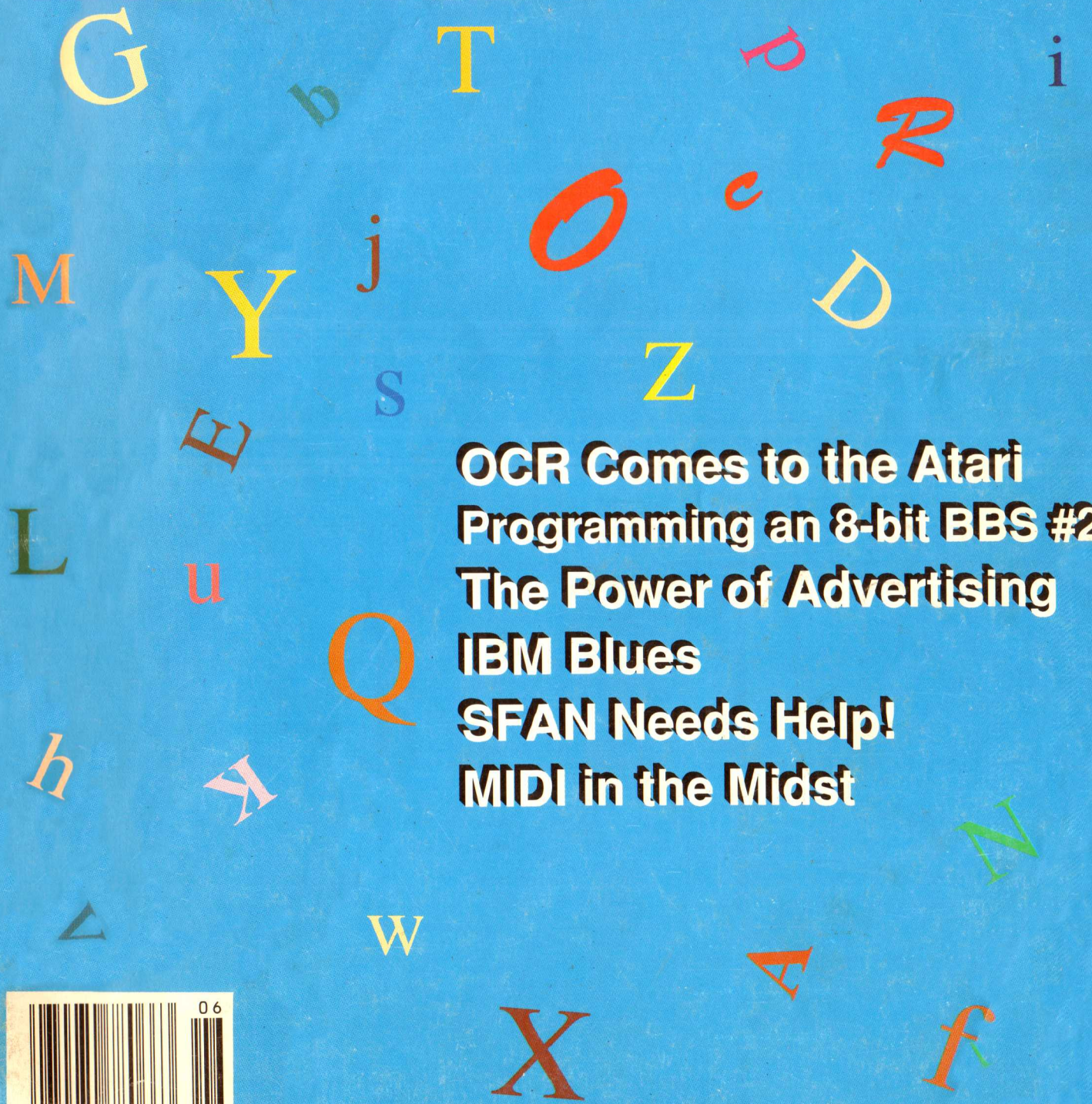


ATARI

VOLUME 4
JUNE 1992

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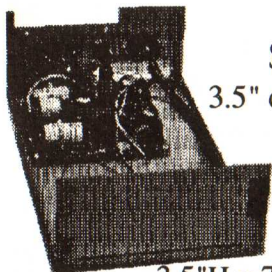
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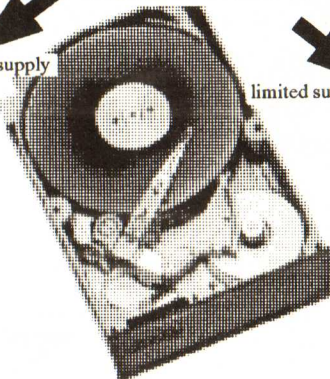
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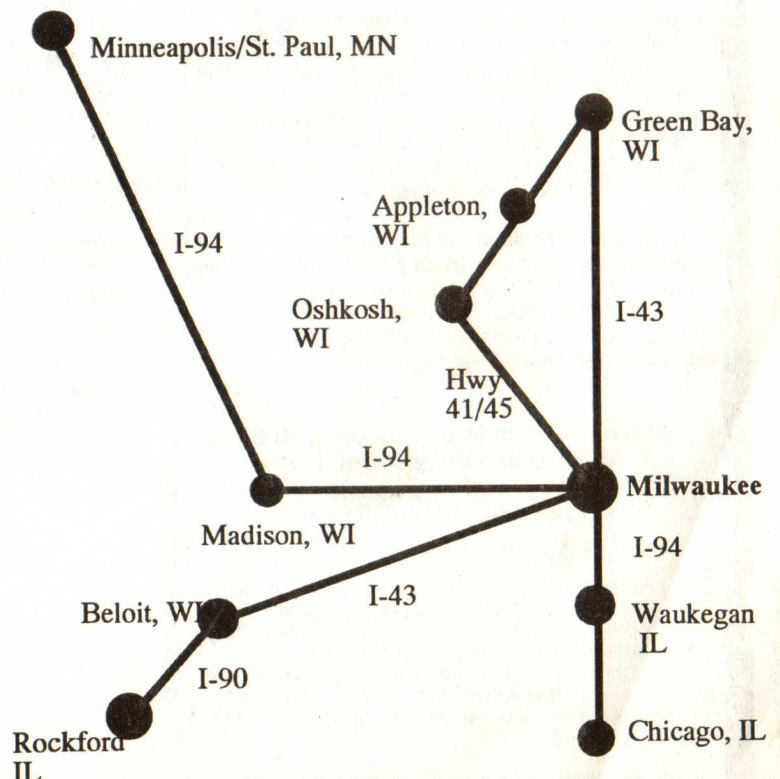
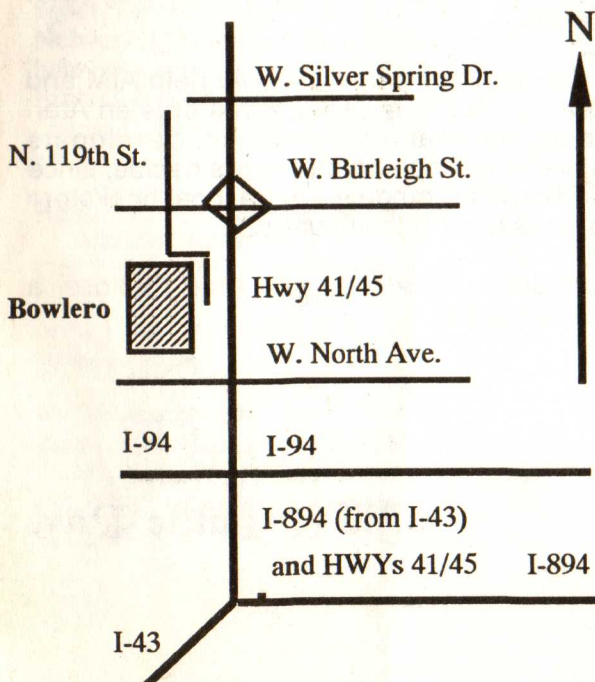
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How to make it to the show: Regional Map

Milwaukee Area:



ATARI INTERFACE

Publisher
Unicorn Publications

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Editor — Bill Rayl

Contributing Editors

Paul Alhart, Ron Hunt, Dave Plotkin

Regular Contributors

Jay Craswell, Ed Hall, Tim Holt,
Charles Kelly, Ellen Lentz, Jeff Wells

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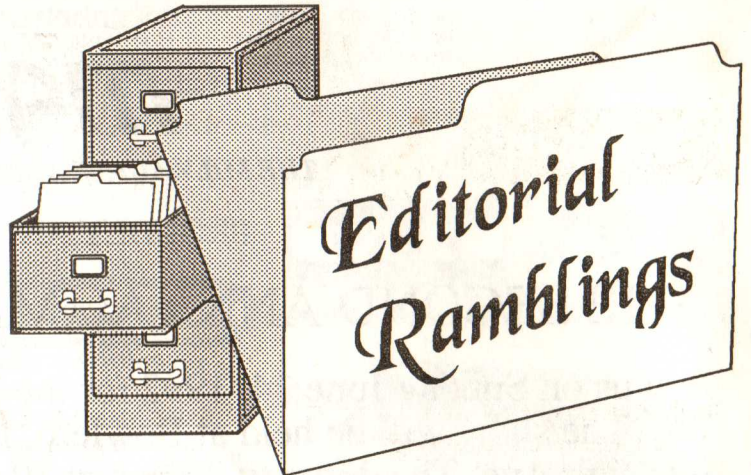
Submissions — Articles/submissions for inclusion in *Atari Interface* can be sent on disk to Unicorn Publications, 3487 Braeburn Circle, Ann Arbor, MI 48108. Submissions can also be uploaded to the Treasure CheST BBS at (313) 973-9137. Standard ASCII text files set block left (ragged right) with no paragraph indents and a blank line between paragraphs are preferred.

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We've heard recently that *Atari Explorer* is about to be moved "in-house." John Jainschigg has shared with us his thoughts against moving out to Sunnyvale (into what some have called "the pressure cooker"). It is his decision to not accompany *Explorer* to Atari Corp. He will do only one more issue from New York.

As you may remember, John pulled *Explorer* out of the ashes after middle managers at Atari Corp. "fired" Betsy Staples and David Ahl. John kept improving *Explorer*, while STart folded, making *Explorer* the "flagship" of Atari-specific magazines. *Explorer* is the only other Atari-specific magazine next to AIM on bookstore shelves. *Explorer* is also the only glossy left in this market.

We feel Atari execs are making a bad decision by moving *Explorer* to Sunnyvale. It is very possible that *Explorer* won't last long in the political tug-of-war at Atari. If *Explorer* ceases publication, it will be a very sad day for all Atarians. It will be taken as a sign that even a glossy magazine supplemented by Atari itself can't make it any longer in the ever-shrinking Atari computer market.

Some may say *Explorer's* death would help AIM and other magazines. This is not true. Each time an Atari magazine dies, the market convulses; developers decide to move to other platforms; users decide, since they can't find an Atari magazine at a local bookstore anymore, to move to other computers.

We wish both John Jainschigg and *Atari Explorer* a long and prosperous life.

Bill & Pattie Rayl

ATARI INTERFACE

Volume 4

Your Connection to the Atari User Community

June 1992

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On the Cover

Taking scanned graphics and turning them into text is the purpose behind Migraph's OCR, reviewed on Page 33.

From The Reader's



Viewpoint

Atari Classics Campaign

My name is Roger Meston and I am the 8-bit librarian for the P3-ACE user group. If you have some time, would you address your feelings and concerns about the attempt by Jeff McWilliams to create a separate 8-bit magazine, presumably against your will?

The people in the club are rather divided over the ramifications of this attempt, but we don't even know if you wish to resist or whether you think it's a good move.

I for one feel he is off-base somewhat. I have been a dedicated Atari supporter since 1979, when I bought my first Atari 800. With an 810 disk drive, tape drive and one program, the bill came to around \$1700, which is crazy by today's standards.

But I have never regretted buying it (I had to re-enlist in the US-AF to buy it with my re-up bonus). As I look back on my career, that was the one crucial decision that took me out of hands-on electronics repair and into the wonderful world of computers, space and all out technology stalking.

I've flown multi-gazillion dollar satellite systems, helped develop and deploy the GPS Navigation system, and handled some of the most incredible multi-media stuff you could imagine. I really feel that I owe it all to that one decision to buy an "over-priced video game."

I've said all that to say this—I really feel the remaining 8-bitners must, absolutely must, stop this ridiculous self-separation and join with the STers and kick the PCs butt! Ok, maybe not, but at least we should use the darn thing to improve our lives, enjoy using it, learn from it and knock off the stupid crap.

I have been following the 8-bit and ST Fidonet feeds for a while

and some of those people are nuts! Whew, we gotta chill out. Anyway, I feel separating out the 8-bit stuff from the ST stuff will not help anyone.

Your publication is absolute genius, and it is an asset for 8-bit owners not to be segregated out. Delineating the platforms will just drive the wedge deeper between "family" members.

I own both, and I would not trade either machine off for anything. I don't favor one over the other as they both have different strengths. The ST has the big power and the pretty face and the 8-bit has affordability and access to zillions of programs. Regular people can get these machines and learn from them, grow with them, and enjoy it all. Man, I just love 'em!

Ok, I'll take my own advice and chill out (puff, pant, whew). Now where was I? Oh yeah, keep your great magazine just the way it is. You have achieved a fine balance between grass roots and high tech. Keep up the great work.

Thanks for listening.
Roger Meston

Dear AIM:

I recently became aware of an effort, headed by Jeffrey McWilliams, to start an 8-bit only magazine. As an avid 8-bitter, I was immediately interested. But what I read in Mr. McWilliams' information kit really disturbed me. His plan is not to just start a new magazine, but to petition AIM to split into two separate magazines.

There are just not enough developers and advertisers to support two separate magazines. Think of how many 8-bit only/16-bit only publications have gone under in just the last year.

Several times Mr. McWilliams implies that this new magazine of his is our last chance to keep the 8-

bit alive. I say it would surely be the beginning of the end of our great support from AIM, and possibly the beginning of the end for AIM as well.

Bill and Pattie, I implore you, do not be persuaded to mess with your fine, well-established publication.

Mr. McWilliams, if you really think you can make an 8-bit only publication fly, go for it. I'll buy it. But don't gamble with the future and quality of AIM to try and pull it off. If you have a base of writers, programmers and advertisers, we would all be ahead if you would encourage them to contribute to AIM. One strong publication is always better than two weak ones.

Paul Alhart
Lompoc, CA

Paul and Roger, having only just received a copy of the actual kit ourselves, we can see why we've gotten a number of responses from people who are against the Atari Classics idea as it is being approached.

Here's basically where we stand on all this. We are very supportive of the 8-bit market and any efforts to help that market survive. Jeff McWilliams, Ben Poehland and others behind the Atari Classics magazine campaign believe the 8-bit market needs some rallying place for developers and users. We agree wholeheartedly with that.

They believe this rallying place must be a national, professionally produced, 8-bit only magazine. While we don't agree 100% with that assessment, we would definitely give our support to such a publication if enough 8-bit owners out there also showed their support by indicating their willingness to subscribe. The recent write-in campaign run by Jeff McWilliams and Ben Poehland was designed to gauge how much support is really out there for their proposal.

Recent reports from Ben Poehland indicate they received over 500

responses from people stating they would be willing to pay \$25/yr for such a magazine. This 500 "target" was arbitrarily set by the people behind Atari Classics. While this might be a feasible number for a small, US-only magazine, a fairly large number of those people responding were outside the US.

When Jeff McWilliams says in the kit that it would be "a little more" than \$25 for non-US subscribers, he's being a bit misleading. It could actually cost close to twice that amount, since Printed Matter mailing rates for a magazine like AIM comes close to \$2 per issue to some countries.

A magazine "like Atari Interface" would not be feasible at those kinds of numbers, even if it was only US-based. At least a couple supporters of the campaign have indicated to us they will only settle for a magazine that is nationally distributed to bookstores, like AIM. That's just not a feasible reality.

Regardless of what the kit from Jeff McWilliams indicates, Atari Interface is most definitely not going to "split off what little 8-bit coverage it now offers" to create Atari Classics. In fact, they did get it right in the kit when they said AIM would "continue serving the 8-bit community as long as 8-bit users express interest."

We have heard a lot of other people's opinions on this matter. Some are very supportive of the separate publication idea. Others want us to persuade Jeff McWilliams and his helpers to focus their support into Atari Interface. We have not attempted to persuade Mr. McWilliams (or anyone else) to start, continue or abandon this effort. We also have nothing whatsoever to do with the form or substance of the campaign. We only indicated our support for the broad ideas on which the campaign was based.

If, however, the Atari Classics people think Atari Interface is going to become an ST-only publication while they put together Atari Classics and we publish that magazine for them, they're wasting a lot of everyone's time.

We believe, as AIM illustrates, that it is better to have more interaction between ST and 8-bit owners, not less. We believe it is better to treat ST and 8-bit owners as equals rather than act as if neither exists in the same reality. We will not turn our backs on that belief just because the Atari Classics people think otherwise.

If the 8-bit community decides it's in their self interest to have an 8-bit only magazine and the Atari Classics people can get enough subscribers to pay for such a magazine, then we will do what we can to help make the publication a reality. But we will not sacrifice Atari Interface and abandon its 8-bit supporters in the process.

You can be sure we will continue to support the Atari 8-bit market in AIM as long as people like you support us. We currently have more 8-bit article submissions coming in each month than ever before and our 8-bit Disk of the Month is doing very well.

Bill & Pattie Rayl

Why Switch?

As summer approaches, and Atari Corp. has once again failed with many of their promises, I hear many of my friends talking about switching to IBM or some other computer...

IBM, with all its glitz and glamour, seems to be the computer of the future...but is it really what anyone really needs?

Definitely not!!!

So many people get caught up in this keeping up with Jones's syndrome. Before you think about switching computers due to Atari's lack of customer support, ask yourself a few simple questions. You may be very surprised at your answers.

What are my needs for a computer? Most people will choose either word processing or playing games. Can an IBM do word processing better than your Atari? Certainly not! Can it play games better? Nope. Can your Atari do

these things satisfactorily for you? Yes, but.... *but what?* But the IBM has so many new things coming out for it all the time...

Ah HA!!! Now we have gotten down to the real bottom line as to why you might consider switching computers...the IBM has more new stuff coming out all the time. If it wasn't for this fallback, you would be perfectly happy with your Atari, right?

Now is the chance for you to make a difference and make Atari know how you feel. Most all of us are in sincere agreement that we love our Atari's and would never switch if Atari would just start listening to our wishes.

The Solution: Write to Atari Corp., Attention Jack Tramiel, Sam Tramiel and Bob Brodie. Send each of these three a copy of your letter. Tell them in no uncertain terms that if they don't wish to lose their loyal Atarian following, they need to bolster their support, in both hardware and software, for both the 8-bit and ST line of computers. Tell them we are tired of waiting, and we want action *now!!!*

If each and every Atarian in the US would take the time to write to these guys and tell them this, maybe we would start seeing more support here in the US instead of watching it all going overseas. The time to act is now, and if *you* don't do it, you are not a true Atarian. *do it!* We can make a difference!

Write: Atari Corp., 1196 Borregas Ave., Sunnyvale, CA 94089-1302

Jason
Vancouver, WA

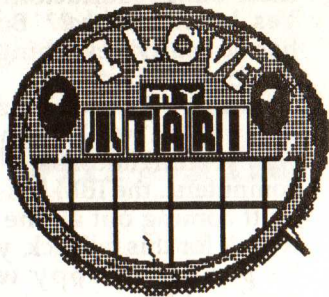
MegaSTE System For Sale

**MegaSTE 4/50 (4 megs, 50 meg internal hard drive)
TOS 2.02 with NewDesktop
MC68881 Math Coprocessor!
16MHz CPU, mouse, external keyboard
Atari SM124 monochrome monitor**

Best mail order price we've seen for similar system is \$1400. Asking \$1,000 firm. Price includes shipping to anywhere in continental US. MasterCard/Visa, certified check or money order accepted. Personal or business checks welcome, but please allow 10 days to clear.

Bonus: System ships with the *entire* Atari Interface ST Disk of the Month collection on the hard drive! Approximately 20 megabytes of self-extracting archives, close to 80 megs when extracted!!

Please contact Pattie Rayl at (313) 973-8825 or at Unicorn Publications, 3487 Braeburn Circle, Ann Arbor, MI 48108.



ATARI BULLETIN BOARD

Atari Corp. News

The major news this month was Atari's losing its \$160 million antitrust case against Nintendo. Atari had filed the suit alleging that Nintendo's licensing agreements with video-game publishers constituted unreasonable restraint of trade. Atari claimed Nintendo had used its monopoly power to force independent software companies to agree to keep hit games from competitors like Atari, and to provide the games exclusively to Nintendo.

The jury found that Nintendo did not have any intent to monopolize the U.S. home video-game market. However, the jury found that Nintendo did have monopoly market power. The nine-member jury, following an 11-week trial, found that Nintendo's video game licensing program had not caused Atari any damages.

The jury was unable to reach verdicts on the question of whether Nintendo's licensing agreement was an unreasonable restraint of trade, or whether this program was the means by which Nintendo acquired monopoly power.

"We are disappointed the jury did not understand the negative impacts Nintendo's exclusive contracts had on competition because of Nintendo's power over its suppliers and customers," said William Jaeger, an attorney representing Atari. "The consumer also loses from this result because the antitrust laws have worked very effectively to maintain a strong competitive environment with lower prices and better choices for consumers," Jaeger said. "This decision will seriously weaken those vital laws."

