

GOTOPUNK folder: Getting on the net. Colin Proctor takes you through the basics of getting on-line.

GEOPUNK folder: Digital 16 Color Conversion. Thomson Bates reports from the conversion lab between the 3rd and 4th August 16th deadline.

CD\_HIGHLIGHT folder: GEM Test! Max Barton depicts some common myths about mouse monitors and tries to persuade you to change. HTML folder: HTML Tips. Bob Pater demystifies the creation of HTML documents.

HATT folder: Matt Barton's reflections on the MUSEUM folder. Helloworld, Mark Young, Gae Grubbs make some suggestions.

NEWS folder: NEWS. NEWS is not a Gopher web page of collecting information in one package. How does it work? long distance? David Lewis reports.

PC\_HBB folder: PC/Shareware. Matt Barton looks at the plethora of PC peripherals which can be connected to Atari machines.

PAGE, GEM folder: Our little GEM. Mark Wherry takes the first step in a guided tour of GEM from a C programming perspective.

WHAT2DO folder: What do you want? Simon Coward makes it one more new software way here to offer feedback to programmers and reward their efforts.

WOM folder: World Of Atari 16. George Coomans reports from the World Of Atari 16 which was heavily gaming and video oriented.

ZINNET folder: Zinner Internet Service Provider. Colin shows an ISP Paul Jones tells you all about Zinner.

ZIPPER folder: ZIP Codes. Richard Sperry writes his experience using a ZIP drive with an Atari.

#### Games

OP\_DISK folder: Operation S.O.U.H. Donald Doble sees one very dangerous mission with the fate of the planet in his hands. ROADIE folder: Roadie! Showing 64 reports on the racing game where fast cars and numbers are increasingly mixed.

#### Reviews

DISCOT folder: Discos of J. This freeware utility makes it easy to organize your Atari 500K/100K order. Plus, Burton reports.

DISCARD folder: DiscCard v1.1. This freeware utility displays the file structure for any floppy or hard-disk partition graphically in a pie chart. Matt Barton reports.

EMULATED folder: The newest form of Battery. Ken started a Computer Fair and opened the CD-ROM emulators.

FOURWINS folder: FourWins. This freeware GEM game, centered by Matt Barton is a variant of the popular "four in a row" game.

ROBOGUE folder: RoboGUE v1.1. Carl Haber takes a look at this high speed the capture which offers much more than the.

The article is included in HPP and ASCII versions along with some example RoboGUE files.

NETWORK folder: NetWorld. If you've got a Modem (BASIC or STC) and are looking for a way to connect to the Internet, Paul Jones makes you look no further.

PROFIT folder: Profit Comes Back! After a period in limbo, the homepage text modeling package has a new distributor.

Richard Harrison reviews the history lesson. RYTHOR folder: Rhythmic 3d. Mark Hiler reviews the alternative version that now affects programs written by Simon Coward.

THING folder: Things to Think About. Insects of the Thing alternative desktop by Dan Davidson.

UTM\_CD folder: The Ultimate CD-ROM. For All Culture Users to be in the ultimate? On first impressions, I would have to say that the answer is no.

UNDERDOY folder: Undercover Issue 2. Freeware-disk originating from Germany Gae Grubbs reasons it's that need a lot of resources - a real-world newspaper "cover" magazine.

# Shareware and PD

NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS

## Taskbar now Magic compatible!



Taskbar is a MacINT like taskbar, programmed by Jo-Ellen Skarstein in Harmony, which displays a list of running applications and includes a root-menu. Taskbar has been popular with Macintosh enthusiasts and provides an alternative to the AppleLink and SPUI combination commonly used by Magic enthusiasts. Jo has been working on adding Magic compatibility for ages now and the latest beta is up and running under Magic - remarkably close to a Magic compatible release version. Jo has discovered Thing, Jinx and AN-Server all behave differently and that currently everything is working perfectly with Thing. Jinx 1 is almost sorted but AN-Server is still causing problems. There are a few minor limitations compared to running under Macintosh.

- It's not possible to change priority - Magic doesn't support this.
- Sometimes in popups/menus are working
- No long-names (only supported for accessories under Magic, but there's no legal way for other applications to ignore them). You may get around this by adding support for the GEMIcons getAppleName function.
- Under MacLink hidden apps are shown in italics, this currently doesn't work under Magic.
- No "idle" to launch under Magic, so this option is disabled.

Why not download the latest beta and send Jo some encouragement and feedback at:  
Email: joell@jingle.org.stnu.se  
<http://www.stnu.se/stnu.se/Taskbar/>

### AAESis 0.9

There's a new test version of this replacement AES for MINT available for download from:  
<http://ftp.science.org/pub/isis/isis09/>

## Audio CD Player v2.0 beta

Alexander Class' CD-Player has reignited supreme for years but French programmer Alain Laroche has taken up the challenge and recently released this explicit shareware alternative which costs a minimum of 50FF (around £3) to register. An English version will be made available soon.