The judge decided Atari also has to pay Nintendo's legal fees, something in the "six or seven figure range," according to Nintendo. Atari's subsequent appeal was denied.

MetaDOS

Atari's Bill Rehbock has announced that the current version of MetaDOS is available for developers to distribute free with their products. MetaDOS comes with a driver for the CDAR-504 and a driver for any Sony CDU-541-compliant drive connected to a TT. This includes the popular Chinon

CDX-431, the NEC CDR-36, 73, and 83 as well as the Macintosh CD-ROM drive.

Anyone interested in connecting a CD-ROM drive to an older machine should contact ICD or BMS.

Developer News

CodeHead Technologies, under their Working Title US subsidiary, has released Calligrapher Professional and Calligrapher Gold.

Calligrapher is a feature-packed document processor combining some of the best capabilities of word processors and DTP packages.

The CodeHeads are offering a special trade-in discount to owners of other Atari word processors—just send in your master disk for any one of these programs:

Word Writer	Microsoft Word
Word Perfect	1st Word Plus
WordUp	Signum
Wordflair	That's Write
Regent Word	Write On

and you'll get a \$35 discount off Calligrapher's normal price. (You'd get Calligrapher Professional for \$140 or Calligrapher Gold for \$215.)

PostScript output support is included as a standard feature of either version! Calligrapher Gold adds such features as the ability to place text along a user defined path (FlexText), a grammar checker, thesaurus and barcode generator.

Calligrapher Professional and Calligrapher Gold each include ten outline fonts.

If that's not enough, there's an entire library of 60 high-quality outline fonts available from CodeHead Technologies. Font disks are \$34.95 and each disk contains one main typeface (e.g. Garamond, Bold, Italic and Bold Italic).

Calligrapher uses G+Plus (like GDOS) so you are not required to purchase any of these fonts. You can use any GDOS-compatible font with Calligrapher.

For more information, contact CodeHead Technologies, P.O. Box 74090, Los Angeles, CA 90004, Ph: (213) 386-5735, FAX: (213) 386-5789, BBS: (213) 461-2095.

ISAC Board Sale

Dover Research is now selling the ISAC graphics card for \$299.95! If you use an Atari Mega ST2 or 4 for desktop publishing or CAD, you will love this card. ISAC delivers 1024x768 resolution with 16 on-screen colors.

Dover's Jay Craswell can't promise how long this will last, so get your order in now. This is a direct sales deal only from Dover Research. Call (612) 492-3913.

Upgrades Easy as ABC

ABC Solutions is now offering the K-Spread 4 spreadsheet in North America. KSpread 4 offers extensive spreadsheet and presentation capabilities with GDOS output. The Surround Rectangles function enables the user to surround cells or blocks of cells with boxes. By using these boxes, tables and forms can be designed, and shading can be used for added impact. Text can be added in a variety of fonts, styles and sizes. You can use this capability to design self-calculating forms, such as invoices or quotations.

In addition to the presentation features, KSpread 4 includes over 50 convert functions and more than 20 time & date functions in addition to extensive database, financial, logical, statistical and string functions. Date calculations, sorting, user defined functions and extensive macros (generated by either learning or programming) are among the features of this package. Lotus WKS and WK1 files can be loaded and saved directly, without the need for a conversion program, as can DIF and ASCII files. K-Spread 4 costs \$169 US (\$199 CAN).

Also available is K-Spread 4 Lite, with all the features listed above except Macros and the GDOS features. It is fully upgradable to the full K-Spread 4 program. K-Spread 4 Lite sells for \$89 US (\$99 CAN).

Owners of A-Calc, A-Calc Prime or any version of K-Spread may upgrade to K-Spread 4 by sending in your master disk and a check or money order for \$79 US (\$89 CAN). To order, send check or money order to ABC Solutions, 4040 Creditview Road, Unit 11-151, Mississauga, Ontario L5C 3Y8 or call (416) 824-8484.

PageStream Offer

Soft-Logik Publishing has announced a special PageStream upgrade offer for owners of other Atari DTP packages. Owners of any other Atari desktop publisher can upgrade to PageStream 2 for only \$120. This offer expires on August 31, 1992.

To take advantage of this offer, send the following to Soft-Logik:

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- Your original program disk OR a photocopy of a disk or registration card showing your registration number
- Your name, address, telephone number
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- \$5 for shipping (\$15 outside of USA and Canada)

Upgrading from Publishing Partner is \$100, and upgrading from any version of PageStream is \$75. PageStream owners can easily upgrade over the phone. PageStream 2 retails for \$299.95. Contact Soft-Logik Publishing at 11131 F South Towne Square, St. Louis, MO 63123, (800) 829-8608 or (314) 894-8608, FAX: (314) 894-3280.

Portfolio News

Atari has released a new software application for the Portfolio handheld computer. Hyperlist is a unique filing system which revolutionizes the way data may be organized in the Portfolio. Often described as an "outliner" or "database," Hyperlist provides the opportunity to create extensive lists, then attach "child" lists to each item in the "parent" list. On paper, the data flow resembles an organizational or flow chart.

"This new system on the Portfolio opens many doors of opportunity", states Donald A. Thomas, Jr., Portfolio Marketing Manager at Atari Computer Corp. "The software is easy to use, powerful and flexible all at the same time." Specific target markets include education, sales, medicine, law and just general purpose.

Hyperlist retails for only \$49.95. For more information on the Portfolio and its applications, contact Don Thomas, Portfolio Marketing Manager, 1196 Borregas Ave., Sunnyvale, CA 94088, (408) 745-2000.

An on-line newsletter called Palm To Palm is available from Perfection Applied for those new to palmtop computing or those that have a palmtop future. It's available in the PALMTOP and APORTFOLIO Forums on CompuServe.

For palmtops users that want tips, tricks and help, Perfection Applied offers Take It With You, a bi-monthly newsletter for palmtop computing. Subscriptions to Take It With You are \$18 a year. Send check, money order or cashier's check to Perfection Applied, 454 West 1010 North, Orem, UT 84057, ATTN: Palmtop newsletter.

People looking for a carrying case for their Portfolio may wish to check out Ultrasoft's deluxe case selling for \$29.99. The case is described in their catalog as "black polyurethane outer shell, water-proof, reinforced wrist strap, nylon zippers, size 8.8 by 5.8 by 2.5." The main section holds the Port and spare batteries. An auxiliary compartment has document pouches, RAM-card pockets, and pen and business card holders. A pocket in the auxiliary section adds space for a parallel interface and cable. To order, call (514) 487-9293 or write Ultrasoft at One Transborder Drive, PO Box 247, Champlain, NY 12919.

Upcoming Atari Shows

The 1992 Blue Ridge AtariFest will be held at the Westgate Shopping Center in Asheville, NC on July 18th from 10am to 6pm. Take any major highway into Asheville (US-19/23, US-26 or I-40) to the I-240 loop, then take the

"Westgate/Hilton Inn Drive exit" into the Westgate Shopping Center parking lot. For more information, contact Van Estes (BRACE Pres.) at (704) 685-8358 or Sheldon Winick (Computer Studio) at (704) 251-0201.

The fourth annual MIST Atarifest will be held on Saturday, July 25. The show runs from 10am to 5pm and will be held at the Castleway Conference Center at 6385 Castleplace Drive, Indianapolis, IN. This air-conditioned location on the north side of Indianapolis has ample parking and is close to several major highways, many fine restaurants and hotels, and the largest mall in Indianapolis.

Public admission is \$3 and includes a raffle ticket to win one of the many hardware and software items donated by attending vendors and developers. Vendors may purchase booths (8x8) at \$50 each. User groups may purchase booths for \$10 each. Only a limited number of user group booths are available. For more information, contact Dan Ward via GENIE at (D.WARD10) or give him a call at (317) 254-0031.

Weekend Shows

Several Connecticut Atari user groups are joining forces to stage a two-day show later this year in Hartford, CT. The event is scheduled for August 15 and 16 at the Sheraton Hotel at Bradley International Airport, Windsor Locks, CT.

The show showcases the latest Atari products and services and includes seminars on desktop publishing and video production, hands-on instruction from manufacturers and software developers, MIDI demonstrations, giveaways, 8-bit support, a swap room and much more.

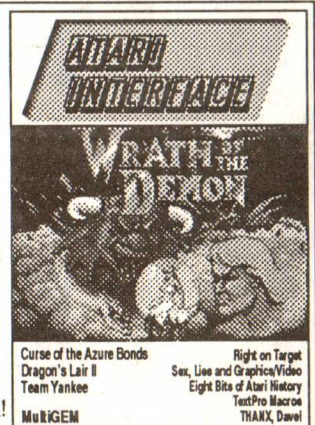
For more information about Connecticut AtariFest '92, contact Brian Gockley at 18 Elmwood Avenue, Bridgeport, CT 06605, (203) 332-1721 or Doug Finch at (203) 637-1034.

The Washington Area Atari Computer Enthusiasts are currently planning WAACE Atarifest '92 for October 10th and 11th at the Sheraton Reston Hotel in Reston, Virginia.

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Right on Target



David Plotkin
Contributing Editor

I've been reading about Double Click Software's newest product, Data Diet. What it does, essentially, is automatically compress your data when it is saved to disk, and decompress it automatically when that data is loaded back in from disk. This can result in a significant savings in disk space, enabling you to save much more information on a hard drive (or floppy).

Disk compressors have been big business in the PC world, although, curiously, they have yet to make a big impact on Mac users. My suspicion is that, even though PC hard drives are cheaper than just about any other kind, replacing a PC hard drive is also a bigger pain than replacing a hard drive on any other kind of machine. This is primarily because most PC hard drives are internal, and changing drives thus requires opening up the machine and, occasionally, replacing an interface card or even the BIOS. Not easy or cheap.

Even though replacing an Atari hard drive is simply a matter of plugging a new one into the right port, I am still surprised it took so long for someone to come up with a disk compressor. Atari hard drives have been historically expensive. This is primarily due to the fact that they require a special adapter to turn SCSI signals into ACSI signals—and SCSI hard drive are among the most expensive kind.

At any rate, we now have a disk compressor, and by all reports, it is very solid—that is, no corrupted data. This is *very* important—it doesn't matter how fast or efficient a disk compressor is; if it fouls up the data, there can be hell to pay.

I remember using a PC disk compressor on my laptop computer. It worked fine until one day—*poof*—the entire hard drive was corrupted. I was able to restore everything from backup except for about two hours of work in

WordPerfect. Needless to say, I never reinstalled that disk compressor (or any other one) on the laptop. Once burned, forever shy.

Disk compression can reduce the size of files by quite a bit. Exactly how much reduction occurs depends a great deal on the file, as we shall see shortly. However, on average, a set of computer files can be compressed to about 50% of their "normal" size. Program files reduce very little, while many database files can be reduced to less than 10% of their original size! For example, a dBASE IV file that was well over two megabytes compressed to 110K—a 95% reduction.

In order to understand how disk compression works, you need to understand that a data file on the disk is nothing more than a string of characters and numbers. In the case of a program file, these characters and numbers tend to have very little repetition, while data files for word processors and databases and spreadsheets tend to have quite a bit of repetition. The ability of a disk compressor to reduce file size depends directly on how much repetition of character strings there are in a file.

The most often used compression scheme is named for two Israeli mathematicians, Lempel and Ziv (and hence called Lempel-Ziv compression). Essentially, their scheme scans through the file to be compressed and identifies repeating strings of characters. Each string of characters is converted into a "token"—a smaller string (often just one or two bytes long) that represents the longer string in the file. Everywhere the long string occurs, it is replaced in the file with the token. A table is constructed that identifies the correspondence between the tokens and the repeating strings, and this table becomes part of the file.

This, by the way, is one of the advantages of Lempel-Ziv: it is self con-



tained, and has all the information necessary to extract itself.

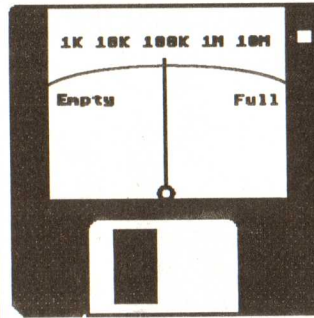
Of course, you would expect the act of compressing and decompressing a file would slow computer performance. It can, and often does slow the ST somewhat, but on machines with faster processors (such as the TT) you can actually get better performance with compressed files!

This is because there is a tradeoff in dealing with compressed files. The CPU has to do the work to compress or decompress the file—and that takes time. However, there is less data to move to and from the hard drive. Since disk access is quite a bit slower than the CPU, a significant reduction in file size can actually cause an overall increase in performance, especially when the computer is equipped with a fast CPU. Neat, huh?

Some PC compression packages even have coprocessor cards that speed up the compression and decompression steps further, but their increase simply isn't worth the loss of a "slot" in the PC.

At any rate, if you are running short on hard drive space, Data Diet from Double Click is certainly worth considering. It is virtually invisible to you—doing all its work in the background. There is even a set of utilities that tell you how much space you are saving. Even better, the setup utilities can compress the files you already have on your disk, so even that part is relatively painless.

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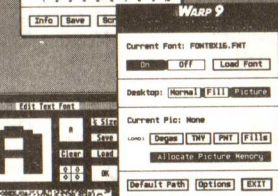
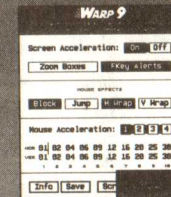
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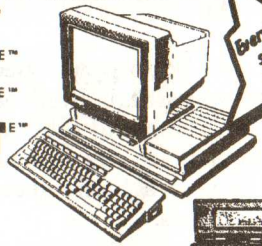
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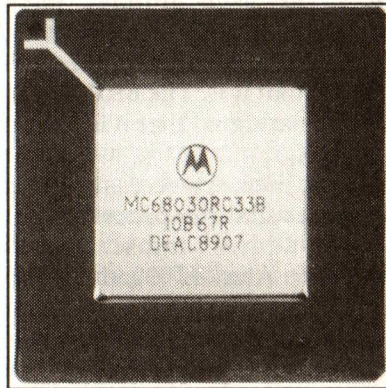
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'030: The New Standard



The new standard in Motorola 68000-based family of personal computers seems to have become the 68030. Al-

most all of Apple's current line of machines use at least a 68030 processor and Commodore's Amiga line seems to be moving in the same direction. With the Atari Falcon '030 machine that has been reported at various shows, and the already released TT030, it would seem the Atari line will also come to use this processor as its standard. Let's take a close look at the 68030 and the capabilities it brings to the world of Atari computers.

George
Richardson

The 68030 processor, as it was originally designed, incorporated all of the techniques Motorola's engineers could think of to add more power to a microprocessor. Like its predecessor, the 68020, it has both a 32-bit addressing range and a 32-bit wide data path. It improved on the single cache in the 68020 by including separate caches for data and instructions.

It also has the ability to access memory in a number of ways, each of which makes a good compromise between speed of access and control of the memory, allowing the 68030 system designer to get the best speed where it is most needed.

Memory Interfaces

The 68030 was given an interface for standard 8-, 16- and 32-bit asynchronous memory accesses, to enable it to be interfaced to all standard memory and peripheral devices. The "asynchronous" refers to the fact that, like the previous members of the 68000 family, the 68030 can address memory that is not run on the same clock signal that it is. The 68030 will wait for the memory or device to signal that it is ready to send or receive information.

This is the slowest memory access method on the 68030, since it requires that the processor determine the memory size and address and set its control signals accordingly. In the Atari TT030, the so-called "ST RAM" is accessed this way.

The 68030 also has a special interface for faster memory accesses that are synchronized to the 68030 clock. This is called, strangely enough, the synchronous interface. This allows faster memory access than the asynchronous method, because less internal circuitry is involved. This interface requires 32-bit wide memory to work, since Motorola had to bypass the part of the circuitry that handles different data path sizes in order to increase the speed for these accesses.

The last external memory interface is a variation on the synchronous interface, and it is probably the one most people who have heard anything about the 68030 know about. It's the burst mode interface. This interface allows the system to fetch four 32-bit words from memory in less time than it takes to get two words by the asynchronous method, or three by the synchronous method, if the memory system is fast enough.

It does this by only sending out the first, or what's called the "opening," address of the burst mode access. The memory itself is then responsible for automatically incrementing the address and informing the 68030 that it's ready to send or receive data. Since the 68030 only sends out the starting address, the address circuitry is only used on the starting address of the burst. The next three accesses don't use it, eliminating any additional delay for them. This is what "Fast RAM" or "TT RAM" on the TT030 and 68030 SST board use to get their speed.

One interface that was present on the 68000 chip is missing from the 68030 (and the earlier 68020). It was referred to as the 6800 peripheral interface. This interface was used to allow the 68000 to easily interface to chips designed to run off of the phase 2 clock of the old 6800 microprocessor line. This allowed 68000 designs to make use of the plentiful 6800 family interface chips, since, at the time of its release, there were few chips capable of running at the 68000's 8MHz clock frequency.

In the Atari ST computers, the two 6850 ACIA chips used for the keyboard and MIDI interfaces use the 6800 peripheral interface of the 68000 chip. External circuitry is used to duplicate this interface for the 68030 chip in the TT and SST board.

Cache

Besides the external memory interfaces, the 68030 also incorporates control logic and 512 bytes of static data RAM for two internal memories—the data and instruction caches. These memories are used to store recently used data and instructions and supply them to the processor faster than external memory can.

Whenever the 68030 reads data from or writes data to an external memory location, it simultaneously stores that address into what is called an address tag memory in the data cache and writes the same data that comes from or goes into the external memory into the cache data location referred to by the address tag. The ability to put an address into the data cache during a write operation is selectable by a control register.

When a read or write of external memory is required, the cache system checks to see if there are any tag locations that match the address of the external memory being addressed. If there are, it reads the data in the cache location associated with the tag rather than waiting the extra time required for the external memory to supply the data.

On a data write, if the address is already in the cache, the system writes the data to both the cache and the external memory. The instruction cache only caches instructions read from memory. All writes to memory are considered data.

The cache in the 68030 can supply data to the CPU in one clock cycle, or less in many cases. Besides that, it is possible for the 68030 to fetch both data and instruction codes at the same time by fetching one from the cache and the other from external memory.

All of the previously mentioned methods of accessing external memory can feed information into the cache, but the burst mode method is set up only to feed memory into the cache. If the cache is not turned on, then the burst mode can't be used either. There are a number of methods of controlling the cache system. The two caches can be individually turned on and off by internal register bits.

Controlling Cache Usage

There are also some external signals that can be used to control and monitor the functioning of the internal cache system. The most important of these is the cache inhibit line, which external hardware (the system the 68030 is connected to) must use to prevent the 68030 from caching any memory locations that it should not.

On the ST, this line must be used to prevent the caching of any hardware registers like the serial port, parallel port or DMA hardware registers. If this isn't done, then the 68030 may end up fetching data from the cache rather than from, for example, the hard drive, resulting in a loaded file or program that consists of the same data repeated over and over. Considering most programs seem to be made up of more than one instruction, this does not turn out to be a

good thing, so this line must be asserted during hardware accesses to prevent this.

Unfortunately, there is a small bug in the 68030 cache system that allows the 68030 to ignore the cache inhibit line during word wide (16-bit) writes to memory. Once the cache entry is made this way, the system will continue to use it regardless of the state of the cache inhibit line during an access. Fortunately, on the ST the hardware registers are all 8-bits wide, so this bug doesn't ordinarily affect the ST. At least it should not. It is possible to make a word wide write to the hardware, though, so this could cause a problem.

MMU

This brings us to the next major portion of the 68030, and the one that is the difference between the 68030 and all the previous versions of the 68000 family. This is the MMU or Memory Management Unit.

Don't confuse this with the Atari MMU (now called the MCU), because they have almost nothing in common besides an acronym. The ST's MMU is actually a DRAM controller; it is the "life support" hardware for the DRAM chips. It allows the DRAMs to be accessed by the rest of the hardware, including the video, DMA, DMA sound and CPU. The 68030 MMU is different. It is an internal 68030 system that controls how the 68030 interacts with external memory, rather than hardware for controlling and supporting external memory.

The 68030 MMU actually sits on the address lines between the 68030 CPU and the address pins on the chip itself. When it's turned on, it uses a set of tables to determine what action or address will result from the 68030 attempting to access a particular address. These tables can either be in external memory or in still another cache exclusive to the MMU called the Address Translation Cache. The purpose of this cache is to speed up the fetching of translation information from memory. If the number of translation tables is small enough, they can all fit inside the cache, which make the MMU translations completely invisible as far as speed goes. If the MMU must search external memory for the tables, then CPU memory accesses can be slowed down considerably.

The addresses generated by the 68030 CPU are referred to as logical addresses. For instance, the CPU may execute an instruction to read from memory location \$10. Address location \$10 is the logical address of the read. Depending on the setup of the 68030 MMU, however, the physical address generated at the output pins of the 68030 chip may be something completely different. For instance, it's possible to program the 68030 MMU to make the 68030 access location \$1000010 whenever it tries to access location \$10.

MMU Uses

The MMU can also be used to prevent the 68030 from accessing certain areas of memory at all. This is useful for implementing multitasking setups. The MMU can be set up to prevent different tasks from

messing up each other's memory spaces. This can allow one task to crash without affecting others, thus allowing the other tasks to continue, or even crash on their own, if that's what they do.

The MMU can also be programmed to disable the internal caches on accesses to any or all memory locations. This is how it can be used to correct the bug in the cache inhibit line.

The MMU gives a programmer incredible control over the behavior of the computer. It can be used for simple debugging tasks by limiting the ability of a program to just access areas of memory and hardware that it's supposed to, and trapping for any unintended accesses to memory locations it should not touch.

It can be used to simulate memory or hardware that the system does not actually have. It can even be used to set up multiple "virtual machines" in a system—a "virtual Mac," "virtual Amiga" and "virtual Atari" could all be running at the same time on a system that was not any of the three. Of course, this all requires a great deal of programming, but it is all possible through use of the MMU in the 68030.

The 68EC030

All of the above information on the MMU does not apply to the 68EC030 chip. The EC chip, as I'll call it, is originally the result of Motorola's attempt to make use of 68030 chips that failed testing. In physical area, the MMU circuitry occupies more than two-thirds of the 68030 chip. This means, obviously, that the majority of

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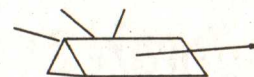
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68030 failures were likely to be in the form of some problem with the MMU.

Motorola decided to test the defective chips with the MMU disabled, meaning that only the two transparent translation registers in the MMU would function. As long as those functioned, it was still possible to correct the cache bug, although the 16 megabyte size of the block affected by the transparent translation registers was very coarse.

Since this "new" chip put some constraints on the design of any systems that used this subset of the 68030's functions, Motorola called this the 68EC030. The EC is short for Embedded Controller, a name used to refer to microprocessors used in systems commonly designed to run software specially written to control industrial equipment or other dedicated systems. In this fashion, Motorola felt the designer who used the chips would not have to be concerned about software written by third parties that either assumed that any 68030 was the fully functional version or that attempted to access hardware in such a fashion that it got caught by the cache bug.

An EC running in an Atari, or other 68030-based computer, can still run safely either by switching off the data cache, which takes a sizable toll on performance, or by using the transparent translation registers (referred to as the Access Control Registers) to make all supervisor mode data accesses non-cacheable.

This takes a much smaller toll on performance on an Atari, but since the Macintosh runs in supervisor mode all the time, these two methods work out the same when the EC is used in the Mac.

Since the data cache must be disabled during these situations, burst mode is also disabled, since it requires the cache to operate. For systems that use burst mode accesses, this causes an even greater slowdown.

It's possible to run an EC chip without taking any precautions at all, but if some software goes directly to the hardware with a word wide write, it may cause problems.

This doesn't mean the 68EC030 should not be used for accelerators or computers; it just means that compatibility becomes the burden of the hardware designer rather than Motorola or the software developer. Atari does not currently plan to use the 68EC030 in a computer, so this doesn't seem to be something we have to worry about.

This should give you a taste of the features of the 68030. As you can see, it has the performance and capabilities to raise Atari computers to a new level of power. Once enough 68030 machine are out there to spur on developers, you'll see applications for your Atari computer that you've never seen before.

[About the Author: George Richardson of Merlin Group, Inc. is the designer of Gadgets by Small's MegaTalk board and SST 68030 upgrade. He can be reached via CompuServe at 75275,1363 or via GEnie at G.RICHARDSO1.]

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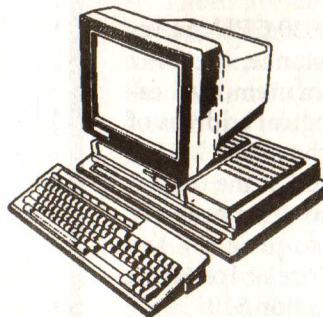
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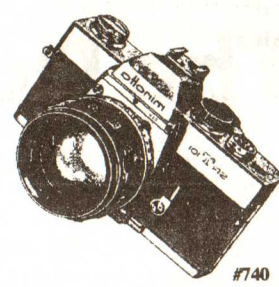
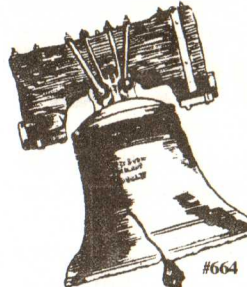
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The Power of Advertising?

**Tim Holt
ACCEPT**

I've never met John Scully, CEO of Apple Computers. I have also never met any of the Tramiels. I would venture to say, however, that if John Scully called up some company—say, WordPerfect—and said "Jump," the folks at WordPerfect would ask "How High and Where is the Hoop?"

If Sam Tramiel called up a company—say, WordPerfect—and said "Jump!" the people at WordPerfect would probably say something like "We'll have our people call your people, and we might do lunch. OK?"

Therefore, when I hear or read an article about John Scully, I will venture to say a lot more people pay attention to it than a Sam Tramiel article. With that in mind, I relate a recent item I saw involving John Scully.

While looking through a recent *Newsweek*, I ran across an ad for the American Association of Advertising Agencies (AAAA). The ad contained some quotes from John Scully about the effectiveness of advertising in today's market. I got to thinking about the Atari advertising campaign that seems to be getting off the ground now, and what might have happened if Atari had advertised a few years ago.

"The landscape is strewn with the wreckage of fine companies who built great products—that no one ever heard about."

Do you *still* have to explain to your peers that Atari is not a game machine? I do. Just recently, I was trying to convince a fellow teacher to look at an Atari MegaSTE, like I own. He looked at the Atari brochure I handed him—it even had a pop up of the MegaSTE/4. The title of the brochure was "Mega STE: Business Computer."

After looking at the brochure, he asked, "But does it run *real* programs?"

Real programs?!? I couldn't help but think that if Atari had really pushed the ST line of computers a few years earlier, I still wouldn't have to be answering questions like that.

"Advertising builds brands."

I recently got into a "friendly" discussion on a local BBS about MIDI music and Atari. A fellow BBSer said he started out with an Atari for MIDI, but he switched to an IBM because his fellow students all used IBM machines.

I replied that Atari cannot be beat for MIDI, but he put up a decent argument that since no one else at his entire University music department used an Atari, he felt like an odd ball.

Peer pressure is very important in the world of computers, and although word of mouth is important, there has to be a first person to buy a computer. That "first" person will, more likely than not, be influenced by advertising.

It was nice to see the ads in *Discover* magazine in the last few months, and I hope that type of advertising continues. However, I must confess I was a bit confused as to why Atari would run a MIDI-oriented advertisement in a science/education magazine. Who are they trying to target here? Do a large number of professional musicians read *Discover: The World of Science*?

Would not an ad that demonstrated the educational benefits of the ST/TT be more appropriate here? *Discover* is published by the Walt Disney Corporation, so how about an ad showing how easy it is to draw and animate Mickey Mouse?

Who is Atari advertising to? Granted, the same MIDI ad ran in *Keyboard Magazine*, and that was a very appropriate place to put a MIDI ad. But a MIDI advertisement in a science magazine? I wonder...

"Most of our competitors of 1981 no longer exist. Some had great products. What they forgot to have was great advertising."

How long will Atari advertise? How long will Atari exist? I believe those two questions go hand-in-hand. Have you ever seen an advertisement for the TT? Have you seen an Atari ad in a place where you really did not expect to see one? Unfortunately, all the ads I have ever seen for the Atari line of computers were ones where I had to actually go out and look for them.

Have you seen any recent Atari ads in *BYTE*? In *Newsweek*? In *Time*? Sure, for the Portfolio, but what about the computers? We have been told the MegaSTE and the TT are the "flagships of the fleet," the pride and joy of Atari Computer.

Okay, let's put the money where the mouth is. Sam, Leonard, time to call up *BYTE* magazine—or have Bob Brodie do it, since that's now part of his job. Tell *BYTE* you will spend \$X million in advertising in 1993 if *BYTE* starts running some decent articles about the Atari line of computers.

And I don't mean Jerry Pournelle telling us how he hasn't had time to look at the TT or that the boot up time is 12 seconds too long for his taste. I'm talking *real* articles, about productivity, hardware, etc.

By the way, if you think it sounds a little immoral to demand good press for advertising bucks, welcome to the real world folks. I don't think I have ever seen a bad review for a movie in *Newsweek* if the movie had a full page ad running there.

Demand the coverage. Let us see that Atari's management is as proud of these computers as the users who still buy them. Let us see that you are truly behind the "flagship" of the fleet. I challenge you to start advertising. Big time!

If you people in Sunnyvale still think advertising is not the way to go, consider that Coca Cola and Pepsi spend *billions* a year on advertising. Why? Surely they have worldwide name recognition. Surely the product pretty much sells itself. Why would they advertise so much? Because they know that even the slightest edge can translate into big bucks. A one percent increase in sales, due to an advertising campaign, easily pays for the ads. Profits increase. Sales increase. Everyone is happy.

"Advertising lets you express not only what you are, but what you are trying to become. It's not just a selling tool, it's a leadership tool—a flag on the mountain to rally and inspire your people."

It is time to rally and inspire. Let's get some severe ads going. Not just MIDI...not just DTP...but ads for everyone. Put them in *Good Housekeeping*, *Playboy*, *Life*, *Time*, *Newsweek*! All are very nice vehicles to take the message out to the world that "the Atari is a kick butt computer, and if you don't own one, you are falling behind the rest of the world." No more excuses about lack of product. No more excuses about this shortage and that shortage. The only shortage coming from Atari now is advertising. We're at the correct spot in the correct medium. The US is ready. The question is: is Atari ready?

"Only advertising can communicate not just information, but emotion and soul."

I know of no other product that inspires loyalty like the Atari computer. There are thousands of us out here that, through richer, poorer, sickness and health, have stuck by these machines. Surely, that emotion, that loyalty, that love, can somehow be communicated through an advertising campaign. I look forward to seeing it.

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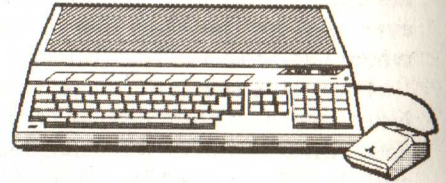
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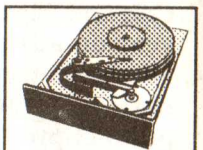
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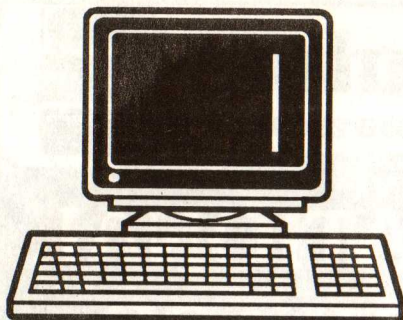


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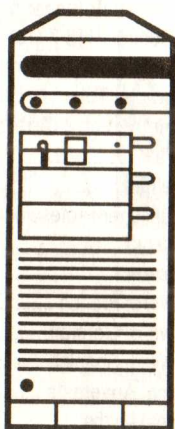
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Next Month
Look for MIDI
Software!



IBM Blues

Michelle Gross Milatari



The declaration "Atari users are dropping like flies around here lately" was recently posted on our own Milatari BBS. It can hardly be argued. User groups are folding. Many who are still in existence are cutting back on services.

I'm sure you have noticed the advent of MAC and IBM public domain collections being offered by AIM and other user groups, including my hometown club, MilAtari. This indicates the more widespread use of emulators.

Disgruntled 8-biters who have held out upgrading for so long are not upgrading to the ST, STe or TT and longtime Atarians are buying IBM compatibles or Macintoshes. Yes, the Atari user base is shrinking.

A fellow user group member was heard to say "I would not recommend an Atari computer to a friend. There just isn't enough software available out there." I can understand his attitude. I was recently in a position to promote the use of an Atari Computer, and I resisted because of that same uncertainty.

Not long ago, I became involved in a newsletter committee at our church. Church leaders were interested in

starting a monthly newsletter to improve communications and reach out to the poinsettias and Easter lilies of the parish. They wanted the newsletter to be put together in-house, and they were considering similar changes with their weekly bulletin. Computerizing parish records was also in the works.

A separate committee was formed about that time to purchase the computer for the parish. Naturally, I joined that committee as well. (MilAtari members would appreciate this, as I seem to be known for my propensity for joining committees). It was assumed from the onset that the computer would be an IBM compatible. One committee member owned a Macintosh and I own an Atari, but the assumption was still IBM. For a variety of reasons, I bit my tongue and resisted the urge to recommend looking at alternatives.

Eventually we purchased an IBM compatible, an overpriced and overrated church census program, and desktop publishing software. I was offered the position of Newsletter and Bulletin Editor, and I took the job.

I've now had firsthand experience using the "other" computer.

In the meantime, my dad developed a need for a home computer. Again, I felt that twang of guilt, and the hesitation in recommending the Atari for all the right reasons: you can't find many dealers, the software is drying up, no local stores carry Atari software, there are no glossy magazines, etc., etc., etc.

Dad lives in South Carolina and we had planned to pay him a visit right after the Chicago ComputerFest by Atari. After having been to an all Atari show, we were all pumped up over our own brand of computer. We then thought we would take the opportunity to visit the "infamous" Atari store, Computer Studio, in Asheville, North Carolina, a mere hour from my dad's home.

On our initial visit to Computer Studio, Dad took along some MS-DOS software he had received as a result of his own volunteer activities. Because he expressed an interest in being able to run the software, Sheldon Winick, the store's owner, showed him the IBM clone he carries for just that type of customer. My heart sank. However, after careful



evaluation of what exactly his needs would be during the drive home, we came to the conclusion that Dad didn't need to run that software at all.

Meanwhile, I had gained more and more experience on the IBM clone at the office. Although I initially welcomed the thought of learning a new operating system and getting a feel for the IBM world, I quickly became disillusioned with Big Blue. I acquired a new appreciation for my little orphan at home. Once, after an especially difficult day at the office, I came home and blurted out, "If we had bought an IBM, it would be upstairs collecting dust!!"

My frustrations lie with the complexity of basic operations such as copying and deleting files, formatting, and even viewing directories. For seasoned 8-bit users, perhaps the MS-DOS environment is like a summer home, but for people who have never used a computer, or for ST-only users, this DOS is a nightmare come to life!

Installing programs is not simply a copy and run operation as it is with the Atari. Many programs require a change to the CONFIG.SYS or AUTOEXEC.BAT files, which the computer reads at boot up, similar to our own AUTO folder programs and accessories in an odd sort of way.

Are you used to loading your favorite accessories and fond of some of the AUTO folder programs on the ST, like Universal Item selector, Image Viewer, or the countless others available to us commercially and in the public domain? Well, forget them all...in fact forget the concept of accessories and boot disks in the IBM world. There are no boot disks, item selectors, or accessories as they exist on the ST (except under PC GEM, which is pretty much unsupported on the IBM, or under Windows, which is extremely slow on most systems).

While we're on the subject of item selectors, the MS-DOS way of handling files is unbelievably lacking...at least in the software I'm running. I found out very quickly why hard drives are not partitioned into smaller, manageable sections in the IBM world.

In my mind, there is something very logical about the use of directories and subdirectories for managing your programs and files. I rather like the use of partitions on my hard drive, so I don't have to wade through endless folders and files to find something. Having drive partitions set up—one for DTP, another for CAD, a small partition for games, and of course your boot drive partition—with folders/subdirectories for various programs is a neat and organized system.

The IBM item selector does not allow you to read the contents of floppy drives (or partitions) by the click of a button. Instead, one is reduced to command line entries while in the item selector to see what is on drive A or B. Yuk! None of the replacement item selectors I've seen within programs or shells or Windows even comes close to the ease of disk and file management from the Atari desktop.

Support is not what you would think in the IBM

world, either. I was amazed to find that many support lines are...would you believe...900 numbers?!? Could you imagine the uproar if ISD, Codehead, or any of our other favorite developers announced that they would be instituting a 900 number, at a cost of \$2.00 a minute for technical support on a \$100 software product?!!!

We Atarians are spoiled. Not only do we enjoy a level of third-party support like no other, but we often are offered that support by the author of the software. I like the closeness and personal touch the smaller TOS market has to offer. MS-DOS, no thank you!

All the frustrations of the past months came to mind when I spoke to Dad about his impending computer purchase. I envisioned the problems he would encounter as a novice. Perhaps I was wrong in thinking that if I, an intermediate computerist with a working knowledge of basic disk operations, was frustrated by the MS-DOS environment, then it would be even more difficult for my Dad to deal with as a new user. How long would it take before the CPU became an oversized paperweight on the desk in his den?

After considering my own experiences, and knowing exactly what Dad would want to do with his computer, I decided I had no choice but to suggest he look at the Atari. The software he would need is out there... after all, how many word processors does a person really need? I have been using Word Writer since I bought the computer and have yet to find it lacking, in terms of my needs. From ST Writer to WordPerfect and now Calligrapher, the entire range of wordprocessor capability is available on the Atari ST/TT computer. The same is true of every other computer software category—spreadsheets, databases, DTP, etc.

Dad's needs were not much different than my own. Yes, I feel a little twinge of guilt when he has noted the masses of MS-DOS titles at stores all over town. But, I have seen the titles too, and I would answer that 90 percent of them are junk. We have junk on the Atari platform as well, but overall I firmly believe that our available software has the most bang for the buck: Calamus, PageStream, DynaCADD, WordPerfect, D.A. Brumleve's Kidprgs, Word Writer, etc., etc., etc. Besides, what is currently available in the ST line would keep the most industrious of users busy for years!

Dad did buy the ST and already has joined a user group. I've been able to help him get going over the phone, as has Sheldon Winick and his new-found friends in the Greenville Atari Computer Enthusiasts (thanks guys!). He's now online on GENIE (B.SCHLAEGER1). I do not regret making the recommendation to buy Atari. I often consider what Dad would now be doing if he had purchased a PC clone.

I now regret that I didn't speak up at my church. Never again will the argument "that's what everyone else is using" wash with me. I have promised myself that never again will I pass up another opportunity to introduce the family of Atari Computers to a new or seasoned user...for whatever reason.

SFAN NEEDS HELP!

Mike Kelley

The Space, Fantasy & Adventure Network (SFAN) is the first and only satellite/cable television channel devoted entirely to the SF and Fantasy genre. The Atari community could benefit greatly from the existence of this channel, since Atari computers, especially the TT, would be used extensively on-screen and behind-the-scenes at SFAN.

SFAN is ready to debut to the world, and they want *your* help! Here's an excerpt from a recent SFAN press release sent to AIM:

Begin with Walter "Chekov" Koenig as a spokesperson and host/producer of a movie/TV oriented talk show, throw in Bjo Trimble (whose letter-writing campaign saved *Star Trek* in 1968: she afterward worked with Roddenberry), add *High Frontier* space advocacy group, stir in a bit of Atari Computer Corporation, mix with our slogan from Arthur C. Clarke ("Science fiction is the only genuine consciousness-expanding drug!"), throw in some serious industry personnel (including development, executive, marketing, and engineering professionals), fold in programming content and format nothing like "a cross between MTV and The Disney Channel," and put it in the determined hands of a Science Fiction, Fantasy, Adventure, and Horror devotee. Combine it all and you have SFAN.

At this moment, we are in the final stages of negotiation with another *Star Trek* original cast member and anticipate an initial meeting with yet another shortly. After face-to-face meetings, cooperation from a number of renowned science fiction writers awaits only our successful acquisition of funding.

SFAN is in negotiation for funding this project and we have taken this opportunity to give *Star Trek* and other enthusiast groups a "sneak preview" of our forthcoming public announcement and ask for your support. We need you to

help convince the cable industry of the existing audience and the support we can expect...they only understand the concrete reality of numbers.

Successful negotiation for funding can result in the money necessary to enable SFAN to launch promptly, but that does not guarantee carriage by the largest cable multi-system operators (MSOs). The top five MSOs constitute almost 40% of the nationwide cable systems and are on record as doubting the audience and the availability of programming for a channel like ours.

Back in 1968, NBC received over one million letters to save *Star Trek* from cancellation after its second season; a half million letters resulted in the naming of the Space Shuttle Enterprise; and a half million letters to President Reagan twice helped save the space program. The source for all of these letter-writing campaigns has been, and continues to be, dedicated fans. Bjo Trimble was pivotal in all these efforts and, as our Director of Viewer Relations, has made our goal delivery of a half million letters demanding SFAN to each of the five top cable multi-system operators: the sort of reality they understand.

However, "writing to your local cable company" is a waste of your time and money. Your letters serve only to fill their wastebaskets. You have to hit the cable MSOs at the executive level.

When the word to "engage" is passed, you can make yourself and your friends part of the success of SFAN by writing to the cable MSOs, proving you do exist and that you demand more than "The Persian Shopping Channel." We look forward to hearing from you and serving you for years to come. The addresses and names of the top five cable MSOs is provided here for your convenience.

It can *only* happen with you.



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Phone: 303-721-5500

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Phone: 203-328-0600
Fax: 203-328-0690
Warner Cable Communications
James L. Gray, Pres. & CEO
400 Metro Place North
Dublin, OH 43017
Phone: 614-792-7000
Paragon Communications
James P. Cottingham, CEO
300 First Stamford Place
Stamford, CT 06902-6732
Phone: 203-328-0600

Continental Cablevision Inc.
Amos B. Hofstetter, Jr., Chmn. & CEO
Pilot House, Lewis Wharf
Boston, MA 02110
Phone: 502-223-3401

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Philadelphia, PA 19107-3723
Phone: 215-685-1700

Cox Cable Communications
James O. Roberts, President
1400 Lake Hearn Drive
Atlanta, GA 30319
Phone: 404-843-5000

SAMPLE LETTER

MSO Address

XXXXXXXX

XXXXXXXX

Dear _____;

I support The Space, Fantasy & Adventure Network (SFAN), a new cable television channel about to launch its services. As an enthusiastic viewer of this type of programming I urge you to carry this service as soon as possible.