Audio CD-Player has been tested with CD-Tools 1.24, Extended 1.21.1.24, Sprint 5.14 under TOS 4.04, Magic 4.3a, NAES 1.2 and runs as an application or desktop accessory. An ASCII editable database can store details of up to 1000 titles. The latest unregistered version can be downloaded from:  
<http://www.stnu.se/~al/>

## Online version checklist

Several of the utilities needed to make the most of your online setup have recently been updated. Here's the URL to STInfo (grab the new TCP and UDP modules as well):  
<http://www.stnu.se/~daniel/stinfo.html>

## Dan Ackerman's CAB ON!

<http://www.stnu.se/~larside/cv.html>

## Oliver Bookings's CAB ON!

<http://bookings.thu.hi.no/~olb>

## Multi-Clipboard



In the ACP14 pull Suggestive Remarks column Carl Haller mentioned CopyPaste on the Mac platform, which can manage up

to 180 clipboards. We recently unearthed Multi-Clipboard v4.01 programmed by Ingo Dehne, which supports nine clipboards. Although our archive seems incomplete (it doesn't contain any useful documentation to explain how to set-up or use the program) it appears to be able to save PNG and TXT files named SCARPA.y in the normal clipboard folder, where x is the clipboard number (1-9) and y is the filetype (PNG/TXT). You can download a copy and investigate further for yourselves from:  
<http://www.stnu.se/~daniel/stinfo/>  
or 400.zip

## Zoom-X

This image manipulation utility programmed by Emmanuel Huet and Guillaume Lavelle, previously distributed by PARIX, has now been released as freeware.

Zoom-X uses the PARIX HSE modules to incorporate images which are available from various sources. You can download a copy of Zoom-X from <http://www.stnu.se/~huet/h/~zoom/> or [zoom@stnu.se](mailto:zoom@stnu.se).  
Email: [zoom@stnu.se](mailto:zoom@stnu.se)

## MINT For Newbies

Jo-Ellen Skarstein is putting together a "MINT For Newbies" distribution, which contains the latest kernel, the low AES from Atari (pretty good for a freeware) and some tools. It will use GEM-Setup so it should be quite easy to install.

Contact: Jo-Ellen Skarstein  
Email: joell@jingle.org.stnu.se  
<http://www.stnu.se/~joell/>



## Utility Previewers

<http://www.start-computer.de/>  
philipp@start.de  
Email: Philipp.Boscher@gmx.ch

This release of Christoph Boscher's classic *Directory Sort* utility by Swiss programmer Philipp Boscher is multi-tasking friendly with a neat scrollable windowed dialog, menu bar and BubbleGEM help.

*Desktop* can be used to sort the order of any directory. This is particularly useful for the Auto Folder where programs must often be reloaded in a specific order but can also be useful to sort CFA or ACE directories.

This release was written to support the FAT and VFAT filesystems and has been tested under *MacOS* and *TCOS 4.04*. Anyone planning to use it on a different file system should make sure it works perfectly before making it live on their Auto folder. If a problem is encountered a *WinDir* is suggested and the directory is re-read. For anyone unfamiliar with the

original *Desktop* here's an overview of its operation:

By default *DirectorySort* loads the Auto Folder. To load any other directory click on the *Filesystem (Root)* button and use the file selector to select a directory. The running order can now be changed by simply dragging files to new positions. Once everything is arranged to your satisfaction click on the *Sorten* (Sort) button to save the directory. Alternatively the source directory can be dragged onto *DirectorySort* or passed as a parameter via *AMIGV*.

There's a *GUI* file list (excluding folders) which should be enough for most people and a useful option to ignore any non-accessible files by selecting the ' *NO* ' button.



Under *MacOS* the running order and execution of files in the Auto folder can be controlled using an *AUTOEXEC* BAT file and an *AMIGV* editor but *DirectorySort* feels much nicer to use. I'm sure there are other programs which would benefit from a similar make-over...

Jon Cannon

## STune: The Battle for Aralis v0.51

## Preview release

Entertainment All Aralis and *TCOS* compatible machines, 1MB minimum  
Authors:

Idea, story, code - Boleslav  
mops\_maffy@ymail.de  
Code, graphical interface - Thierry  
thierry@start-computer.de  
Grafic - Splice of Escape  
Dylen@proton-entire.de  
Female voice - Julia Lay  
French translation - Guillaume  
Delluche  
MOD files - FAL of THE  
fal@start-computer.de  
<http://www.start-computer.de/thierry/>  
Game files

*STune* is a *Dune* style real-time interactive strategy game with a novella theme: "After broken out in the universe, The Macintosh Empire has left its "Phoenice Orb" solar system to conquer the "Bion Orb" solar system.