Based on the success of science fiction, fantasy, adventure, and horror movies, box office revenues as well as the amount spent on books, souvenirs, and collectibles, SFAN is an obvious choice for your systems.

I again encourage you to immediately make SFAN available to your subscribers.

Sincerely,

Your name
Address

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TOS Extension Card

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"The TEC has given my computer a new lease on life ... it's a 'must-have' for any ST owner!" — Ron Luks, Founding Sysop of the Atari Forums on CompuServe

CodeHead Technologies is proud to announce the TOS Extension Card! This amazing device lets you install the very latest version of Atari TOS (2.06) in your 520ST, 1040ST, or Mega ST!

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TOS 2.06 includes a totally redesigned GEM desktop that has most of the features of the popular alternative desktop programs, but with two big advantages: it doesn't gobble up large chunks of memory, and because it's in ROM it takes no time to load from disk!

The TEC fits in any model of ST computer, regardless of design, and it works with existing upgrades like MS-DOS emulators or hardware accelerators.

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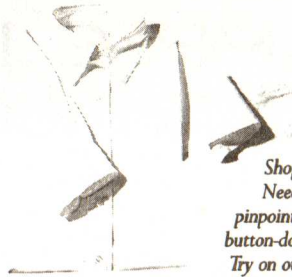
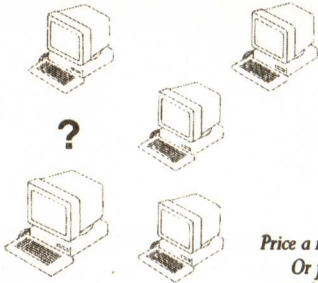
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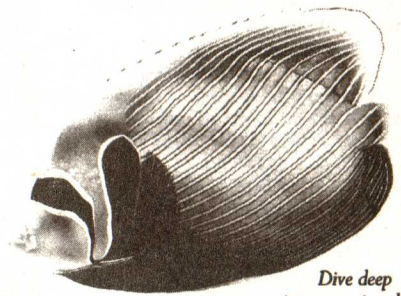
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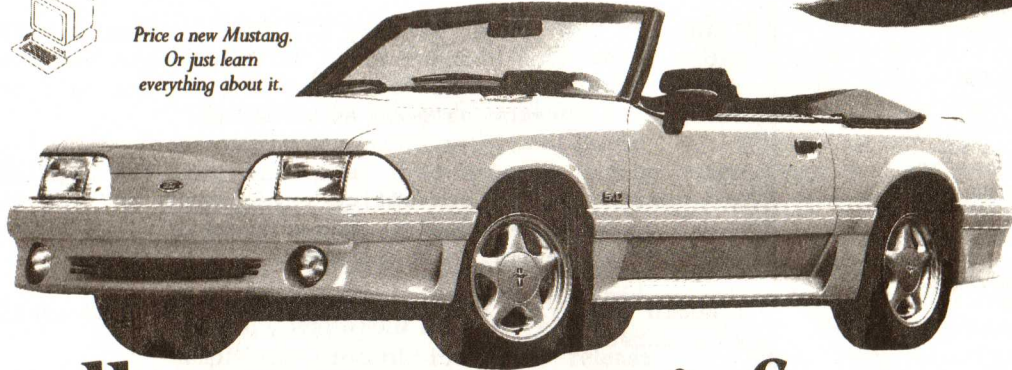


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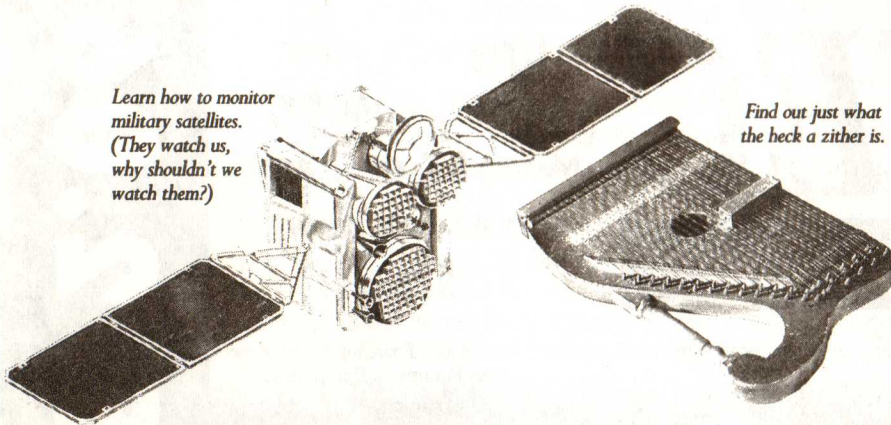
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Handheld TOS?

Portfolio by Atari for Atarians

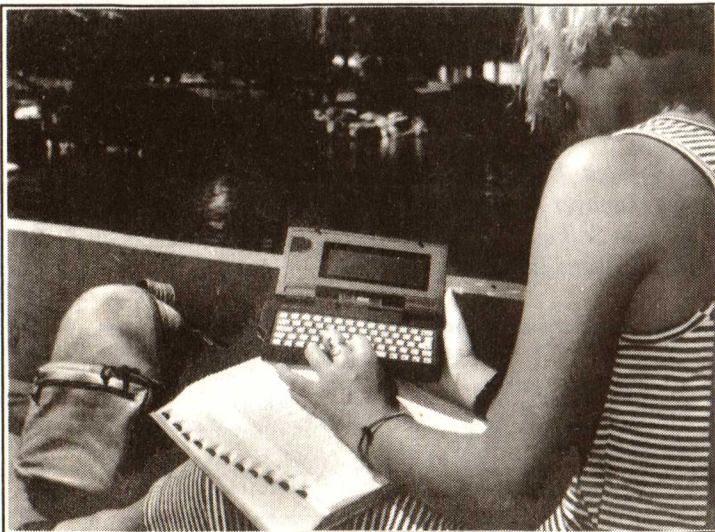
Donald A. Thomas, Jr.

One of the most popular features of Atari Computers' products is the ease of use. From the instant they are switched on, users find the operating system to be as compatible to their needs as a pond is to ducklings. But when designers of the Portfolio handheld computer went designing, they opted for a non-graphics operating system and installed an enhanced emulation of DOS 2.11.

The reasons for PC DOS are multifaceted. One is that a 256K ROM and 240x64 resolution screen is hardly adequate for state-of-the-art TOS (Atari's operating system) with GEM. Another is that it may not be practical to require a mouse in order to drive a computer which is not much larger than a video cassette tape. The reason for DOS 2.11 is to provide essentials, while leaving room for enhancements and the five built-in applications.

The enhancements to the DOS 2.11 emulation of DOS deal with battery conservation and, more importantly, a menu system. Having a built-in menuing system means software can

be, and is, written to offer commands and options by "point and click" operations. To accentuate this, Atari provides File Manager with every Portfolio. File Manager is a RAM-based program that allows DOS options through this menu system. Files may be copied or deleted and programs may be activated with this system.



Port Connection

It is easy to resent the DOS-based Portfolio after experiencing the benefits of the popular Atari systems. What may not be immediately clear is how compatible the Portfolio is to TOS.

Actually, any DOS-based clone is compatible to Atari desktop computers. For instance, run WordPerfect on a DOS-based PC, save a document to a 3.5" diskette, move the disk to an Atari TOS system and the Atari's version of WordPerfect will read the document just fine. ASCII files are 100% compatible between systems also. Spreadsheets on the Atari ST/TT support Lotus 1-2-3 files and many ST/TT databases can import files directly from popular IBM packages. This universal compatibility of many file types is how major on line services such as CompuServe and GENie thrive...how all kinds of different computer systems may use the same service.

Most knowledgeable Atari TOS users will rightly argue that it makes a lot of sense to not buy the IBM—to pay less and get a lot more with an Atari desktop computer system. This same Atari philosophy can be extended to apply to the Portfolio. The Portfolio is value priced (less than \$300). It may be used with an "anti-DOS" menu system called "File Manager." It has five useful software applications built-in, and every file may be exchanged with an Atari TOS system.

To transfer files with an Atari desktop computer (ST/MEGA/STE/TT), the user needs to have a Serial Interface (\$79.95 MSRP) for the Portfolio. It easily snaps into an expansion bus on the right side of the Portfolio and provides an industry standard 9-pin RS-232 serial port.

From that port, a null-modem serial cable is required to make a connection directly to the desktop computer's industry standard serial port. Most electronics and computer stores sell the RS-232 cable and null-modem adaptor. The connection allows the two computers to "think" they are connected via modem over the phone lines.

Once connected, Xmodem file transfers can take place using communications software on both computers. The user prepares an Xmodem "upload" on one computer and an Xmodem "download" on the other to initiate the transfer. Popular communications programs are Flash, STalker or Interlink for the desktop TOS machine and Xterm2 or ACOM for the Portfolio.

It does require a little set-up to perform the first file transfer between a Portfolio and an Atari desktop computer, but it is a lot like riding a bike—once you learn, it's easy to do over and over. There are commercial packages available to assist novices to accomplish this with least aggravation. One example is "Transport" by Artisan Software.

Now that we have established that the Portfolio is file compatible with Atari desktop PCs, we may see a greater value in what the Portfolio has to offer. From daily schedule planning to memos, reports and

database management, the Portfolio offers a powerful punch within a package weighing less than one pound. With the same Serial Interface required for file transfers, Atarians can link with any Hayes-compatible modem and remain in touch with the world even while on the road.

Other Portfolio accessories include a Smart Parallel Interface which enables direct printing access. Desktop DOS users may also use the Parallel Interface as an additional way to transfer files. Memory Cards are available for the Portfolio which behave exactly as floppy diskettes do for desktops. Most users acquire and only need one or two Memory Cards and occasionally backup critical data to their larger desktop system. For those who want the added storage, there are even hard drives available that connect to the Portfolio via the Parallel Interface.

There are numerous third party supporters of the Portfolio, and Atari has introduced several software titles, too. Popular titles include PowerBASIC, Instant Speller, Chess, Physician's Desk Reference II, DOS Utilities and more. A complete catalog is available for just \$1 from Atari. Ask for the APB Catalog, Portfolio Marketing Department, Atari Computer Corp., 1196 Borregas Avenue, Sunnyvale, CA 94089-1302.

For 24-hour support of the Portfolio, users are encouraged to join Atari experts and avid users in the Portfolio forums of GENie or CompuServe. There are well over 750 Portfolio files on CompuServe and many are ready to run programs. User contributions of quality public domain and shareware applications are growing fast due to the Portfolio's ease of development.

With PowerBASIC for Portfolio by Atari, users can write program source code on their Atari TOS desktop if they want. Source code is generated using an ASCII text editor, then the code may be transferred to the Portfolio using the Serial Interface for compiling and runtime testing.

Possibly the nicest feature of the Portfolio is how it widens the Atari marketplace to absorb avid PC users. They have come to enjoy what the Portfolio has to offer and each Portfolio used is a walking advertisement to help inspire that next Atari purchase.

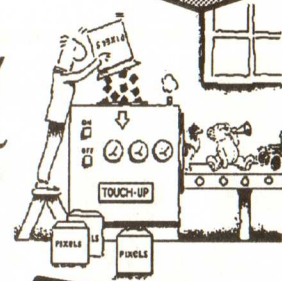
[About the Author: Don Thomas is the Portfolio Marketing Manager for Atari Corporation. He is also president of Artisan Software, producers of a number of products for the Atari ST and Portfolio computers.]

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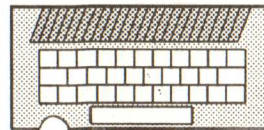


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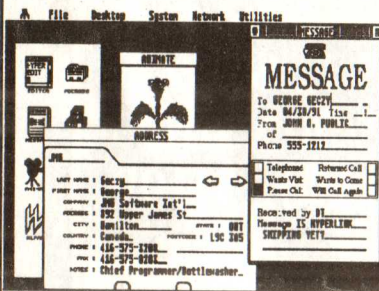
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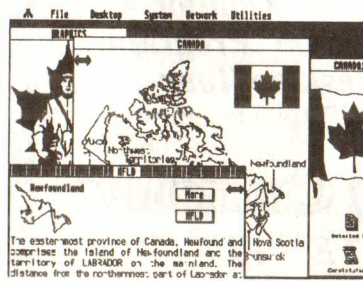
Example # 4 : Relational DBase



As a simple example of a Relational Database, HyperLINK can be set up to "link" any given field in a database with a field in another data-

base. In the Message HAP for instance, there is a link to the Address HAP and HyperLINK performs a search for a matching record.

Example # 1 : The Canada HAP



One of the most popular, and common uses for any Multi Media product is Education. The Canada HAP illustrated here, is an example of

how Text, Data, Graphics, and Sound can be combined for an interactive educational tool. eg. Click on a Province get a text file on that Province etc.

Watch for more example HAPs (HyperLINK Applications) to further show the unlimited power and flexibility of HyperLINK !!!

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MIDI in the Midst

Before jumping back into my Hybrid Arts profile, I must report, briefly, on a recent event:

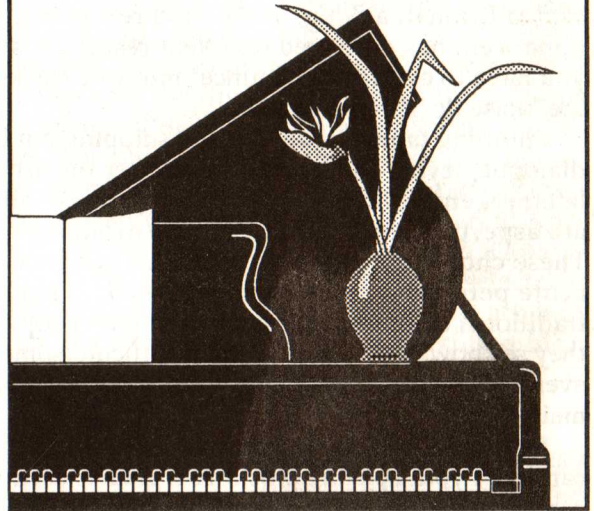
At the Atari Canadian Exposition (ACE '92) held in Toronto, Ontario, on April 4th and 5th, our users group, ASTMUM, manned booth #316. We gave advice on the art of making music, conducted MIDI demos and displayed the productive output (sheet music, cassettes and CDs) of our members.

The most popular activity, at our booth, was showing beginners how they could get started in MIDI on a shoestring—with excellent results! Most gratifying was meeting some terrific techies and musicians who came out of the woodwork for this show. Many were interested in our chosen method for expanding older STs RAM to 2.5 or 4 megabytes, so we kept popping our computer open to show 'em!

I managed to get away from the booth long enough to buy CodeHead's newly released TOS Extension Card. Since videotaping a "New TOS" seminar at the WAACE show last October, I've taken a great interest in this topic. I'll install it, run tests, and probably do an article about it. Readers in the Northeast who are reluctant to solder in or handle these sensitive devices could contact me about installing their TOS Extension kits (and our preferred RAM expansions!) for them.

About 10 of our members made the trip from Montreal; they fanned out and garnered a lot of goodies and information.

Visitors kind enough to leave their addresses at our booth will receive follow up letters. In fact, any AIM reader interested in our group's activities should write (ASTMUM's address can be found in the Users' Group list at the back of this issue). Above all, it was people's open appreciation that made it worthwhile for me.



Kest Carter-Morgan
ASTMUM

While the event is fresh in our minds, we'd like to post our heartfelt thanks to Atari, the Toronto Atari Federation, the show's organizers and volunteers, other exhibitors, and the Skyline Hotel for putting together and running such a fine exhibition!

Now, let's get back to Hybrid Arts.

The significance of direct-to-hard-disk, digital recording is lost on many non-musicians. Some musicians aren't even aware of the impact this relatively new technique is having on their industry.

Traditional, analog, audio tape recording, when done well, has delivered excellent results. It's when you have to overlay or "bounce" multiple tracks, that the "noise floor" begins to rise.

Shuttling tapes back and forth, snipping out bits of dialogue, trying to fix a sour note after the artist has left the scene, trying to correct timing errors—all these are aspects of the engineer/editor/producer's craft. These chores require a gutsy mix of patience, skill, acute perception, nerve and, yes, *luck*. That's why traditional engineers' eyes pop (and jaws drop) when they see how easily those tedious, difficult (sometimes even impossible) tasks are dealt with in the digital domain.

Suddenly, you have *random access*! No waiting! You can retire your splicing block. To a greater extent, you can construct things without having to consider the penalties for your actions (e.g., noise buildup). However, along with this alleviation of tedium comes something that is paralytic for some: *unlimited choice*! Suddenly, the world becomes your sonic oyster.

How Hybrid Arts innovates in cost effective technology would be wasted if they didn't keep track of the user interface. In this regard, they have done well, by consulting users as their Digital Master system evolved.

Although I will, near the end of this segment, convey information on their new, 4-channel version, allow me to finish describing the demo of the 2-channel system which I began in the May issue.

If you haven't seen it (or pictures of it), the system is contained in a hefty-looking box, resting on, and apparently blocking, the entire length of a STE's ventilating grid. The box extends, and is supported, a considerable distance behind the computer.

Closer inspection reveals two analog and two digital inputs in back, with one or more fans, and an opening in the bottom to prevent heat from the ST's power supply from piling up. Almost any 520 or 1040 ST will do, as long it has been expanded to four megabytes (needed when accessing the EDIT page).

The massive, color-matched case (mated to the computer) can accommodate most smaller hard drives (around 120 megs). Larger banks of drives must be housed externally, however. The visual impression is formidable, but functional.

A strap-like, flat cable extends down from the left side to connect at the ST's cartridge port and, of course, the inevitable connection is made to the DMA

port. These connections explain the need for the unit's intimacy with the computer; they must be kept as short as possible. However, if you want to extend the distance between units, ask Hybrid Arts about how they've dealt with this.

A suite of programs comes with the system:

The Digital Recorder/Editor (DRE), for recording long sound files (limited by the capacity of your hard drive(s))

The EDIT program, for "microscopic" editing, retuning or reversing of sounds (limited by capacity of the computer's RAM)

The CUE LIST, an edit decision list that runs concurrently with SMPTE sync. in order to trigger events (on the hard drive) at selected SMPTE numbers (for video, post-production use)

The MIDI program, for MIDI control of events on the hard drive

Due to space constraints, I won't cover all utilities and functions; I'll try to keep it neat.

Now, envision if you will, that we're immersed in that demo with Jeff Naideau, Sales Manager for Hybrid Arts. He has just shown how items on the playlist can also be played via MIDI; you can set them up to be triggered, by notes of your choice, from your keyboard or sequencer.

Moving on to the EDIT page, he displays (from left to right) the varying envelope of a section of music. This resembles an enlargement of an optical, movie soundtrack. A vertical, hairline cursor travels across the envelope, during PLAY, giving your exact location in the piece.

You left-click and drag the mouse to create a "range" (Hybrid Arts' expression for a working increment). This could be an entire song, a musical phrase, or a tiny blip of sound; you define it. Then, you do things to the range: cut it, copy it to somewhere else, retune it, etc. To visually emphasize details, you can zoom in on, or enlarge, a range, and if you've saved a particular view of it, you can snap back to it any time.

When it comes to precise editing, the system can be made to behave in a manner similar to an open reel, analog tape deck, which, by hand-rocking the reels, back and forth, in PLAY/PAUSE mode, used to reveal where (on or near the beat) to mark the tape with a grease pencil for splicing.

Digital Master emulates this by employing an optional, outboard controller—the J.L. Cooper CS-1 (about \$500 list). It has a rotary knob, just large enough to effectively "scrub" a phrase or beat (e.g., a snare drum) *Paiowww - wwwoiaP*, back and forth, until your ears, and the on-screen cursor, confirm the desired spot. Very gratifying!

The CS-1 is great, but when I saw Jeff Naideau do this same operation, easily, with the mouse, I started laughing so hard I almost dropped the camera.

Where this system really shines is in pitch and time correction. Jeff played an example in which a repeated

guitar figure retained its pitch, while the backing rhythm was artificially and steadily increased. Vocals were retuned with ease. Even during extreme examples, and when doing the previously mentioned "scrub" edits, the sound was natural and free from aliasing or spurious noise.

I won't elaborate on the digital filtering functions at this time. It's also important to note that the lack of programmable equalization doesn't seem to hamper people in getting work done.

I'd say that if I wasn't obliged to complete other, important projects, I'd drop everything, now, and get involved with this system, particularly the new, EX version.

As promised, here is the latest information gleaned from a telephone conversation with Brad Eisenhower of Hybrid Arts:

The 4-channel, 16 virtual track, "EX" version, though delayed, should be available in June. You can also order the software update and a rack-mount unit to add the two extra channels to the existing system.

Retuning and sample rate conversion (on both versions) is no longer limited by the computer's RAM. What used to be done with the EDIT program can now be done (within the Digital Recorder/Editor program) to an entire song or hard disk file (in cents, half-steps and octaves).