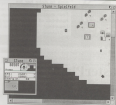
The Empire is relentlessly draining the top of life from the planets *Aralis*, *Accots*, *Amph*, *Apple* and *Laris*. To stop the Macintosh Empire the people of *Aralis* have chosen you to be the leader of the rebellion of *Aralis*, the steeper planets, so now it's up to you to save the people of *Aralis*! To do this you have to harvest the sap and to fight against the evil Empire at the same time - are you up to this challenge?"

The authors assure us the theme is all their own work but they admit they may have been "inspired" by other events. They also point out the game isn't finished yet and that the release version will feature much better graphics and a more intelligent computer opponent.

This preview release includes German, French and English resource files and runs in 16 or 256-colours - the test graphics for other colour depths haven't been created yet but since the sprites are standard MOD files so you can probably create your own. The release version plans to support all colour depths up to 256 colours.

There are plenty of sound options. If your system has a Falcon compatible sound XARCOS (MacOS PC running GEM)ing fix the (all) you can select sound samples (based in *MW* format) in preference to the humble chip sounds everyone else has to make do with. Other options include voice samples and a MOD file to play in the background.

Units and buildings are selected, moved, targeted, repaired, sold, created and so on using left/right mouse click



combinations and various key combinations are supported. There's currently no documentation (in *any* language) to explain exactly what each sprite is capable of so it's initially very confusing because the graphics is very ambitious.

The Status window, which is still in German, displays the status of the selected unit and can optionally display a map when you have accumulated enough "sap" to create a radar unit.

This is undoubtedly one of the most ambitious GEM compatible game projects underway so far and it looks forward to trying future releases in the near future.

Jon Cannon

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## Euro-Translator

73%

Utility Shareware  
Email: A.Diederich@online.de  
http://www.diederich.de/

Since the 1st January 1999 the EU, with a couple notable exceptions, adopted the Euro as its single currency. Currently only paper transactions can be carried out in Euros so until 1st March 2001 there's still a need to convert between the currencies. Armin Diederich, the Resource Master programmer, has created Euro-Translator to do the job.

Because the rates between the Euro and the member currencies can still change there's a dialog to edit the values and even some empty slots just in case (Sweden, Denmark, Greece or Great Britain decides to join). The rates in the program were correct on 17th June 1997 so do check the rates are current before using Euro-Translator for anything important!



Euro-Translator includes German BubbleDBM and ST-Case's Hyperbase documentation. Clipboard support makes it easy to cut and paste conversions



between applications. Registration costs £11.50 (GBP) or around £1.50 which removes the shareware reminder dialogs. Update I'm missing something I think Euro-Translator only offers a subset of the

features already provided in Mario Beaudin's Currency Converter - which is available in English.

Jon Cooper

This could be the only CD-ROM you'll ever need...

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## evolution#1



## Exclusive Release!



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Just for the CD-ROM software on this CD will be out of date in a few months' time - unlike other CD-ROMs, Renegade is constantly updating as new software is released and its expanding your horizons. Renegade is probably the only CD-ROM that every need as a regular Renegade owner you can upgrade the current evolution at any time!

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Utility, all Atari  
Thomas Sehnle

<http://www.html.at/~gohm/s/sehnle/html2t/>

HTML2TXT 1, programmed by Thomas Sehnle in Sweden, converts HTML files to ASCII text files and has been re-written and released as "Registerware" (the original release was freeware). The interface offers both conversion options, tooltips, localization and both BubbleGEM and ST-Guide help.

This release produces excellent converted files which is what the program is designed to do. There's full support for

text and information, and HTML2TXT 1 recognizes the CSS property text-align and formats text accordingly. Width and align properties of <div> tags are also handled correctly. Tables get converted into text, which works well and aids readability.

I do have some minor niggles about the interface but don't let these put you off using HTML2TXT 2 which produces

excellent results. I found the conversion options confusing. Each option is explained in the hypertext along with example settings to perform a variety of tasks such as "Converting HTML files into Atari text files" and it would be useful if these tasks could be selected from a dialog instead of or alongside the existing options. The most serious limitation is the lack of Drag&Drop support which means you can't drag a file for automatic conversion onto the



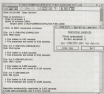
HTML2TXT 2 icon or move files from the desktop or between buttons in the back conversion window.

HTML2TXT 2 creates a PROFILED folder on the root of your C: where it stores a file called HTML2TXT.LNK to set the path to HTML2TXT.PRO which seems a bit heavy-handed - as environmental variable or entry in the PATH string would seem a better solution.

Because there's no menu bar or navigation buttons between the separate dialogs you cannot move between the back file and options screens except by exiting the program and restarting.

Under MacGEM the window frame obscures the extreme right of the dialog buttons and the mouse leaves droppings.

Joe Connor



## Suji v1.35

Utility, all Atari, Freeware

Daniel Hoopl

Email: [daniel@hoopl.de](mailto:daniel@hoopl.de)

Download:

<http://www.homer.homepages.de/>

<http://www.st.at/~derryck/derryck/software.htm>

<http://www.st.at/~derryck/>

Translation

Magdeck's MAGSEARCH is certainly not the most intuitive way of finding files on a crowded hard disk and other search utilities like Purifier are no longer under development so Daniel Hoopl's Suji - "Search for me" was a welcome new release.

Suji is a GTP (Gern Taken Parameters) utility. There's a ST-Guide hypertext which takes us through its installation and operation with BubbleGEM help as reminder as of the main points and best of all it's Freeware!

Single TGEm's are not forgotten either. While it's not possible to integrate Suji into the desktop in the same fashion as MacGEM together with desktops such as MacGEM and Jones, with the options extension WDMACG loaded (other than



the Auto folder or from the

desktop) Suji can be run from the desktop instead. BubbleGEM help can also be configured to work under single TGEm - check the BubbleGEM documentation for more details.

Suji's not just a pretty GEM utility either. Search results can be sorted in ascending or descending order on a variety of fields including size and date, something which Hoger Wiers' Finder (mentioned in AC #12) lacks. Needless to say, with an AN Server installed, double-clicking on a file launches it either as an application or loads it into a window

viewer depending what applications you have installed from your desktop.

My only niggle is that the drive popup isn't intuitive. Selecting drives to search is performed by double-clicking drives you DON'T want to search on - a point that caused me endless confusion until Translation group member Peter West was called in to translate this package!

I like it, but don't take my word for it - download a copy and try it for yourself!

Derryck Crooks



### The Final Curtain!

Well, here are the final Maggie pages, for their outing in Atari Computing. We're reluctantly going from here, but the Maggie disk magazine is still very much around. See us in our current issue, and join us in the forthcoming month anniversary celebrations. In the meantime, try to springe away those tears and enjoy our readings one more time!

Chris Holland

### Maggie 10th Anniversary!

Many of you may be unaware that Maggie is one of the longest serving publications on the entire Atari Scene. Indeed, we're coming up to our first decade next year! Quite apart from thinking that the past ten years' worth of Atari activity makes us a dithering old fool in the equivalent online years, we are fully intending to celebrate the birthday survival.

There is a special issue of Maggie planned for around that time next year. The actual anniversary date is the 30th May 1980, ten years to the day that The Last Boys debuted the diatribe on their chaotic stand at the Hiattcon/World Novelist Hotel Show. However, we're taking the so-called "official" anniversary date of the 19th August 2000, which happens to be five years to the day since the 5th Birthday party. This loose date gives us the chance to take a bit longer on this all important 10th year issue.

Concise! I think not!

There are no firm plans for the content of this 10th anniversary special Maggie, but one theme will be definitely along the lines of "banger issue". If anyone wants to contribute to this forthcoming very special one-off issue, then feel free to email me at [ch@atari.org](mailto:ch@atari.org) under the subject heading "10th anniversary issue or what!". Additionally, there is a smallish celebratory party under consideration for that weekend.

This will be mainly of interest to UK-based Atari people, past and present contributors and the like, but if you're potentially interested, then do get in touch.

Chris Holland

Madness Music compilation demo by Cream  
STx/Falcon



This is a nice little nester for future productions by German ST demo makers Cream. It is a very simple production, a music demo featuring tunes from The famous chip music composer "Mad Max" aka Jochen Hippel, written for the Amiga in a proprietary series (demos?) part chipynth, part sample replay format. These are under versions of well-known ST tunes for well-known games such as Lucas' Tarama and Chambers of Dread produced by the famous no-demos concern software house Thalion. The melodies are recognisable to those people with ears battered by the YM2149 soundchip

squads from the ST. They are completely transformed by the enhanced Amiga replay system however, and sound a lot like a "luxury" version of a Commodore 64 SIDchip tune. It isn't a completely effort-free production either, as there is a very cool take-off of the stylised Thalion logo introduction. This time it's done as a bunch of spinning 3D texture-mapped objects, on an ST! There is a new demo, which even works on Falcons. You might also be interested to know this is a precursor to a new music player being prepared by Cream, which will be able to play nearly all proprietary Amiga music formats. This is to be accomplished by wholesale emulation of the Amiga Paula soundchip!

Overall 10%  
Chris Holland

Emulation, that's the name of the game?

Emulation, a term familiar to many PC users, especially those reviewers who have come back to their rightful place in the Atari sunshine with the help of one of those ubiquitous Atari ST emulators. I'm sure it'll throw around names such as Prologic and Winston, you'll know exactly what I'm talking about.

Less well known, but possibly of even more interest is the sort of emulation carried out by Atari TOS-compatible computers of other computers. Yes, there are such beasts, and some of these do quite a successful job of it as well.