Advantages, in the software, allow you to work more organically: writing elaborate crossfades to the hard drive; doing "destructive" cuts to a file and not losing track of your important markers; being able to mark, cut and paste between many different windows while retaining the thread of your intent.

The number of sound files you can open is no longer limited to eight—it's unlimited! The new software works on the large Moniterm and Atari monitors, providing a much bigger work surface on which to manipulate files. There have been improvements in how the system locks to SMPTE; moreover, in how it "chase-locks" to SMPTE.

CHAOS, Hybrid Arts' proprietary multitasking operating system, allowing true, simultaneous operations, will be released with their new EX version. Brad Eisenhower wasn't apprised of the degree that this involved Atari's new multitasking TOS (Multi-TOS).

A small line driver (buffer) box now plugs into the cartridge port, enabling the new EX version to be placed up to 10 feet away from the computer.

Additionally, they've come out with a DMA to SCSI adapter which enables the new system to use standard SCSI drives directly.

For some reason, the favored "Quantum" 105 Meg drive, combined with the ICD host adapter, conflicts with the digital recording system. If, when you're at the point of placing your order, no cure has been announced, then you'd be safer sticking with a Fujitsu, Maxtor, Hitachi or other drive, proven in this application. Avoid the Connor drives, too, they say.

They are enthusiastic about their new Sample

Playback Module. It offers 12 audio outputs; 16-bit, 24 dynamically allocated voices (at 44.1 kHz); effective interaction with the Digital Master, SMPTE timecode and S-MIDI specs.; and one to 16 Megs of SIMM RAM space. It can load samples through SCSI and conforms to the "Sound Designer" format.

Also announced is their new ST-MAC CD-ROM software which, with the above, reads and accesses all Macintosh sound libraries for the Atari ST.

Stephan Daystrom is writing an update of Smpte-Track Gold, which should also be ready by press time. Not having heard from him, yet, I've decided to delay my sequencer segment in this series of articles, until the multitasking details get clarified. I'll try to put together a Smpte Primer for beginners, as well.

Note: The lowest selectable sampling rate figure, given in Atari Explorer, was technically correct. They were just repeating information given in Hybrid Arts' brochure. You can obtain that rate from the EDIT page. However, in the DRE program, the lowest selectable rate on its menu is 22 kHz. It is not common practice to use such low sampling rates when making a high quality, wide bandwidth recording.

Now, which breakfast cereal should I choose?

Until next time...

[About the Author: Kest Carter-Morgan is an audio/video recording engineer, electronic prototype designer and computer repair technician specializing in ST-related projects. He is one of the founding members of Atari St/Mega Users (Montreal).]

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Pictures to Text OCR Comes to the Atari

[Review copy of Migraph OCR 1.05 loaned by IB Computers, 9244 SW Beaverton, Hillsdale Hwy., Beaverton, OR]

What does OCR from Migraph do? OCR—Optical Character Recognition—has one purpose and that is to change "text" in an IMG or TIFF monochrome scanned image into a page of text. Currently the only output available is ASCII text, but almost every wordprocessor imports this type of file. How does it work? It works very well!

The manual isn't kidding when it tells you to disable all auto programs and accessory programs. This program does use all the memory it can get. (Also, on general principles, don't set the Fastload bit, telling the program to skip fast loading. This is something I routinely do with a program that uses all available memory.)

The requirements for using this program are:

Some way of getting a picture of the page into the computer in IMG or TIFF format. This usually means, you need some type of a scanner—flatbed, sheet-feed or hand.

Two or more megabytes of memory—the more the better. If you don't have enough memory for the document, OCR will use "Hard Drive Caching" to store the extra data. Using this virtual memory feature is much slower than using existing RAM.

A hard disk

Nearly \$300 for the program

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DAC

Who Needs OCR?

You are probably asking yourself who needs this program? People doing extensive DTP work need this program. OCR allows them to scan in text from *any* hard-copy and create a disk file that can then be edited, spell and grammar checked, popped into a DTP package and output to a printer.

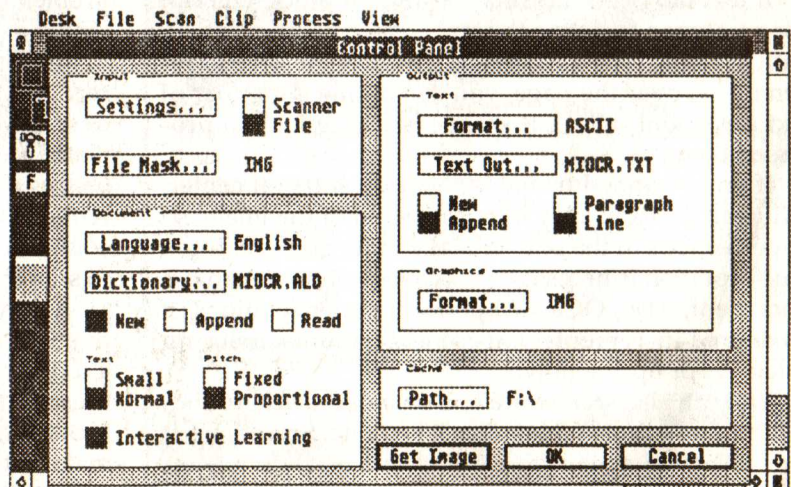
What if you're a poor, forgetful person writing the Great American Novel. You didn't make floppy disk backups of the text you saved to hard disk, and the hard disk crashes. Oh, @#%#%#@! Now you have to retype the entire thing? If you have hardcopy and Migraph OCR, though, you are able to scan the text back in and recreate the original files with a little effort—a lot less effort than retyping the original.

Anyone who needs to transfer something from a written page to a computer text file needs Migraph OCR.

Font Recognition

OCR already recognizes Artisan, Bookman, Brougham, Carroll Pica, Courier, Courier Italic, Delegate, Elite Modern, Helvetica, Herald Elite, Letter Gothic, Lori, Lubalin, OCRB, Pica, Prestige Elite, Prestige Italic, Prestige Pica, Times, Titan and Title typefaces.

If the document you are scanning contains a font other than a pre-recognized one, you can rename the .ALD file (from the control panel)



and OCR creates a dictionary of the new typeface. You can save this new dictionary for use the next time you scan a similar document.

OCR also creates a dictionary for letters it doesn't understand within these typefaces; this dictionary is overwritten the next time you use OCR if you don't rename it.

I strongly suggest you name your dictionaries by the type of document you work with rather than by typeface. For example, name them ST-Informer, Computer Shopper and Newsweek rather than Times, Helvetica and so on. The same typefaces in different publications aren't always consistent enough to allow full recognition of all characters from one publication to another. The dictionaries are around 100K long.

Scanner Support

Let's get down to the nuts and bolts. Migraph's OCR takes direct input from any of the following hand scanners: Migraph (you knew that it would support that one didn't you?), AlfaData, and Golden Image. OCR also accepts monochrome IMG and TIFF format files, for those that have full page or flatbed scanners.

There is a problem in using a hand scanner image—the scan is only four or so inches wide. If you are trying to scan large areas of text, this is a problem. Needless to say, Migraph has a cure for that. They recommend scanning directly into the OCR program and processing each scan independently. OCR can then construct a text file for the first scan and append the later scans to it. There is also a scanning frame available to facilitate scanning.

If you input from a flatbed or other full page scanner, you must first save each page as a IMG or TIFF file. You then load the file into OCR.

Text vs. Graphics

Once you have an image in the program, you are almost ready to start converting it to text. First, you need to define what is text (or what part of the text you want) and what is graphics (if you want to save out the graphic as a file). This helps the program to keep things on track.

If text has been "flowed" around graphics, you can use a polygon to define the text area—you aren't stuck with defining only a rectangular area. If the text is broken up all over the page, you can define a number of text areas and tell OCR what order in which to process them.

If your scanned image is rotated a little off center, OCR can perform very minor rotation of the image so imperfections in the scan are taken into account. If too much rotation is necessary, you will need to rescan the document. Also, OCR will perform major rotations in 90 degree increments you can even scan something sideways or upside down.

You can also scan white text on a dark background. OCR doesn't care and handles it just fine. Sometimes it may be advantageous to work from a black/white in-

verted image; the program inverts images on request. Text from 10 to 18 point sizes are accommodated directly. Letters of larger sizes also work OK, and scans of smaller text is taken into account by setting the smaller text option. I have found that a 150-200 DPI scan is adequate for 12-18 point text and 300 DPI is good for 10-15 point text. It is recommended that 400 DPI be used for text smaller than 10 point, though I have been able to use 300 DPI for 8 point type without too much trouble.

Once you have scanned the hard copy, loaded the image into OCR, rotated the image as needed, defined the text and graphics areas (you only need to define the text areas unless you also wish to output the graphics), set the output file for the dictionary (if the typeface isn't one already recognized by OCR), and set the text output file. By the way, if you forget any of these steps, OCR will muddle through on its own and pretty much get things right (idiot proofing).

Tests and Checks

For the actual conversion to text, OCR checks the typeface against its dictionary, then runs the text through 25-100 or so linguistic tests, as needed. If it doesn't recognize the typeface, OCR asks for help from you.

OCR then checks for English, German, Dutch and French letter combinations, according to your settings (you can only have one linguistic base at a time active, but you can have all the various bases on the drive). These checks have to do with the words, letters and types of letters OCR is expecting to find. OCR also does a very good job at differentiating between 1 and l, 0 and O, and such—one of the things OCR does very well is keeps numbers separated from letters. OCR can even be trained to recognize Handwriting if the letters are consistent!

Problem Scans

One thing that causes OCR to have fits is printed copy where segments of the letters are not connected, such as a xerox of a xerox or printouts that are too light and the letters are fragmented. This is also a problem if the scan is too dark and letters are not separated.

This problem is due to the method of character recognition OCR uses, that of using a mathematical description of the letters rather than a bitmap. The mathematical method picks up letters that bitmapping chokes on, however, it needs the complete form of the letter to work properly. The point of this whole discourse is to make sure you have a good printed image to scan from and that you do a good scan.

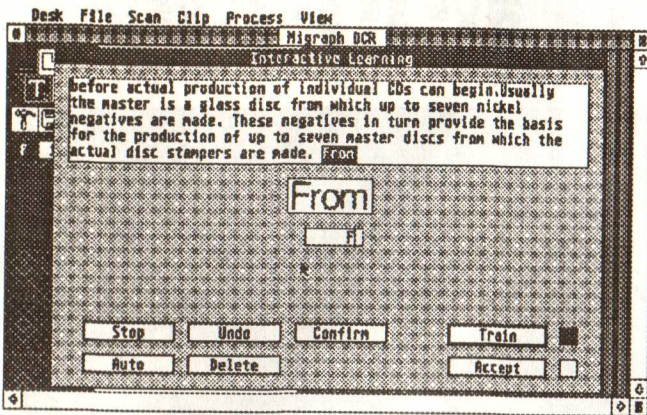
A way around this problem is during the "Interactive Learning Stage." When OCR sees letters (usually a,u,o,b,d), most fonts have thin and thick sections to these letters. These thin sections will sometimes be broken, and where lines are broken OCR will try to make letters out of the parts it sees. There is no way of

combining these parts back together in OCR.

In the Interactive Learning Stage, you can define the most characteristic portion of the letter as the letter. Then, you can either delete the remaining "meaningless" sections or let the program do its thing. Once the text file is created, do a spell check to correct the errors. This will take care of 99.999% of those extraneous letter sections.

Installation

The installation of the program couldn't be simpler. You put the first disk in the floppy drive and click on the Install program. Then, you pick the hard drive par-



tion on which you want OCR installed and what language to use as a default. The Install program does all the rest of the work. The Install program also gets deleted at this time, so only install from work disks (the work disks should be full disk copies, not file copies), not your original disks or backups.

Summary

I am using a four meg 520ST, a Canon page scanner and a hard drive. I would suggest a monochrome monitor (OCR also works in medium resolution if you don't have a monochrome monitor). It just looks nicer in monochrome to me.

The only problems I have had are ones of my own impatience while in the learning phase of the program, pushing the button too fast.

Early versions of OCR (prior to 1.05) had a bug involving the paragraph setting for output. If you have an older version, Migraph automatically ships the upgrade to version 1.05 when you send in your registration card. Future versions of the program will incorporate direct input support for various full page and flatbed scanners.

The program is quite goof-proof and very well done. The manual is small, but everything is covered in it. If you have need for Optical Character Recognition, I strongly suggest the purchase of Migraph's OCR. The program is simply excellent.

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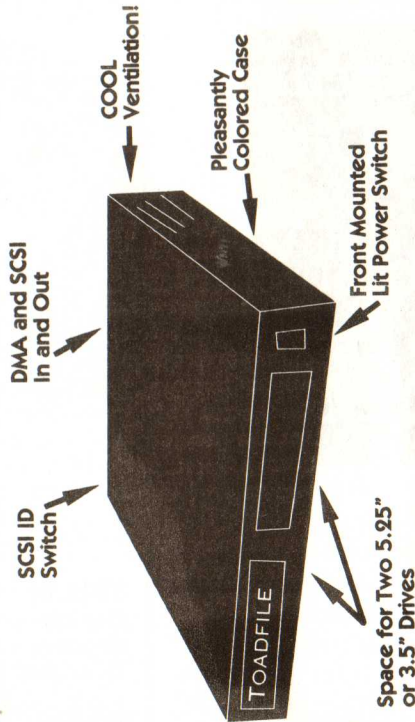


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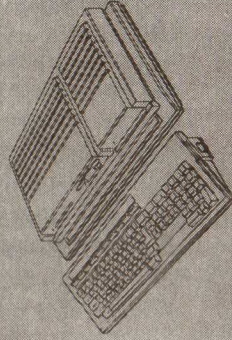
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WRITING A BULLETIN BOARD ON THE ATARI 8-BIT, PART 2

James Bastable (BaPAUG)

In this second article, I will show you how to access the RS-232/modem port by means of XIO commands. XIO commands may seem, on the surface, to be complex but they are very easy to use. The fact that one XIO command can perform many functions often leads the programmer into believing XIO usage is confusing.

I will deal with each necessary XIO command in some depth and my lengthy explanations may appear to contradict my above statement. I can only repeat that, once studied, the XIO commands are very straightforward.

To illustrate this article, I have put together a short program which contains the necessary XIO and OPEN commands you need to write your Bulletin Board.

There is no need to type the program in if you do not wish to, as it does nothing spectacular. It is important, however, for you to study how each line of the program works. (See the program listing at the end of this article.)

Let's go through the program line by line:

Line 90 CLOSEs the channel, which is a very good habit to get into, especially when using the 850 Interface as you will see later.

Line 100 OPENS channel 1 to Port 1 of the 850 in Read Only mode (similar to the disk OPEN). It could have been set to Write Only (OPEN #1,8,0,"R1:") but not to Read/Write (OPEN #1,13,0,"R1:") as the following line would not work.

Line 110 is XIO command 34, which switches the DTR (Data Terminal Ready) and RTS (Request to Send) lines on. Unless this XIO command is issued, a lot of modems on the market will not enter into Auto Answer mode.

The number 240 in AUX1 in the XIO command sets this up. Again, this command is explained in greater detail later.

LINE 120 issues the STATUS command, the X variable being a dummy. When STATUS is issued, information about the condition of the port is updated in memory location 747.

LINE 130 PEEKs location 747 and checks whether it is equal to 253. If it is, the modem has made a successful connection. If not, the program loops back to line 120.

In LINE 210, the channel is again closed, because the port is going to be reconfigured.

LINE 220 is the XIO 36 command. This takes a little bit more explaining. All XIO commands have two auxiliaries in this form:

XIO COM,#CN, AUX1,AUX2, "Rx:"

COM equals the XIO number, in this case 36. CN equals the channel number, AUX1 and AUX2 are auxiliary 1 and 2 respectively.

In the case of XIO 34, auxiliary 2 did nothing and can do nothing. With XIO 36, both AUX1 and AUX2 are important in configuring the RS232 port.

Let's look at AUX1 of XIO 36 first. The value placed here tells the RS232 port what baud rate to work at.

The list at the top of the next column contains the corresponding values for the various baud rates.

Value	Baud Rate
0	300 BAUD
1	45.5 BAUD
2	50 BAUD
3	56.875 BAUD
4	75 BAUD
5	110 BAUD
6	134.5 BAUD
7	150 BAUD
8	300 BAUD
9	600 BAUD
10	1200 BAUD
11	1800 BAUD
12	2400 BAUD
13	4800 BAUD
14	9600 BAUD
15	9600 BAUD

A zero (or 8 in this case only) in AUX1 configures the port to 300 baud. To this AUX1, a second value can be added which tells the port the word size (the amount of bits in a single character) that will be used. You need not worry about this, as 99% of Bulletin Boards use 8-bit word length.

Value	Word Size
0	8 BITS
16	7 BITS
32	6 BITS
48	5 BITS

You would add the value from this table to the value for the baud rate you wish to work at. Now, to this value you can add yet another to tell the port how many stop bits must be sent with each word (99.999% of the time it's 1 stop bit).

Value	Stop Bits
0	1 STOP BIT
128	2 STOP BITS

In the program, I set the baud rate to 300 (value 0), the word size to 8 bits (value 0) and the stop bits to 1 (value 0). 0+0+0=0.



The second auxiliary of XIO 36 specifies which lines are to be monitored. The following chart indicates which value needs to be placed in AUX2:

Value	Lines Monitored
0	NONE
1	CRX
2	CTS
3	CTS, CRX
4	DSR
5	DSR, CRX
6	DSR, CTS
7	DSR, CTS, CRX

CRX equals Carrier Detect, DSR is Data Set Ready and CTS is Clear To Send. In the program, I have opted to monitor all three. Why? Simple. By doing this, whenever someone drops carrier (disconnects unexpectedly), an error is produced which can be trapped in BASIC. This is very handy when you think about it, which I hope you do.

Once an XIO 36 has been issued to a port, it is remembered until you switch off the computer or reconfigure the port again.

Line 230 OPENS the port for input and output, which is what we need for sending and receiving data during the normal running of the Bulletin Board.

LINE 240 uses the XIO 38 command, which tells the RS232 what type of ASCII/ATASCII conversion you want, if any, and whether the RS232 will append line feeds. Both AUX1 and AUX2 are used.

Let's look at AUX1 first. The value placed here tells the RS232 whether you want *No Translation* (as in file transfer or if your Bulletin Board is going to work in ATASCII mode), *Light Translation* (which is the normal setting for standard ASCII communication) or *Heavy Translation*, which I never use because it tends to disallow some characters that may be needed.

Here is a list of values and their meanings:

Value	Translation
0	Light Translation
16	Heavy Translation
32	No Translation

Both Heavy and Light translation will convert ATASCII carriage return (155) to ASCII (13). They will also ignore the 8th (most significant) bit as all standard ASCII characters only use 7 bits. *No Translation* means exactly what it says.

To this value we can add another which sets the input Parity mode. A listing of these values can be found at the top of the next column.

Value	Effect On Input Parity
0	Ignore and Do Not Change
4	Check for Odd Parity and Clear
8	Check for Even Parity and Clear
12	Ignore and Clear

The first option (value 0) is the most common. To effect the Output Parity you can add one of the following values:

Value	Effect On Output Parity
0	Do Not Change
1	Set to Odd
2	Set to Even
3	Set to One

Once again, the first option (value 0) is most common.

AUX1 of XIO 38 can also instruct the RS232 whether to send a Line Feed character (ASCII 10) after a carriage return or not. Atari 8-bits don't need this, but there are some computers that do, so it really should be sent. Most computers that don't need the character appended ignore it anyway, so it does no harm.

So, having taken two values from the three tables and added them together, you can now add to this new value a 64 if you wish Line Feeds to be sent or 0 if not.

AUX2 of XIO 38 is only used when *Heavy Translation* is set. In this mode, whenever the RS232 ports receives data which cannot be converted to a recognized ASCII character, the RS232 changes it to a *won't translate character*. This character is set by placing a value in AUX2. On the very rare occasions when I have used this mode, I have placed a value of 126 (ATASCII Backspace) in this auxiliary, but any value between 0 and 255 can be placed here.

LINE 250 configures the port to Concurrent mode. AUX1 and AUX2 serve no purpose, so they are set to zero. Once Concurrent mode has been made active by XIO 40, the Break key is disabled, which is helpful as long as you are confident you won't need it. You can always press the Reset key if you get into trouble, but this can sometimes play havoc with the port configuration.

Annoyingly, you cannot access any other external device such as disk drives, cassette players, printers, etc. while the program is in Concurrent mode. There is no way around this, I've tried. Remember me saying it was important to get into the habit of closing a channel before using OPEN?

LINE 310 loads some text into the string BUF\$. This isn't necessary in this case, the text could have just been PRINTed out to the port without being entered

into the string first. When you come to actually programming a Bulletin Board, you will be reading text from the disk drive. Since you cannot have Concurrent mode active while reading from the drive, you will be pushing text into a string anyway.

LINE 320 PRINTs the contents of BUF\$ to the RS232. Using the trailing semicolon suppresses the carriage return from being sent. This is not echoed onto the computer screen which, in the real world, would be so. A simple PRINT BUF\$; placed here would do the job nicely.

LINE 370 and 380 clears the values in locations 747 and 748. These locations now have a different meaning when in Concurrent mode. Remember location 747 was used earlier for detecting a successful modem connection. I have not found a use for location 748, but the 850 manual says clear it, so I clear it.