Emulation on the Atari 68k has quite a long history. Early bundles of STs were sold with something called CHM, an early 8-bit business standard. These disks, along with the regrettably Plesseyware BASIC, were the first to be recycled. Along the way, those were fair to making attempts at emulating anything from an 8-bit Atari, right through to early model PCs and Macs. These are still around, but have tended to fade into the background as being somewhat historical.

The first acceptably "modern" emulators were of computer platforms somewhat closer to home. Similar Z8801 and Christian Gendler's ZX Spectrum emulators were among the first realised, that could run large amounts of the software produced for these machines. The ZX Spectrum emulator was particularly successful with the common 32KB or snapshot file format.

This meant that large amounts of popular classic old games were in easy reach. The Speccy emulator got as far as version 1.07 in 1991, but has gone quiet since. It still is a very good representation of a 48k Spectrum on even a standard ST, although a Falcon is needed to get near-identical full speed.

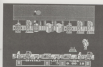
Other 8-bit computers were also possible to emulate on standard



Download Maggie and check out  
the Maggie pages at...

<http://rg.atari.org>





hardware, a notable disc-on of the 8-bit era, the One, is currently in version 3.9 of ATOne. This really needs higher-powered TOS hardware to run properly, as it is unbelievably slow on an AT, less slow on a stock Falcon, but really needing a TT or above to get the best from it. Again, a wide variety of software can be run. This emulator also makes use of certain physical parts of Atari hardware, the timeless AY Yamaha soundchip!



Going back a bit earlier, to the preliminary of home computing, is the 2nd Life Tiny TRS-80 emulator. This is unique, as it is the only emulator that can run under a mono monitor. Indeed, it will require this. Also, it is the only one that runs fully under GEM (ATOne has a partial GEM interface.) It is fairly understanding of the hardware, and can get something like full speed on a stock Falcon200. It is a very well designed emulator that can run virtual disk images, and even provides tools to network to an actual TRS80 to transfer programs to an Atari. This one ran on a virtually complete version 1.0, but work stopped on it in 1993.



You might expect there have been some fairly serious attempts to do "Atari on

Atari", with emulation attempts of the famous 800 XL series. This has some notably different hardware from the AT family, more in common with the Amiga, and is quite a challenge to emulate. The famous early attempt was *Atariwin* by Derek Hinkley which was the first in a bid to go beyond BASIC programs or try to get the more exotic graphics done.

More recent attempts include *Peter Smith's* *Atari 800*, which is a conversion of a C coded generic emulator for the PC. It is described as very accurate, but needing a brute force TOS computer, as the last speed benchmark described it as only 40% of full speed, even on an 680 Atheros-based Falcon! There is also a less complete, but Atari ASM-coded XL emulator *EmuXL*, slowly being developed by Drisc, which is currently in version 0.17.

Console emulation was always thought to be a bit of a non-starter. That is, until the Response Code came along with their Gerdyn Nintendo Gameboy emulator. This, and the follow-up NES emulator Gerdyns took a different approach to other emulators. Recognizing that a stock 1MHz Falcon was a marginal system for this type of emulation, they opted to patch individual games to run more closely, rather than try to make a generic emulator capable of running everything, but more slowly.

At the same time, individual patching of games allowed for some major enhancements, such as vastly superior Falcon audio, and recolored Gameboy graphics. Recent activity has been limited, but we understand the Code are close to a generic and much more compatible Gameboy emulator, having ruthlessly optimized their codebase to run ever faster and better.

The picture for TOS emulation of other computers is patchy. We seem to be missing our certain classic computers, such as the Commodore 64. Also there has been a notable lack of current PC favourites such as the MAME arcade multi-emulator, although to be fair, we're probably looking at Hades levels of power to carry that one off.

Where there have been other developments, is in the field of soundchip or sound player emulation. Here, there has been quite a lot of activity. For example, although no really good Commodore 64 emulator exists, there are two separate Vidiplay music players, the

## Atari Computing Final Issue Retrospective

Our involvement with Atari Computing has been a bag of laughs from the first issue, and it has been great fun reintroducing a diverse range and wide magazine perspective to a professional paper magazine, sadly missing since AT Forum has the plot, it is sad to see Atari Computing go, but at least they did give us all reason to carry on in that difficult post AT Forum collapse period. I'm pleased they lasted as long as they did! For the Atari demo scene community, the sort of people represented by us, the writing on the wall has related to the contents of a website for some time now.

We've been running in a confident and self-contained fashion for the last few years on the net, and we don't see any likelihood of failure, unless something truly catastrophic, such as the Millennium bug thing really does come to pass.

Don't worry about us, we'll still manage, even without a paper magazine anymore. Check out our 10th anniversary price for next year on the regular Maggie pages.