In LINE 390, CNT is set to one, which is used to keep track of the amount of data that has been received and ANS\$ is set to a null string where the incoming data will be placed.

LINE 400 issues STATUS, which updates location 747.

LINE 410 PEEKs location 747. Why? I wondered when you were going to ask! In Concurrent mode, location 747 contains the amount of bytes in the buffer. By checking if this is greater than zero, we know if data is coming into the RS232 port. As a matter of interest, the standard buffer size for the RS232 handler is 32 bytes, and if you don't get the data out quick enough you start to lose it. More about that later.

LINE 430 GETs a byte from the buffer, which must be available otherwise the program would not have reached this far.

LINE 440 checks to see whether the value gotten in line 430 is 155, which is an ATASCII carriage return. If the value is 155, then the program knows the caller has finished typing.

I know what you're thinking! You're saying to yourself, "All very well checking for a 155, but what if someone calls who is not using an Atari 8-bit and they send an ASCII 13, which is a standard code for Carriage Return?"

I say, "Aha, but the RS232 interface, being a clever little devil, knows this and converts it to a 155, so there." It also converts it back when sending. This option was set in line 240 using XIO 38.

LINE 450 places the data gotten in line 430 into the string BUF\$.

LINE 460 increments variable CNT, which is done every time data is received other than ATASCII 155. Then, it loops back to get more data if possible.

LINES 520 to 590 simply loads text into BUF\$ and PRINTs it out to channel 1. This time, no trailing semicolon is used, which means that a Carriage Return is sent (and a Line Feed, if a 64 was added to AUX1 of XIO 38).

LINE 640 CLOSEs the channel, as it is going to be altered. As a matter of great interest, whenever the

RS232 port is CLOSED, all the contents of the buffer is wiped. I sometimes close a port whenever a large amount of data corruption has been detected, just to clear out the rubbish...

LINE 650 OPENS the channel in Write Only mode. This is used because the following XIO command cannot be used in Concurrent mode.

LINE 660 turns off RTS and DTR control, which forces the modem to drop carrier. This is the opposite to the XIO 34 used in line 110. To calculate the values used, here is yet another table:

Value	Control
32	Turn RTS Off
48	Turn RTS On
128	Turn DTR Off
192	Turn DTR On

So you see, by adding two values together—128 and 32 equalling 160—both DTR and RTS controls are turned off.

Confused? Don't worry about it, so was I at first. But, I soon learned that a lot of the settings are unnecessary when operating a standard Bulletin Board. If you are planning on using RS232 for more specialized applications, I would suggest you study the matter more by obtaining the excellent manual for the 850 Interface. But general communications is nothing out of the ordinary, and so does not require you to know everything there is to know.

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In the next article, I will be offering hints and tips on how to speed up data transfer from BASIC. When I was writing my first program, I was told BASIC could barely handle data at 300 baud, let alone 1200 baud which my own Bulletin Board runs at. I admit that I use Binary GET, which is built into BASIC XE, but I'll give you a Machine Code routine that simulates this command.

```

10 REM A simple example of input &
20 REM output to the RS232 interface.
30 DIM ANS$(40),BUF$(500)
40 REM -----
50 REM -This routine detects if the-
60 REM -Modem has made a successful-
70 REM -connection. -
80 REM -----
90 CLOSE #1:REM To be sure.
100 OPEN #1,4,0,"R1":REM Port 1
110 XIO 34,#1,240,0,"R1:"
120 STATUS #1,X
130 IF PEEK(747)=253 THEN 210
140 GOTO 120
150 REM -----
160 REM -If the program reaches here-
170 REM -the Modem has answered. Now-
180 REM -configure port 1 to enable -
190 REM -input and output. -
200 REM -----

```



Before I go, a word of warning to Turbo BASIC users. When TB is loaded, it wipes the 850's RS232 handler, thereby preventing the use of any programs that use the RS232 ports. I will give you a program that will boot the 850 after loading.

Until next time.

```

210 CLOSE #1:REM To be sure.
220 XIO 36,#1,C0,7,"R1":REM Set to 300 Baud.
230 OPEN #1,13,0,"R1":REM Open for input &
output.
240 XIO 38,#1,64,0,"R1":REM Tells RS232 to
send line feeds.
250 XIO 40,#1,0,0,"R1":REM Start Concurrent
Mode.
260 REM -----
270 REM -Now we can send some data -
280 REM -to the RS232. We,ll ask for-
290 REM -the name of the caller. -
300 REM -----
310 BUF$="What is your name caller?"
320 PRINT #1;BUF$;:REM Send Data
330 REM -----
340 REM -Now we'll check for data -
350 REM -Incoming -
360 REM -----
370 POKE 747,0:REM Clear the memory
380 POKE 748,0:REM locations to check
390 CNT=1:ANS$=""
400 STATUS #1,X
410 IF PEEK(747)=0 THEN 400
420 REM Line 430 waits until data is in
buffer.
430 GET #1,X:REM Pull one byte from buffer.
440 IF X=155 THEN GOTO 520:REM 155=return key
pressed.
450 ANS$(CNT,CNT)=CHR$(X):REM Store data in
string
460 CNT=CNT+1:GOTO 400
470 REM -----
480 REM -Should now have a name in -
490 REM -in ans$. Now we will send -
500 REM -a welcome message. -
510 REM -----
520 BUF$="Welcome ":BUF$(LEN(BUF$)+1)=ANS$
530 BUF$(LEN(BUF$)+1)=" to my Bulletin"
540 PRINT #1;BUF$
550 BUF$="Board. As this is only an example,"
560 PRINT #1;BUF$
570 BUF$="I will log you off now. Goodbye."
580 PRINT #1;BUF$
590 PRINT #1:REM sends a carriage return
only.
600 REM -----
610 REM -Now we will force the modem-
620 REM -to drop the call. -
630 REM -----
640 CLOSE #1
650 OPEN #1,8,0,"R1:"
660 XIO 34,#1,160,0,"R1":REM this line does
the job.
670 RUN

```

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SPARTADOS 3.2 AND Turbo BASIC XL

AN 8-BIT ATARIAN'S DREAM COMES TRUE!

John Kasupski (WNYAUG)

It seems as if I've been lamenting the fact that SpartaDOS 3.x and Turbo BASIC XL are incompatible since it was still possible to step in fresh dinosaur droppings.

Actually, of course, it hasn't been quite that long. It only seems like it to me each time I had to read any text that explained why the two are not compatible and never will be (because both use the RAM under the BASIC ROMs in the XL/XE computers).

Then, the SpartaDOS X cartridge came out.

I recently had the chance to play around with a friend's X-cart and found you can run Turbo BASIC XL on an extended-RAM Atari by telling the DOS to use the extended RAM instead of the RAM under the BASIC ROMs.

At that point, I began lamenting my lack of an X-cart of my own, and my lack of the funds necessary to purchase one.

My lamenting ended the evening of October 19, 1991 when I logged onto the Wizard's Attic BBS. A version of Turbo BASIC that was supposed to work with SpartaDOS 3.2 had been left for me as F-Mail! Needless to say, I downloaded it, hoping it wasn't an early (or late) April Fool's joke.

It was not an early April Fool's joke. It was an early Christmas present!

And, judging from the number of people who have written letters to magazine editors and users' groups wondering if anyone knew of a way to get Turbo BASIC to work with SpartaDOS, this is pret-

ty big news. It is possible to run the 400/800 version of Turbo BASIC XL with a modified version of SpartaDOS 3.2!

Everyone who said it would *never* be done, put that in your disk drives and boot it!

It seems John McGowan (author of some recent articles on TextPro that appeared in AIM) had a version of Turbo BASIC that works with the Atari 400/800.

Since these machines don't even *have* any RAM under the BASIC ROMs, John reasoned maybe it would be possible to use this version of Turbo BASIC with a disk-based version of SpartaDOS. But, alas, his initial attempts at doing so failed.

So, he uploaded the 400/800 version of Turbo BASIC to the Closer To Home BBS, where Sys-Op Tom Hunt had been working on a disk-based version of Atari BASIC (mainly due to the bugs in Atari BASIC Revision B)—a project which so far has produced CTH FastBasic.

Tom, not one to rest on his laurels (he's already written Snapshot, MTOS and other programs), was able to convert the 400/800 version of Turbo BASIC into a version that runs under a modified SpartaDOS.

This is only an alpha-test version, but I now have 22766 bytes available in Turbo BASIC on my 800XL. Considering that each of my attempts to run Turbo BASIC XL under SpartaDOS resulted in a total and immediate system crash, I'm quite satisfied with 22766 bytes.

I have yet to write a program that big anyway, except for when I was first learning to program in

BASIC and everything I wrote was an unbelievable kludge.

I can now develop and use my Turbo BASIC XL programs under my favorite DOS.

My hat is off to Tom Hunt and John McGowan for their collaboration on putting the best BASIC for the Atari 8-bit on working terms with the best DOS for the Atari.


And, if by chance this article manages to find its way to those two gentlemen, here's one enthusiastic volunteer for beta-testing when the time comes!

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Spelunker from Brøderbund Revisiting a 1983 Atari 8-bit Game

Dale Wooster (NWPAC)

Webster's Dictionary says a Spelunker is "one who explores caves." Well, you can't try to find the treasure at the bottom of this cave and not even get dirty.

Of the thousands of games that have come along for the Atari 8-bit over the past 10 years or so, only a few can truly be called *classics*. Spelunker from Brøderbund is one of those near the top of the list. It is a tough and challenging game for one player, with super scrolling graphics, some unique sounds and positive crisp play action.

Listen to the patter of the Spelunker's feet as he/she scurries throughout the cave picking up all the flares, picks, keys, dynamite and a couple items I'm not too sure about—but get them anyway as their point values count towards your point total.

You learn where to use the items you find as you get farther down into the cave, so *never leave anything behind!* You can use the elevator to start at any level you wish, but I found it's best to start from the top and *never go back up the elevator*.

Spelunker requires a *good* joystick.

There are also a few keyboard commands you will need to use. The spacebar, for instance, is used to kill the Ghost. You will hear the eerie sounds of the ghost approaching. It can come from *any* direction, so don't get caught on a rope or near the screen edge. Turn to face the ghost while standing on the dirt floor, and when he is a few inches away, hit the spacebar.

A blast from your air tank will blow him away. Use this sparingly as it reduces your air supply faster.

Another key fires a flare above your head. You use this when you hear and see the vampire bats flying above you. They live in the dark and hide from the flares. I think they are dropping "acid bat guano" on you because if it touches you, *you are dead*. Sending off a flare gives you enough time to run safely under them. If you feel *daring* you can run under most of them without a flare.

You set off dynamite charges by pressing yet another key. Get close to one of the mounds you can't jump over, set your charge, and then *turn* and *run like heck* the other way! If you place the charge in the right place, the mound will be gone and you can continue along that passage.

The lower left corner of the screen shows the items you have picked up along the way. At the bottom of the screen, a red "thermometer" gauge shows how much air you have left. There are plenty "air pump bellows" throughout the cave, but you will have to watch the gauge and move about carefully to avoid running out of air.

As you play, you will learn where the dead end tunnels are. Sometimes, you can pass by one of the pumps if you have plenty of air and you know you are coming back that same way, anyway.

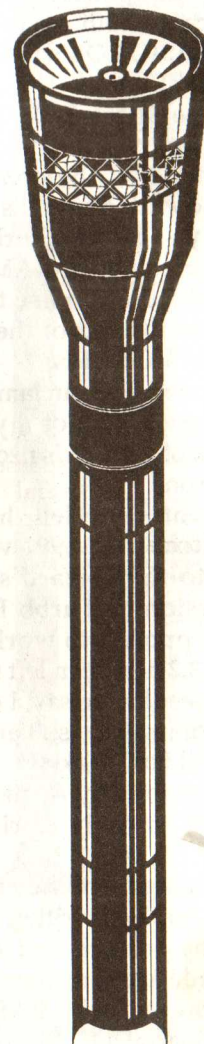
You also must watch out for the smaller mounds that shoot out puffs of steam that can kill you. Some of the small holes will also kill you if you step in them.

In Spelunker, you earn extra lives by scoring points. As you get deeper into the *Ropes*, and then the

Falls, the points you earn increase.

This game is so challenging that you will keep coming back to it as you learn all the twists and turns. I suppose you think I am going to tell you how to get through the Ropes and the Falls? Guess what! You're wrong. Have fun with this one.

Oh, one more thing. The disk will run a demo if you just let it load and go (boot without BASIC).



A-T-A-R-I

ANSWERS, Tips And Relevant Information

Paul Alhart (AFED)

This month I have several subjects to cover to bring things up to date. In the December '91 issue of AIM, I introduced MagiCalc XL. You can find this program on the March '92 AIM 8-bit DOM. Due to popular demand, I have since created a new version of MagiCalc. MagiCalc 800 looks exactly like MagiCalc XL, but was written for those of you using Axlon-type memory upgrades (Switching address \$CFFF). As an added bonus, I have included a short BASIC program with MagiCalc 800 that allows you to pick the extended memory bank in which MagiCalc 800 will hide itself.

MagiCalc 800 is shareware and appears on this issue's AIM DOM (June '92). As with MagiCalc XL, you can also order directly from me. The registration fee is \$6. For \$10, I will include the complete, heavily commented, MAC65 source code. Please specify which version (XL or 800).

I want to take this opportunity to say "Thank You" to Jake Olbrich of RACC. In my A-T-A-R-I column (AIM Feb. '92) I told you about my handicapped friend, Jeff. In response to that article, Jake donated several disks of educational software. He also included valuable information regarding other sources of educational software that can be used by the disabled/handicapped. This is just one more example of the thoughtfulness of people in the Atari community. Thanks again, Jake.

In March '92, I told you about The Atari Federation Hackers Challenge and The Challenge appeared on the AIM disk that month. If you are still working on The Challenge you may want to stop reading here, for I am about to divulge its deep, dark, diabolical, hidden secrets.

You must have noticed things were not right when you first looked at the disk's directory from DOS and found nothing there but DUP.SYS. The Challenge makes use of several hidden directories. They are accessed by

changing the values stored in memory locations 4226 LSB and 4229 MSB to point to the sector where the directory is to be found.

Their default values are 105 and 1. Therefore, the start of the Atari default directory is located at sector (105 + 1*256) or sector 361. This is the directory where I put DUP.SYS. Everything else is in other (hidden) directories.

After the title screen appears when you boot from this disk, you are given the prompt to *Let The Challenge Begin*. At that time, press and hold down the START key. At the READY prompt you will be able to LIST the program.

Line 500 of the listing gives you the first piece of the secret message *The Atari Federation*. Line 510 tells you (in a rather cryptic way) where the current directory is located, how to get to the next directory, and the name of the program you will be using. Type `POKE 4226,110:LOAD "D:CLUE"`.

If you RUN "D:CLUE" you will be presented with a Graphics 7+ screen which will just make you see red. Instead, after CLUE has been LOADED, LIST it and change the first number in LINE 35 from 64 to 4. This changes color register 1 to a gold color. Also, it helps to change LINE 40 to read `FOR I = 1 TO 2000: NEXT I: STOP`. This keeps the picture on the screen longer and keeps the program from sending you back to DOS.

Now type RUN to see the next part of the secret message—*Brings You*. Now LIST the program again and get your next clue from LINE 42. Type NEW to clear CLUE from your computer's memory and set up to use the directory hidden at sector 720. Type `POKE 4226,208:POKE 4229,2`.

Now you are ready to ENTER "D:ROOM". Don't type RUN yet or you will get the message ERROR- 9 AT LINE 9. LIST the program and you will see why. There is nothing but DATA statements and the instruction ? A\$ in LINE 9. The trick here is that you are not in the ROOM you ENTERed anymore. ROOM is a magical little BASIC program written with Immediate Mode commands (No line numbers).

ROOM DIMensioned, and put the next part of the secret message into, A\$. It also changed the directory locations again and sent you to another ROOM, the program you just LISTed.

As soon as you ENTER "D:ROOM" type ?A\$ or type GOTO 9 to see the third part of the secret message—*More For Your Atari*.

But what about all those DATA statements? And where is the next clue? Change line 9 to `9 READ D: ?CHR$(D);:GOTO 9`. Now type RUN and you will see that all those DATA statements are the next clue, which is RUN "D:around".

The problem here is that DOS won't allow you to have lowercase characters in a filename. To get around this, `POKE 3822,123`. This patches DOS to allow all alpha characters from A-Z and a-z. Now type RUN "D:around" and you are on the final leg of your quest. Answer all the questions correctly and you are done. The correct answers are:

720 Sectors, 5 Players (The missiles can be combined to form a 5th player.), 2 Years, 64 Files, 65536 Bytes, 6502 CPU, 14 = \$0E, 00 PAGE

That wasn't so hard now, was it? I had a lot of fun putting together The Challenge. I had even more fun listening to the exploits of my fellow club members as they tried to solve it. Most of them learned a great deal about their Atari 8-bits in the process. I hope you did, too.

By the way, did you really want to see what was in all those hidden directories? Without DOS, you couldn't just ask for a directory list like you are used to doing. Instead, type in and RUN this short BASIC program to see the contents of any directory you are using.

```
10 DIM A$(20):OPEN #1,6,0,"D:*"  
20 TRAP 30:INPUT #1,A$:?A$: GOTO 20  
30 CLOSE #1
```

Paul V Alhart
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Lompoc, CA 93436

AVALON HILL'S COMPUTER THIRD REICH

A WORLD WAR II GRAND STRATEGY GAME

DAVID ELMORE
ACCT

I began my Wargaming hobby almost 20 years ago. Fifteen years ago, I purchased a board game called "Third Reich." Ten years ago, I purchased my first Atari computer system, using it mostly as my opponent for wargames. When I read last year that Avalon Hill was releasing Third Reich for the Atari ST, I was more than happy. Last month, it was finally released. I'm thrilled, but I'm not sure you will be.

Display

Let me begin by stating this is graphically the finest computer board game I have ever seen. The designers have captured the game board almost exactly on the screen, down to the Combat Result Charts in the corners.

The map is of Europe from Spain in the West to the Ural Mountains of Russia in the East. Scandinavia is in the North, while the Sahara Desert of North Africa is in the South. The map scrolls 8 different directions using arrows located on the bottom of the screen.

You may split the screen, moving either the top or bottom half independent of the other. Other icons on the screen allow you to call up information

about the game in progress to either screen half.

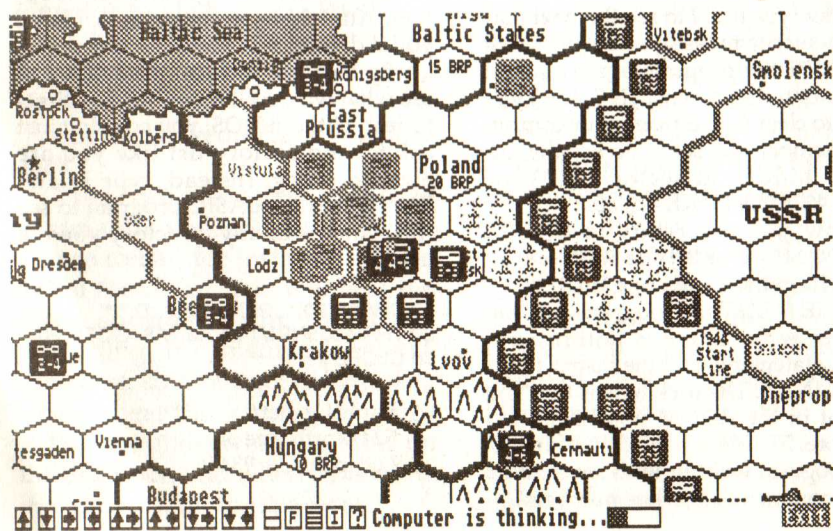
So, you can have information displayed on the top of the screen while you move your units on the bottom of the screen. You may also compress the map to get "the big picture," but I've found this to be useless. If you're paying attention, you'll already know what the "big picture" is. The Unit colors are bright; the map is very readable.

Game Play

Game play is almost exactly like the board game. All the turn phases are still here. Each country (Germany, Italy, Great Britain, France, U.S.S.R. and the United States) take turns, first deciding what type of operations they wish to carry out (Pass, Attrition or Offensive) on each front (Western, Eastern or Mediterranean). Then, they move their units, conduct combat, build and place replacements, and finally conduct Strategic Redeployment.

Unlike other games about the Second World War, this is no abstraction. The capabilities of each country are represented by its Basic Resource Points. These allow a country to build units and conduct operations. When you run out of points, you can't go on the Offensive or build replacements, so you must manage your resources wisely. Capturing other countries builds up your BRP base, making you stronger, but Bombers and U-Boats destroy BRPs, knocking you back down.

There are four scenarios in the game: the 1939 Scenario (Fall '39 to Summer '42), the 1942 Scenario (Spring '42 to Winter '44), the 1944 Scenario (Spring '44 until Berlin falls), and the Campaign Scenario (Fall '39 to Summer '45). Depending on the scenario, you can play the game against the computer in about 4-6 hours, longer against a human opponent.



Nice Touches

While playing against the computer, you hear pleasant "Thinking Music" when the computer is thinking. When the music stops, the computer begins to take its turn. During the Strategic Warfare phase, and during the game results, you listen to a great Boogie Woogie. The music is available on machines with one meg or more memory. On a basic 512K machine, the gameplay is silent.