Chris Holland - Editor of  
Maggie Disk Magazine

one of RaySID, offering full compatibility with the GEM desktop environment on the Falcon. The earlier effort from demo crew Cream has a version for even the humblest of STVRs.

There are further developments in the pipeline here, with a POWER 8-bit Atari soundchip music player being coordinated by the author of RaySID, and even better, a generic Amiga soundchip player, in effect an emulator of the Amiga Fools soundchip, being worked on for imminent release by Cream.

To conclude this article, you may be interested to know there is an excellent website maintained by Homepage Penguin author, Matthew Jupp, which covers just about all aspects of emulation on TOS computers. There's even information on "lost" or rumored emulators, as well as just about all the emulators mentioned in this article. By the way, did I mention there is a Simtel QCL emulator for TOS? I thought not.

This very useful "starter for n00b" and for emulation for TOS computers can be found at [www.atari-computer.de/sjajp/emulators/index.htm](http://www.atari-computer.de/sjajp/emulators/index.htm)

Chris Holland

## SITE SEEING

## Thomas Sahlin's home pages

75%

<http://user.ininet.se/~jyc891w/software>

These stylish web pages are clearly designed to support and register Thomas' Atari software. The site is divided into six main areas:

- **Main page:** This includes news and details what you can find in the other sections.
- **Games:** This includes hundreds of cheats and an online sliding puzzle game.
- **Guest books:** logs or view the guest book, there are comments in Swedish and English and most people seem to like the pages.
- **Software:** This section includes details and downloads of all of Thomas' Atari software including HTML2TXT 2, Myster, a screenwriter, The Poker Machine game and STEqualizer, a utility to play midi and midi samples, which contains the microphone interface included in STallFagsIT's and TT machines.
- **Registration:** This section can be used to register for any of Thomas' free of charge. Enter your details into the form and you'll receive an email containing your personal key.



- **Links:** These are a list item on the ground. Currently there's just one Atari link to Mike Babin's home page and that was broken or unavailable when I tried it.

The Main and Games pages don't display in CSS 1.7, probably because they're riddled with java, but the URL we've included above takes you directly to the Atari software pages which do load - and I've also checked the registration forms work so there are still plenty of reasons to visit these pages.

Jon Cawser

## The Atari Historical Society

95%

<http://www.atari-history.com>

As this is the last site review in the last issue this site seems appropriate. There are a handful of other excellent Atari history sites [we've included their URLs in the notes column] but this is a site I would

along with a truly descriptive and often a specification sheet and this really is one for your Hoobs. Respect to Curt Veedel for creating this cracking site!

Jon Cawser

## SITE NEWS



Here's links to other Atari history/reference sites:

## The Atari Exhibitions

<http://www.jag3.com/~link/atari.htm>

## Atari Time Machine

<http://atari-time-machine.atari.org>

## Back in Time

We reviewed the site in ACQ13 Q08 where it rated 92%.

<http://www.stmuckbooks.com/backintime/>

## The Atari Library

<http://atari.library.seeflink.co.uk/>

## BTMCC 2000 New Site!

Some really cool people may come to the BT Home International Christmas Coding Convention 2000. We won't mention any names because some of them are certain and we wouldn't want to let anyone down. Also "The Mucky Snake's" Serpents Logo of GMAE! Crouton has totally revamped the site and it looks mega cool now to check it out and send them some feedback. Surf over to:

<http://www.bthomeand.net/btcc2000>

## ST-Computer Online

NAUSEA! (sorry, publisher of the German ST-Computer magazine, has moved its web pages to:

<http://www.st-computer.atari.org>

## User Seinet

Home pages moved. Demos of User's commercial software, Diskus, HD-Driver and Outside can all now be downloaded from:

[http://home.slopply.de/~neghabel/atari\\_english.html](http://home.slopply.de/~neghabel/atari_english.html)

## Atari.org Problems

atari.org was down for an extended period during October '99. Richard Dawy explains: "We lost power to our main network centre for over 3 hours. The area larger than the generators can run for (they have approximately two-hour apnoea) and GEM had never been configured to shut itself down properly in the event of power loss. So it crashed, big time. The mechanical and hard drives in the server were fried."

Like many things on the Atari scene, atari.org is run as a hobby on a shoestring, even though it usually offers a professional quality service, and it took time and money to replace the server. They're currently looking for donations from anyone who can help to upgrade the server. For the full story visit:

<http://www.atari.org/>

# Q&A

"Honestly, we've always had many more answers than questions!"

## Thing v1.23e

**Q** I recently downloaded Thing 1.37E because I wanted to use it with Gamulator98 v1.51 running TOS 2.06 on a Windows 98 PC.

**I** Thing loads running Gamulator98 but it can only access the drives once - you can display a menu directory but you can't display another or open a folder or display a text file and sometimes it can't create a clipboard on startup.

**2a** Running TOS 4.04 on a Falcon Thing can access the drives but I then found I didn't have enough information to set it up.