This game feels like the original board game. You can see yourself moving the counters across the board, sipping Hot Cocoa while planning your next move. The die roll has been eliminated from combat. In its place, the appropriate Combat Odds column is displayed in the lower right corner and a bar slides up and down, stopping randomly on a result. The computer automatically keeps track of supply for you, surrounding units to destroy them through lack of supply is so much easier to keep track of. And you cannot make a mistake moving or in combat—the computer won't let you. *I really like this game!*

As far as game play goes, the first couple of times you play the computer, it'll sometimes do things you never thought of. It doesn't play very smart, pretty much straightforward. It doesn't even do things it should. But if you make a mistake, it will exploit it. If you leave a hole in your lines, you'll have enemy units swarming in your rear areas the very next turn!

Documentation

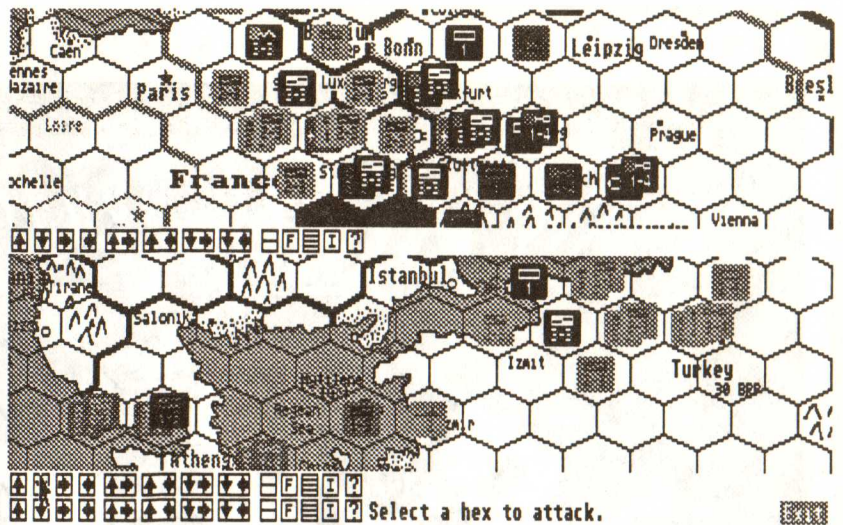
On the down side, if you don't know the board game, you're in trouble. First off, the Instruction Manual leaves *much* to be desired. As a matter of fact, it tells you if you really want to learn how to play this game, Avalon Hill recommends you either buy the Player's Manual or a copy of the board game itself! Put simply, without a copy of the 4th Edition Third Reich rules, you will be lost.

The instructions fail to tell you things like Terrain affects defensive combat values; or who the German minor allies are; or how Air and Naval combat works. Or even how to do Breakthrough and Exploitation, this being a *major* part of combat.

The instructions also fail to tell you how to get various country information to appear on the screen. Matter of fact, the docs fail to mention this information exists at all! I discovered it by playing around with the Information icons. Basically, the instructions fail to tell you not only how to play the game, but how to use the program. I strongly recommend buying a copy of 4th Edition rules from Avalon Hill through the catalog included with the program; the cost is \$5.

Problems

Also, I've had the game lock-up or bomb. Three times on a one meg machine, the game has bombed.



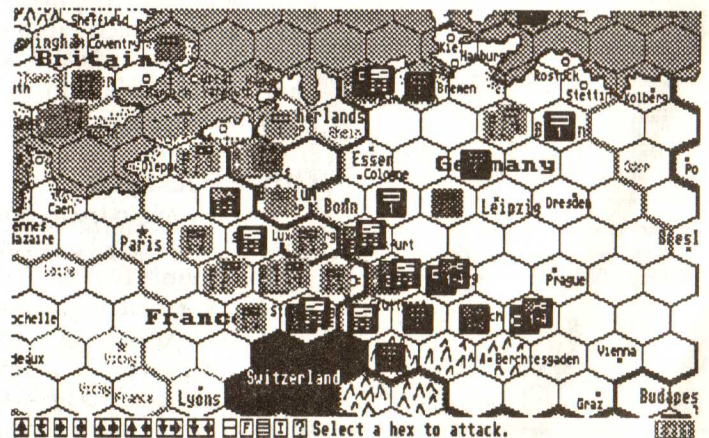
The game has locked up numerous times on both the one meg and a 512K machine. Clicking the left mouse button starts the game back up again, but the computer opponent has been removed. You can place him back in the game, but this is an annoyance. Saving the game often is a way to make the lock-ups and bombs less aggravating, but for a commercial piece of software, we shouldn't have to worry about this kind of thing.

I've personally called Avalon Hill on the phone and FAXed them a letter with my gripes. I feel they have a quality product that has a few bugs left in it. They seemed to be responsive to my call and letter, thanking me for notifying them of my complaints and letting me know they are working to fix the problems.

Summary

In closing, if you know Third Reich and are willing to overlook the documentation problems, I strongly suggest buying this game. I've had hours of fun with it, against both a human and computer opponent. If you enjoy computer wargaming, are willing to spend \$5 to get a complete set of rules, and can overlook the software problems, buy this game. You'll like it.

But, if you're a casual game player, you'll probably be too frustrated to enjoy the game.





Tim Bowles CASTE

When I was a kid, I used to play Poker with friends. We used pennies as chips and it was our way of keeping score. We didn't know exactly how to play, so we sometimes made up our own rules, like "My married pair (King and Queen) beats your two Jacks." Nowadays, the friends are not always available to play, so I sit down with my Atari ST and play Realistic Video Poker from Micro Creations.

What's the Deal?

According to the manual, Realistic Video Poker (RVP) "was designed to be as close to the casino game as possible in both play and graphics." I have never played a real video poker machine, but this game seems realistic to me, except for the fact I have not been able to collect my winnings. (grin) RVP uses keyboard input rather than the mouse and this works well. There is no time-consuming "cute" stuff like picking up a coin with the mouse and dropping it into the slot.

You start out with a bank roll of 80 coins with which to play. You may insert up to five coins into the video poker machine. The payoff chart at the top of the screen is highlighted according to how many coins you insert. For those who like to play for the big bucks, pressing a key automatically inserts five coins and deals the cards.

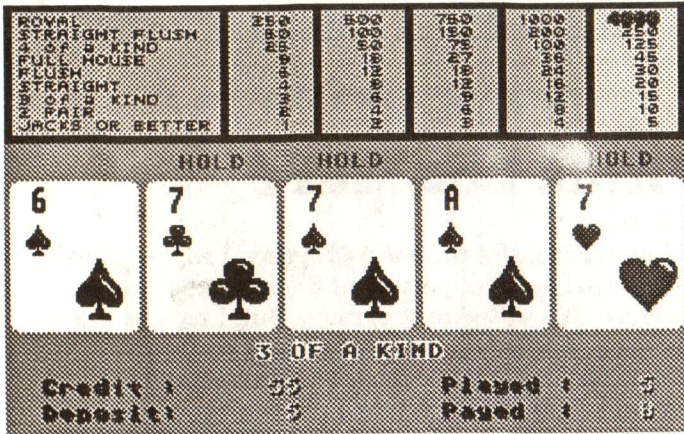
After the computer deals the cards, you may choose which cards to hold by pressing 1 through 5 on the keyboard. If you get a hand that's worth something, the computer tells you with an on-screen message such as Straight, Two Pair, etc. After you have chosen which cards to hold, pressing the Space Bar discards the rest. RVP then deals the new cards and will payoff on any winning hand as shown in the on-screen chart. When you win, you hear the digitized sound of coins falling out of the machine. Nice touch.

Other Features

If you wish to try to double your winnings, you can turn on the Double Down option. When you get a winning hand with this option on, you are asked if you want to try for Double Down. If you agree, the computer will then deal one card and you must pick a card of greater value to win. If not, then you lose it all.

If you feel like the machine you're using is not treating you right, you can switch to a new video poker machine with a freshly shuffled deck of cards.

High scores are listed in the "Tycoon Top Ten." There is also a Payout Report which keeps running totals on winning hands and how many hands have been played thus far.



Conclusions

The RVP manual is nothing more than a sheet of paper with a quick explanation of the game and a definition of hands. It gives no video poker strategies except to say get "one of the many books available on how to play video poker."

RVP is not copy protected, so it can be installed on a hard drive. It runs on any ST in low resolution only. Also, RVP has no problems with being DC Squished.

Realistic Video Poker is fun to play and would be good practice before you go to a real casino. It's better to lose imaginary money than real money.

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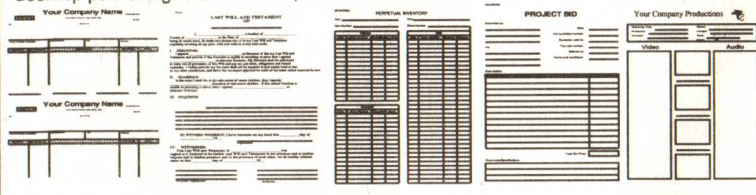
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TripLink

A BBS and a Whole Lot More

David Scarpa
WMAUG

There are quite a few BBS systems available for the Atari ST. When I was looking for a good, solid BBS for our users' group, I decided to try some Shareware efforts.

There are numerous commercial BBS software programs. But, I believe in supporting shareware whenever possible, it being the real backbone of our software line. This search turned me to the online services, from which I downloaded and tried several BBS systems. None of them satisfied what I was looking for—ease of use for the users and ease of setup for me. None of them, that is, until I happened onto TripLink 3.5. I am now using version 3.7 and I am a registered user.

More than a BBS

The first thing that attracted me to TripLink was that it is more than just a BBS. Sure, it has that capability in spades, but it is also a front end file manager.

TripLink gives you control over your entire system through drop down menus and a command line environment. Via this software, you can run programs, move files and perform all the basic things you need to keep your system humming.

One of the very best things going for TripLink is the ease with which it is set up, a definite plus for Sysop novices such as myself.

The initial set up of the BBS requires you to create a TripBBS directory and place TRIPEDIT.TOS and TLINKxxx.PRG inside of it. You then must run TripEdit, answer the basic questions regarding your particular system and hit return. You then copy all the Data, Menu, and AD LZH files into their own folders. Finally, you run the TripLink main program and you're done! The initial BBS setup takes about three minutes and the program is automated to do most of the setup itself!

Features

An easy to set up BBS would be nothing if it did not have features, and TripLink does have lots of features. The newest version supports two sets of up to 32 message bases. The message bases set themselves up when you run TripEdit and answer a few parameter questions. These bases have all the usual features, including extended messages for long-winded folk, like myself.

In addition TripLink supports 32 file areas, all of which can be linked to specific message bases. The program uses the external XYZ program (itself a Shareware endeavor by Alan Hamilton) to allow Xmodem, Xmodem 1K, Ymodem Batch, Zmodem and Zmodem Batch downloads. Users with a specific access level can also be allowed to extract files from archives online.

TripLink also supports online games very nicely. I use both the Games area and a Doors Interface Program (DIP) to allow usage of games designed for FoReM and Turbo BBS systems. You can have as many as 32 games online in the Games area, and that's not including the ones handled by the DIP!

One of the nicest features of TripLink is the built-in TinyTerm program. With it, Chat mode is clean and effortless. TinyTerm can be used as a mini-terminal program, allowing you access to other BBSes. Using TinyTerm to connect to other TripLink BBSes gives you the ability to pull the user on the other end inside your own BBS. Also included in the latest version of the program are TRIPHOOKS. These are global switches that allow you to do numerous nice little tailoring things on your board.

This is just the tip of the iceberg when it comes to describing the features of TripLink. There are many others. While FidoNet and Binkley Terminal support is presently lacking, it could probably be added by an enterprising Sysop. If you are looking for a BBS with an easy to use interface, that allows for easy setup, and has all the message bases and file areas you could need, I heartily recommend that you consider TripLink. The program can be downloaded from the online services or from the author, Mike Caldwell, on the TripLink Support BBS at (916) 349-8517.

CSS Super E-Burner for the Atari 8-bit

A First Impression

Barry Gordon (ACCESS)

I was overwhelmed with excitement the day the UPS man delivered the box from Computer Software Services. I had very good reason to be. After all, I had recently ordered one of their most technically oriented devices, the "Super E-Burner." This device reads and programs (E)rasable (P)rogrammable (R)ead (O)nly (M)emory or EPROMs for short.

Whoa! That's jumping in a bit too fast. How about we take a few steps back and run over some basic concepts first? OK, here goes...

ROMs vs EPROMs

Inside your computer is a ROM (Read Only Memory) chip which holds the instructions that tell your computer what it is and how to operate. This Operating System chip (OS ROM) is a permanent component which does not need energy to maintain its data integrity. In other words, it doesn't go blank when the power is removed like a RAM chip.

The OS ROM chip is programmed with instructions when it is manufactured, and those instructions cannot be changed at a later time. An EPROM chip also retains its programming when power is removed, however, its programming can be changed.

An EPROM has a small window in the center of the top side of the chip. Erasing an EPROM is done by simply exposing this window to a high intensity ultraviolet light (Don't ask how, or we'll be here all day talking about transistor gate depletion levels and photo-electron velocities). But programming (commonly called "burning") an EPROM chip requires a special device. Enter the Super E-Burner.

Let's Get Physical

I had never seen a picture, nor heard a description of the physical aspects of the Super E-Burner. All I knew was that it plugged into the cartridge port of the Atari 8-bit computer and was incredibly fast.

After tearing the shipping box open, I pulled out a rather odd-looking device. The main unit of the Super E-Burner is a 5"x5" PC board which holds one power connection, four IC chips, 48 miscellaneous electronic parts, one 34-pin port and one ZIF socket.

What's a ZIF socket? Well, it stands for (Z)ero (I)nsertion (F)orce. It's an expensive socket that puts no pressure on the pins of an inserted chip. The socket has a small lever on its side. After placing a chip in the socket, pressing the lever down causes a metal plate in each hole to clamp down on the pins, thus making a solid electrical contact. Coming off the 34-pin port is a two foot ribbon cable that connects to the cartridge in-

terface board. This board resembles a disassembled game cartridge, and is used in a similar manner.

Using the E-Burner

Despite the rather sparse and inadequate documentation which accompanies the Super E-Burner, operating the device is quite simple. The cartridge interface board plugs into the cartridge port and you then boot your computer with your favorite DOS. (For reasons unknown to myself and Bob Puff, this device does not work properly with SpartaDOS X). Upon entering the cartridge via a DOS command, the following menu screen appears:

```
+-----+
| CO:01 NU:00 File:
| Prom:0 Loc:00000 Write:00 Read:00
| Type: Retries:0000 Speed:1
+-----+
| The SUPER-E BURNER 0.7
| By: Robert Puff (C) 1991 by CSS
|
| [A] 2732 25V
| [B] 2732A 21V
| [C] 2764 21V
| [D] 2764A 12V
| [E] 27128 21V
| [F] 27128A 12V
| [G] 27256 12V
| [H] 27512 12V
| [I] 27C101 12V
| [J] 27C301 12V (or mask ROM)
|
| Select PROM type >
+-----+
```

From this menu, the EPROM size and programming voltage is entered. On this subject, the docs say nothing more than "Select the proper EPROM type. An incorrect selection of types can damage your EPROM."

I recommend you find some other references to help determine the proper setting.

Once the EPROM type is chosen, the main menu is presented:

```
+-----+
| Select Operation:
| [R] Read EPROM [B] Burn EPROM
| [V] Verify EPROM [E] Verify erase
| [N] # of copies [Q] quit to DOS
| [S] Change speed [ESC] New PROM size
| [1-9] Disk directories
|
| Please Select >
+-----+
```


Although these menu selections are basically self explanatory, we'll run through them quickly. [R]ead copies the information from a programmed EPROM onto a disk file. [B]urn writes information from a disk file onto a blank EPROM. [V]erify compares information on a programmed EPROM to a disk file. [E]rase checks to make sure an EPROM is blank. [N]umber sets the number of EPROMs to be burned from a single disk file. [Q]uit exits to DOS. [S]peed alters the programming speed for older and slower EPROMs. [ESC] goes back to the previous menu.

Documentation Details?

Four stapled pages accompany the Super E-Burner consisting of a title page, a warranty page, a VERY oversimplified page of instructions and a page showing the orientation of different sized chips in the ZIF socket. I immediately called CSS and asked Bob Puff, "Is this it?" He assured me they would be revising the documentation soon and talked me through the necessary concepts and instructions.

Within the documentation, a handwritten note says that CSS is working on a built-in editor which will support XE memory. This would make the Super E-Burner one of the most powerful firmware devices I've seen. A ROM chip could be read, disassembled,

modified, and rewritten without loading up any other programs. Bob said the revised documentation would be included with the enhanced editor.

Observations

Now that I've had the Super E-Burner for about a month, I find myself rather comfortable with it. I have managed to backup every single ROM chip in the house onto my hard drive. That's over thirty chips including nine different Operating Systems for my 8-bit!

But the real fun of owning an EPROM burner is in firmware modifications. By disassembling, modifying and rewriting parts of ROM code, I've managed to make my 130XE run in high speed mode with my US Doubler drives, regardless of what disk/DOS I boot; I've made a stock 1050, US Doubler 1050 and an XF551 all respond to drive numbers higher than D4; and I'm working on modifying my SpartaDOS X cartridge to use the standard SIO vector so it will work with a Multiplexer.

All things considered, I am very impressed with the Super E-Burner. It is a well built, extremely fast, and (so far) reliable unit. In my opinion, it is well worth the price (which, as of this writing, is \$169.95 + \$8 S/H). Kudos to Bob Puff and the gang at CSS!

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THE GOOFY GURU

That Pesky 8-bit Disk Drive Pad Problem

Charles Kelly
(SNACC)

The Goofy Guru could have avoided a lot of disk drive problems if he had known this trick before—and now you can avoid them, too. When the pressure pad goes bad on a disk drive, you have all kinds of read errors and other hassles. And a company whose product is found on more desktops than IBM has the perfect solution. They recently changed a minor part of an important product that will provide the perfect replacement. It is the BIC pen.

Now, folks, please don't get cheap and use any pen you happen to have lying around. You want a new pen that has not yet been chewed on. Chewing on a pen will ruin the surface of the part we want. You are going to use the little piece that covers the end opposite the ball point. It is the *perfect* size for replacing just about any pressure pad, for any single-sided disk drive.

The Procedure

Just remove this "plug" from the pen and press fit it into the pressure bar on your drive. About the only problem is on a Tandon mechanism 810 drive. For this drive, you should drill a small 1/8-inch hole at about the same position as the old pad. Place a small board under the pressure arm to protect the drive head on these drives. Be careful. Don't drill very deep at all. You can use a small knife to expand the hole safely. All others—including the Trak, Indus, MPP 810s, 1050s, etc.—will already have such a hole where a very similar piece was fitted.

What makes this repair possible is a change in the plastic piece on newer BIC pens that is pretty close to the plastic pad that came with these drives. The change is important because you need a fairly hard plastic that will still not gouge holes in your disks.

A little problem like this can lead to foolishly sending your drives away for repair. Simply removing the cover and opening the drive up is usually more trouble than the rest of this repair. Just keep in mind that covers on Indus and Percom drives slide off while the other drives' covers usually pull off in two halves.

Charles Edward Kelley
27 N. 2nd Ave. E. #201
Duluth MN 55802-2122

[The Goofy Guru series originated in the Southern Nevada Atari Computer Club newsletter and continues to irritate all. Topics covered are varied and obscure. In other words, this column is devoted to topics no one else seems to write about.]

Spreadsheet Design

Michael Bennett

Effective spreadsheet design includes the arrangement and format of cell entries, the grouping of cell entries into sections and the use of formulas so the spreadsheet can do the job for which it is prepared. Screen appearance, ease of data entry and printed reports are all purposes for design.

Figure #1 is an example of a spreadsheet that was entered with little attention to design.

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Figure #2 shows the same spreadsheet as Figure #1, but it has been formatted and arranged so it is easier to understand. These design features can be incorporated either when the spreadsheet is first entered or after the basic data has been entered and the calculations performed. You can save time, however, if you pay attention to the design of your spreadsheet before you enter it.

Figure #2 shows all dollar amounts with two decimal places and dollar signs (some spreadsheets do not have the dollar feature, but two decimal places still looks nice). Amounts that do not represent dollars are integers (no decimal places). Labels above columns are right justified with the numbers in the cells below. Different sections of the spreadsheet are separated and the column

labels are underlined to make it easier to read.

Spreadsheet Uses

Spreadsheets may be used for many purposes. Your objective will determine the design. The three major purposes for spreadsheets are record keeping, analysis and forecasting.

Record keeping applications are the easiest to design because they show only the most basic data with just a few calculations. Fig. #2 is an example of a record keeping spreadsheet.

Analysis applications usually build upon the record keeping

style of spreadsheet. In addition to simply recording data, though, they require you to analyze the results. Analysis applications often include functions such as finding percentages. Figure #3 expands on the previous example to include a percent of sales column.

Several formulas are included in column F to show each expense as a percentage of sales. Each formula divides the expense and profit by the sales amount. For example, the formula in cell F11 is E11/E8. The formula in cell F12 is E12/E8. Each of the formulas in column F use the cell contents of E8 as the denominator. When you copy formulas, you must be careful to specify whether the cell reference should be copied relatively or absolutely. Different programs use different methods for this, so check your instructions.