**2b** Double clicking on a file does not bring up a viewer but instead informs me I have no application to view it.

**2c** The applications items on the menu menu have got a Default application in its dialog box but when this is edited, the button to choose the program for it is disabled.

**3a** What is the Default application? Is it what I am looking for as the equivalent to double clicking on a file with an unrecognized extension with the Host desktop? If so, how do I set it up?

**3b** I tried installing Everest using the new button in the Application dialog box because this did enable the button to choose the program. I also used a single " in the menu.

**3c** Double clicking on a TXT file now launched Everest BUT Everest loaded 1 file. One was the text file BUT the other was EVEREST.PRG which of course displayed gibberish because it was 98s object code.

**3g** How do I setup applications to solve these problems? What are all the options for in the Application dialog boxes?

**3a** The help file is in ST-Guide format but I have no idea how to access it from within Thing. It dug up a copy of ST-Guide 1.1 but it does not have instructions for how to set it up.

**3b** How do I set up ST-Guide?

**3c** I used ST-Guide to look at the help file BUT there was no mention of the Default application and there is no proper explanation of how to set up other Applications.

**4a** I was very pleased when I read the review of Thing v1.35 in AC98, it looked ideal for use with Gamulator98 which can

launch windows programs. So far, Thing has not lived up to my expectations because the first thing I tried to do has been unsuccessful which does not inspire me with confidence.

**4b** I would be more than happy to pay the shareware fee if Thing was tied with Gamulator98 and I would like to be able to try it out with a real Atari to see if it works better than Real.

**4a** Does Thing work with TOS800 or any other emulator?

**5a** Can TOS800 launch windows programs the way Gamulator98 does?  
Dave Ansell, no-mail

**A** I it seems likely there's something wrong with your Gamulator installation or some problem accessing partitions with long filenames. Consider upgrading to the current Gamulator release and make sure you can access the problem device/partitions from the TOS desktop before installing Thing v1.23e which should resolve the problems you're experiencing.

**2a** You need to install ST-Guide.

**2b** Thing takes a modular approach leaving you to select your file viewer of choice. Most people install a general file viewer capable of displaying most of the file types you need to view. ST-Guide itself makes a fine viewer and you could also consider 1stGuide, Look's file and imagepro.

**3a** That's normal because it's used to set the options for executing all other programs not on the list - not for setting the program for non-matching files.

**3b** This should now work properly and launch Everest to display any files for which there is not a specific match - of course it will also load any graphics files you double-click on! Ideally you should also install at least one viewer capable of displaying images.

**3c** I assume like you've also added EVEREST.PRG in the "parameters" field - it's not needed.

**3g** Once you have ST-Guide installed you can press the Help button in any of those

dialogs (or load the ST-Guide 1-1P manually via the file selector) and the options are thoroughly explained.

**3a** The current English release v1.3a includes full instructions and is available for download via the Atari-Action webpages at <http://www.atari-uk.co.uk/~atariact/>

**3b** ST-Guide looks for its ST-GUIDE.INF file which should reside in the folder specified by the HOME environmental variable or in the root directory of the boot disk/partition (typically C:) for a hard disk or A:) for a floppy drive.

ST-GUIDE.INF is an ASCII file and can be configured using any ASCII text editor (Everest, qed, Lusa) to suit your requirements - the file is heavily commented so if you load it into an editor you should be able to make sense of the options from there.

**3a** Read the "Tools - Applications..." (General) page which says: The label "Default" application is reserved and denotes the settings that Thing uses when starting all programs that have not been installed explicitly.

It's possible some of the help pages can be more easily reached from the Help buttons in Thing dialogs rather than navigating the hypertext from the Contents page. Setting up other applications is pretty much self-explanatory.

**3a** There is without doubt one of the most popular and powerful desktops available for the Atari platform. It is a "power user" desktop and optimising your working environment does take some time but the hypertext is comprehensive so you do need ST-Guide up and running. Make sure you read the "Applications - General" and "Applications - Properties" sections carefully and note the in about wildcards in the former - Good luck!

**3a** Thing works fine with TOS800 and HucC PC.

**3b** No, TOS800 is a DOS application which runs full screen and takes over the system.

Bob Paxon, Andy G. Bob Paxon, Peter Wren, Joe Connor







# ATARI COMPUTING

## Offers...

Essential accessories for you and your machine - subject to availability. Stocks for some offers are LOW, features and you could miss out!

### BACK ISSUES

Atari Computing Issues 1, 2, 3 and 4 are now sold out but we do have a small stock of other back issues - to get them while we've still got them! Each magazine costs £3.00 including UK delivery.



### MOUSE MATS

Atari Power User and proud of it! Better get one of these top quality mousemats than! These sliding mouse mats are 3mm thick and feature a smooth hard surface and non-slip base. They cost just £4.99 including UK delivery.



### READER DISKS

Individual Reader Disks are available separately from the magazine. Each disk includes software exclusive to Atari Computing which is not available anywhere else. We also have a Specialist HiSoft BASIC Reader Disk compiled by Paul Jones, to accompany the tutorials. All issues are available and cost £2.50 each including UK delivery.

### Steinberg PRO 24 III

£6.99



Steinberg PRO 24 is a MIDI recording and editing application which offers long life compatibility with Cubase. For many years PRO 24 was the preferred choice of artists such as Hidge-Urs, One Straight, Bros, PWL, who all produced hit records using PRO 24.

- 24 Track music system
  - Record, playback and edit any MIDI keyboard
  - Display and print music notation
  - Real-time performance control
  - Totally mouse driven interface
  - Supports standard MIDI files
  - Song files compatible with Cubase
- For just £6.99, including UK delivery you can get in on the action!

### MOVING PIXELS CD

£10.99



An exciting compilation of ready-to-run software programmed by Tony Barker. The source code for all the programs (except Am For Kids) is included and programmers are invited to further develop the software.

- Atari Space shoot 'em up (ST)
- Sketchworks: Full paint package (TT)
- Chambers: Breakout style game (TT)
- Chambers Space flight game (ST)
- Fantastic 3D demo (ST)
- FSlide: TGA cool slideshow (Falcon)
- MIDI Master: Networkable game (ST)
- Official Falcon demo - used by Atari
- Time: Amazing 70Mb demo (Falcon)
- TT Wars: Classic hit-it demo (TT)
- 5th Being: Bouncing ball demo (ST)
- Plus unreleased, unfinished projects

And the price for this classic CD is just £10.99 including UK delivery.

# CYBER PAINT

Cyber Paint is part of the legendary Cyber Series and can be used together with the other programs in the series or as a stand alone program.



£6.99

Cyber Paint is a powerful paint and animation package.

Choose from a host of flexible paint box techniques to create colourful animations. Images can be overlaid and Degas/Neochrome images can be loaded as backdrops.

Cyber Paint has a range of special effects to resize, distort, move and superimpose entire screens, so you can produce video effects - on a standard ST!

- Choice of brush styles, including user definable brush shapes, airbrush and stipple
- Range of drawing tools: Pen, line, polygon, circle and box
- Move, resize, mirror, or rotate picture sections
- Text input in a wide range of fonts and styles
- Automatic image registration to create cel animation sequences
- Real-time scan mode for detailed editing or viewing animations
- Load/Save image sequences from Cyber Studio, Degas, Neochrome, Argus Animator
- Multiple overlaid images - static or animated
- Special animation effects, with automatic intermediate view generation (freezing) on whole screen or selected area.

System requirements: 1 Mb memory minimum. Order form on page 10.

**Order form  
on page 10!**

# FaST Club PRODUCT UPDATE

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| Upgrade to Simulator 3B version 3 with 4MB RAM archive (CD)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | £1.95                   |
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| <b>Collection 4B</b> Positive Image 3, Easy Test Pro, EZ Art Pro, Design Kit, Easy Sketch, Imagecopy 4.1, FontSet Plus, and Family Room. (CD)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | £24.95                  |
| Playshop CD-ROM Offers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |
| <b>Playshop Gold</b> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000 | £9.95-£14               |
| <b>ST Collections</b> all in ST CDs - 10-1, 2nd STP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | £14.95                  |
| <b>Epix Collection</b> 1 & 2 (plus book)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | £11.95                  |
| Fast Club CD-ROM Offers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                         |
| <b>Fast Club Classic</b> Imagecopy 4.1, Teatyle, Catalogued Clip-Art collection, Greatest STP Dig-Art, GDS and Font-GDS, STC Callus Font Collection, Penplus Plus GDS and Signum Fonts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | £19.95                  |
| <b>Fast Club Classic Complete</b> Fast Club PG and Showers Library.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | £14.95                  |
| <b>Fast Club CD-ROM</b> Classic 2000 Callus and Teatyle Fonts, STC Callus Fonts, Penplus Plus and Signum Fonts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | £9.95                   |
| Upgrades and Other Offers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |
| <b>Easy Test Pro Upgrade</b> - return a master disk only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | £1.95                   |
| <b>Positive Image 3 Upgrade</b> - return a master disk only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | £1.95                   |
| <b>Imagecopy disk bases (4) - hold 48 disks</b> plus 96 labels                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | £1.95                   |
| <b>Fast Club Catalogue</b> - 48-page catalogue of all of our Fast products                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | £1.95                   |
| <b>Fast Club News</b> full details on Simulator and the Playshop software (Positive Image, Easy Test Pro, EZ Art Pro, Gold 1/2, etc.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>FREE</b><br>(CD-ROM) |
| <b>Fast Club Delivery</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>FREE</b>             |

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