Forecasting

Forecasting applications use estimates to forecast future results. This type of spreadsheet takes advantage of the program's ability to perform "what if" analysis. With "what if" analysis, the user changes the input data and analyzes the various results. When you design

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

	A	B	C	D	E	F
1						
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6						
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9						
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11						
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14						
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16						



FIGURE #4
Car Wash Profits

	A	B	C	D	E	F
1						
2						
3	-----					
4	INPUT SECTION					
5	Price	\$3.00				
6	-----					
7	RESULTS SECTION					
8		Friday				Percent
9		Night	Saturday	Sunday	Total	of Sales
10	-----					
11	Cars	10	20	15	45	
12	Price	\$3.00	\$3.00	\$3.00		
13	Sales	\$30.00	\$60.00	\$45.00	\$135.00	100.00%
14	-----					
15	Expenses					
16	Soap	\$8.10		\$4.15	\$12.25	9.07%
17	Sponges	\$3.85			\$3.85	2.85%
18	Signs	\$3.00			\$3.00	2.22%
19	Tot. Exp.	\$14.95	\$0.00	\$4.15	\$19.10	14.15%

sections, it may be helpful to place separate column headings in each section. Fig. #5 can be displayed on one screen and probably does not need to have the column headings repeated in the Results section.

When you design a spreadsheet, you should enter information that will identify the spreadsheet to others who may view the report. You should also enter any other information that may be helpful to you. The upper left and right sides are good locations for such data entry. Proper design may also involve explaining the formulas, assumptions and inputs to be used. These explanations should be placed directly on the spreadsheet. Without explanatory notes, you may have to spend needless time reacquainting yourself with the spreadsheet when you return to it later.

Here are some good principles of spreadsheet design to help you produce effective spreadsheets:

1. Set objectives for the spreadsheet.
2. Plan and arrange the layout on paper first.
3. Set aside sections for the different parts of the spreadsheet.
4. Format the sections according to screen display considerations.

the forecasting spreadsheet, you should place the input data that will change in a separate part of the spreadsheet. That way, you can change data easily. Other cells may refer to your input cells, so you can simply change the input data to see the results, instead of changing all the cells individually.

As an example of a forecasting application, suppose you want to forecast the results of changing the price charged for a car wash. See Figure #4 and notice the changes to make forecasting easier.

Cells B12, C12 and D12 contain an absolute reference to Cell B5. So, when the user changes the price in Cell B5, all of the results change appropriately.

Another way of designing this situation on a spreadsheet would be to label all the input values in a separate section and label the profits as the results section, as in Figure #5. It is often difficult to separate input values from the results. For example, the Percent of Sales column actually contains the results instead of the input data. Fig. #5 shows that the user may change any of the expenses, the number of cars, or the prices to easily see the resulting profit.

When a large spreadsheet contains separate

FIGURE #5
Car Wash Profits

	A	B	C	D	E	F
1						
2	-----					
3	INPUT SECTION					
4		Friday				Percent
5		Night	Saturday	Sunday	Total	of Sales
6	-----					
7	Cars	15	24	19	58	
8	Price	\$2.00	\$2.50	\$1.95		
9	Sales	\$30.00	\$60.00	\$37.05	\$127.05	100.00%
10	-----					
11	Expenses					
12	Soap	\$9.00		\$4.15	\$13.15	10.35%
13	Sponges	\$3.85			\$3.85	3.03%
14	Signs	\$3.00			\$3.00	2.36%
15	Tot. Exp.	\$15.85	\$0.00	\$4.15	\$20.00	15.74%
16	-----					
17	RESULTS SECTION					
18	Profit	\$14.15	\$60.00	\$32.90	\$107.05	84.26%

Worksheet Range Copy-Move File Print Graph Data Macro Quit

READY OK CALC BOLD END NOTE HELP

B13: {B0} {M12} @sum(B5..B12)

BUDGET-A		BUDGET-B		BUDGET-C	
INDEX	NAME	INDEX	NAME	INDEX	NAME
1	PERSONAL BUDGET	1	Jan	1	Total
2	Mary's Income	2	2,250.00	2	24,750.00
3	Tom's Income	3	3,150.00	3	34,650.00
4	Total Income	4	5,400.00	4	59,400.00
5	House Payment	5	1,775.00	5	19,525.00
6	Car Payment	6	650.00	6	7,150.00
7	Gas and electricity	7	323.45	7	2,295.46
8	Telephone	8	187.23	8	2,115.33
9	Food	9	520.00	9	5,500.00
10	Insurance	10	340.00	10	3,740.00
11	Clothes	11	250.00	11	3,110.00
12	Others	12	400.00	12	4,045.00
13	Expenses	13	7,415.68	13	48,360.72
14	BALANCE	14	754.32	14	22,070.42
15		15	1,837.46	15	

ST/TT Disk

All files on this disk are created with Double Click Software's Self-Extracting ARC program DC SEA! To use these programs, simply double click the files. Then, click on Extract and select the drive/folder to which you want the extracted files saved. Click on Verbose to get a list of the files in each archive or Exit to abort.

Here's a short description of the files on the June '92 disk. For more complete docs, see the text files contained in most of these archives.

ASTEROID.PRG—A great Asteroids game clone from the UK. Color only.

AUTOCPU.APP—Auto sets Mega/STE's CPU speed. Drops to 8MHz for "flaky" software, then jumps up to 16MHz with Cache when you exit back to the desktop. MegaSTE only.

FMTCPX.APP—Disk formatting CPX from Germany, with English documentation. You must have XCONTROLACC to use this extension.

HCOPY.APP—HCOPY from Germany is a disk copier that supports HD disks, 3.5" or 5.25" disks, up to 92 tracks and 21 sectors, backwards formatting for safety and virus protection. Shareware. Docs are in German, but the program is in English. Mono or Color, including TT resolutions.

ICCA.APP—I Can Capture Anything (ICCA) is a program to redirect output streams to files. You select the output device to redirect and the filename to which the redirected output will be stored.

JCLABELD.APP—An excellent label printing utility from the UK. Shareware. ST medium or high resolutions on ST/TT.

JOUTE.APP—Two player modem-to-modem tank combat game with a one player "practice" mode. ST low or medium resolution on ST/TT. Great graphics. Shareware from Canada.

JUMBLE.APP—ABC Jumble is an educational game that lets kids sort the letters of the alphabet after the computer jumbles them up. Point and click GEM interface.

MANYGOGO.APP—Similar to the Mac DA, this DA gives you your own personal GoGo dancer—up to seven of them, actually. For Adults ONLY. Do not use this DA if blatant male chauvinism or semi-nudity offends you.

MNET103.APP—Michtron NETWORK by Jeff Wells networks your MBBS with other systems. Very easy to set up. Shareware.

OPLACE11.APP—Other Place is a one person asteroids-like arcade game. Mainly shoot and dodge with a little maze action. All ST resolutions.

RUSSIA.APP—Two utilities from Russia! A_Format is a floppy disk formatter with some interesting options. BootInst installs a smart boot sector allowing you to enter time and date at bootup, continue boot process from Drive B and more. English prompts in both programs.

SEARCHME.APP—Word search puzzle generator. Save and load or print puzzles. Create custom word lists, use the supplied dictionary or use the dbWRITER wordprocessor dictionary. ST mono only on ST/TT.

STARNUKE.APP—StarNukers 1.02D, a two-player, real time, modem-to-modem space war game. ST medium or high resolution on ST/TT. Shareware.

Mac/Spectre

Each AIM Mac/Spectre Disk of the Month is a double-sided disk packed with some of the best PD and Shareware programs available each month. The disks are available in either Macintosh or Spectre formats. All files are self-extracting Compactor Pro archives. Just double click to extract!

Here is a short description of the files contained on the June '92 Mac/Spectre Disk of the Month:

AltCDEF—This init modifies the scroll bars in all of your Mac's open windows to have double arrows at each end. No more moving back and forth from one end of the bar to the other when making fine adjustments!

CarpetBag 1.1—A utility that works in much the same way as Suitcase II or Master Juggler. That is, it allows you to use fonts and DAs without actually installing them in your System file. CarpetBag doesn't have as many features as the commercial programs, but it's a lot cheaper.

SmartKeys 2.1—Init/CDEV typist's assistant that can be configured to help prevent common typing errors, such as typing two capital letters in a row. It also can be configured to change standard quote marks to smart quotes. A very useful utility.

eMACs 3.0—The latest version of the popular eMACs text editor for the Macintosh. All the standard commands are supported and most commands can be chosen by either a mouse click or from the keyboard.

Definitive Desserts 1.2—A HyperCard 2.1 stack full of great dessert recipes. If you've got a sweet tooth, you'll find something you like here.

Home Inventory—Another HyperCard 2.1 stack. This one can help you keep track of all your stuff. Very nicely done and easy to use.

DISKS OF THE MONTH

Disk

Stella Obscura—In this archive you'll find a great 3D space shoot 'em up game. To get the 3D effect, you need to make a special viewer from a cracker box (really!). The docs include instructions for making the viewer.

Bonk 1.2(b&w)—In this game you "bonk" a little guy each time he pokes his head out. Trust me, it's more fun than it sounds.

The Grouch—The init in this archive places Oscar the Grouch from Sesame Street in your Trash Can. Each time you empty the trash, Oscar raises his head and sings. A very nice animation and lots of fun. You may find yourself deleting all your files just to watch him do his thing!

Readers can purchase this disk from their local AIM participating user group or by sending \$6 (\$5 +\$1 s/h) to Unicorn Publications, 3487 Braeburn Circle, Ann Arbor, MI 48108, or call (313) 973-8825 and have your Visa or MasterCard handy. Please specify the June '92 ST, Mac or 8-bit Disk when ordering. When ordering the Mac/Spectre Disk, please indicate Mac or Spectre format.

8-bit Disk

Each AIM 8-bit Disk of the Month is a single-sided, single density "flippy" packed with software. To extract files in the ARC format, you need the UN-ARC.COM utility. To decompress files with a DCM extension, you need DISKCOM3.UTL. Both programs are available from most BBSes, user groups or you can purchase the April/May '91 AIM 8-bit Disk.

Here's a short description of the files on the June '92 8-bit disk:

SIDE 1

CTH_FB.ARC—CTH Fast Basic will be a welcome addition to the libraries of BASIC programmers using SpartaDOS 3.2d. It's an extremely fast interpreter for XL/XE users. Fast Basic provides 28,119 bytes of free memory for your BASIC programs. Features include a screen accelerator and a customized, fast floating point package (based on code by Charles Marslett). Docs included. Written by Tom Hunt.

DEMO2.ARC—An excellent demo from overseas. Press RESET to move from one stage of the demo to the next.

FILEDEMO.ARC—Demo of the File Information Manager, a disk library database manager. Each file entry can include a 128-character detailed file description. Features include interactive search, two description fields, and ability to read disk directory into memory. Written by Larry Richardson (ACCD).

HVYMETAL.ARC—An excellent game from the UK and Page 6 magazine. Wander through the mazes and find the lost jems. To move from maze to maze, press the fire button while on the "pads." Joystick required.

MCALC800.ARC—MagiCalc 800 is a new version of MagiCalc XL. It is identical to the XL version, except it is written for machines that use Axlon memory bank switching instead of XL/XE bank switching. Includes documentation and a BASIC program to modify MagiCalc 800 to load itself into the extended memory bank of your choice.

SIDE 2

BGAMES.DCM—Three games—Catch 88, Knight Moves and Othello—written by Simon Trew of the LACE club in London, England. This discomm file includes drivers for joystick, mouse, touch tablet and trackball. Use Discomm to decompress to a blank SD disk, then reboot. Once at the DOS menu, load the appropriate driver, then run the games. NOTE: Plug your input device into Port 2!

LITTLE.ARC—This demo may be little, but it still is impressive. From the High Tech Team. START and OPTION keys move you from one stage to another.

VTEX11.ARC—VTEX is a utility that allows you to view any file on the screen. It's much easier to use than TYPE or COPY to E:. VTEX can page through a file, both forward or backward. Features include pseudo-word wrap, deletion of leading spaces from left margin, string search capability, ASCII CR/LF handling and built-in help. Written by Larry Richardson (ACCD).

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IN NEVADA

Alabama

BACE
5822 5th Terrace S.
Birmingham, AL 35212
Alan Brewster (205) 591-9906
Meet: Vestavia Hills Public Library
Day: 2nd Mon. Time: 7PM
Dues: \$15/Regular, \$25/Advanced
CPU: Atari 8-bit and ST/Mega/TT
BBS: Matrix Co. #7 (205) 323-2016, Matrix (205) 251-2344
Misc: Advanced includes AIM 8bit or ST monthly disk

Arizona

PHAST
PO Box 56413
Phoenix, AZ 85079
Mike Aubrey (602) 870-8360
Meet: Room #101, Devry College, 2149 W. Dunlap Ave., Phoenix, AZ
Day: 2nd Sat. Time: 10-12PM
CPU: ST/Mega/TT
BBS: ST Base (602) 285-9246, RDS (602) 841-7196, Wild Thing (602) 277-8225

SEVAC
PO Box 662
Chandler, AZ 85224
Marc Dyer (602) 897-0314
Meet: Dobson Ranch Branch of Mesa Public Libraries
Day: 3rd Sat. Time: Usually 10AM
Dues: \$12
CPU: Atari 8-bit and ST/Mega/TT
BBS: (602) 833-9216
Misc: Reduces ST/8-bit library prices, club BBS access.

California

ACCESS
PO Box 1354
Sacramento, CA 95812
Bob Drews (916) 423-1573
Meet: SMUD Training Building, Classroom B 1708 59th St., between Folsom Blvd. & R St., off Hwy 50.
Day: 1st Wed. Time: 7:30PM
CPU: Atari 8-bit
BBS: ACCESS (916) 428-8662

AFED
PO Box 5367
Vandenberg AFB, CA 93437
Phil Rominger (805) 736-7147
Meet: Vandenberg Federal Credit Union, Vandenberg Village branch, Lompoc, CA 93436.
Day: 1st Mon. Time: 7PM
Dues: \$10/single, \$15/family
CPU: Atari 8-bit and ST/Mega/TT

AUGIE
3905 N. Lugo Ave.
San Bernardino, CA 92404
Don Lucia (714) 883-3547
Meet: East Baseline County Branch Library, 27167 E. Baseline Rd., Highland, CA.
Day: 2nd & 4th Sat. Time: 2-4PM
Dues: \$25/yr.
CPU: Atari 8-bit and ST/Mega/TT
BBS: StarLink (9600) (714) 688-3204

BAAUG
3691 Eastwood Circle
Santa Clara, CA 95054
Joe Fischer (408) 988-3065
Meet: Agnew Development Center Auditorium, Lafayette & Montague Exp. Santa Clara, CA.
Day: 1st Mon.
Dues: \$20
CPU: Atari 8-bit, ST/Mega/TT and Portfolio
BBS: (408) 986-0215

BACE
PO Box 40203
Bakersfield, CA 93384
Tim Hobbs (805) 837-2726
Meet: Pizza Hut, 3017 Wilson Rd., Vons Shopping Center
Day: 3rd Tue.
Dues: \$18/yr Full, \$12/yr Regular, \$6/yr BBS
CPU: Supports Atari 8-bit, ST/Mega/TT, Mac, IBM and Portfolio
BBS: (805) 831-5350

DACE
c/o J. Dickerson, PO Box 673
Diablo, CA 94528
Dan Howlett (510) 827-3805
Meet: Contra Costa County Water District Bldg, 1331 Concord Ave, Concord, CA.
Day: 1st Thu. Time: 7PM
Dues: \$20/yr
CPU: Atari 8-bit and ST/Mega/TT

FRACUS
2167 Richart Ave.
Clovis, CA 93712
Tom Hancock (209) 885-2817
Meet: Four Seasons Mobile Home Park Recreation Room, Fresno, CA.
Day: Last Sat. Time: 6PM
Dues: \$20/yr or \$10/semi-annually
CPU: Atari 8-bit
BBS: (209) 251-5338
Misc: Membership includes club disk of the month/newsletter and AtariUser

MITARI MIDI
1848 N. Gramercy #302
Los Angeles, CA 90028
Brian Valentine (213) 461-5407
Meet: Meets at club address, a MIDI sound studio run by Brian Valentine.
Day: Last Sun. Time: 2PM
Dues: \$15/yr
CPU: Atari ST/Mega/TT
Misc: MITARI supports audio creativity on the ST/STE. All current members are engineers or producers.

RAM
PO Box 112
Camarillo, CA 93011
Timothy McCoy (805) 482-4788
Day: 3rd Wed. Time: 7:30PM
Dues: \$25
CPU: ST/Mega/TT
BBS: (805) 987-6985
Misc: Member of ACENET consortium, active at the Glendale show.

SBACE
4802 Avenue B
Torrance, CA 90505
Robert Smith (310) 518-1845
Meet: VFW Hall, 1865 Lomita Blvd., Lomita, CA (near Long Beach)
Day: 2nd Tue. Time: 7:30PM
Dues: \$20/yr
CPU: Atari 8-bit, ST/Mega/TT and Portfolio
Misc: SBACE Gazette newsletter.

SCCAUG
5222 Carryback Ave.
San Jose, CA 95111-2801
Ron Reade (408) 225-7162
Meet: San Jose Computer Showroom, Alma Court
Day: 2nd Wed. Time: 7PM
Dues: \$15/yr
CPU: Atari 8-bit, ST/Mega/TT and Portfolio
BBS: SCCAUG (408) 971-9212
Misc: MIDI demos are held twice yearly.

SDACE
PO Box 900076
San Diego, CA 92190
Dan Phillips (619) 462-1289
Meet: General: North Park Recreation Center Social Room, 4044 Idaho St. ST/8-bit Workshops: North Park Adult Center, 2719 Howard St.
Day: Gen.: 3rd Mon., Workshops: 1st Thu. Time: 7PM
Dues: \$18/yr
CPU: Atari 8-bit and ST/Mega/TT
BBS: (619) 689-8157
Misc: SDACE newsletter, increased BBS access

SLCC
PO Box 1506
San Leandro, CA 94577-0374
Bob Woolley (415) 865-1672
Meet: San Leandro Community Library, 300 Estudillo Ave.
Day: Main: 1st Tue., ST: 2nd Mon. Time: 8PM
Dues: \$20/yr
CPU: Atari 8-bit and ST/Mega/TT
BBS: Key System (415) 352-5528
Misc: SLCC Journal, access to print and PD/Shareware disk libraries.

SST
PO Box 214892
Sacramento, CA 95821
Mark Warner (916) 344-8320
Meet: Pac Bell Auditorium, 2700 Watt Ave.
Day: 2nd Wed. Time: 7PM
Dues: \$24/yr
CPU: ST/Mega/TT
BBS: ST-Keep (916) 331-6153, (916) 729-2968
Misc: Club newsletter, free raffle ticket at each general meeting, membership disk

ST ACE Sonoma
PO Box 4916
Santa Rosa, CA 95402
John Orcutt (707) 526-2544
Meet: Santa Rosa Baptist Church, 3884 Sebastopol Rd.
Day: 3rd Thur. Time: 7:30PM
Dues: \$20/yr
CPU: Atari ST/Mega/TT

SVACE
672 E. Romie Lane
Salinas, CA 93901
Gary Klugman (408) 758-4894
Meet: Salinas Community Center
Day: 1st Tue. Time: 7:30PM
Dues: \$12/yr
CPU: ST/Mega/TT
BBS: BitStream (408) 449-2150
Misc: Raffles, free disk of the month

TEAC
PO Box 1024
Laytonville, CA 95454
Pete Loeser (707) 984-8048
Meet: Operates by mail, members are spread all over the world.
Day: US: \$25/yr, Foreign: Inquire
CPU: Atari 8-bit and ST/Mega/TT
Misc: TEAC newsletter. 8-bit and ST educational disk library.

YAC
1129 Fordham Dr.
Davis, CA 95616-0926
Eric Hays (916) 756-5486
Meet: Call or write for meeting time/place
Dues: \$8/yr
BBS: Steve's (916) 661-1538
Misc: PD library access, Yackity-YAC newsletter.

Colorado

ACCD
5407 W. 4th Ave.
Lakewood, CO 80226
Guy McDaniels (303) 238-2366
Meet: ACD/STIG: Aurora Public Library, 14949 E. Alameda Ave. STArfleet: Pamona HS, 8101 W. Pamona Dr.
Day: ACD: 1st Tue.; STArfleet: 2nd Fri.; STIG: 3rd Tue. Time: 7:00 PM
CPU: Atari 8-bit and ST/Mega/TT
BBS: (303) 343-2956
Misc: ACCD is an umbrella group for ACD, Starfleet and STIG.

P3ACE
PO Box 17779
Colorado Springs, CO 80935-7779
Steve Leser (719) 576-3357
Meet: T.J. Maxx Center at Rustic Hills
Day: 8-bit: 1st Tue., ST: 4th Thu. Time: 7-9PM
Dues: \$20/yr family
CPU: Atari 8-bit and ST/Mega/TT
BBS: Laser (719) 527-1374
Misc: Club has a Hayes 300 baud and Atari SX-212 1200 baud modem for loan to members. AtariUser and AIM ST and 8-bit Disks available at each meeting.

Connecticut

CCCC
127 Pinnacle Rd.
Bristol, CT 06010
Rich Scheidel (203) 589-3738
Meet: 127 Pinnacle Rd., Bristol, CT.
Day: 3rd Wed. Time: 7:30PM
Dues: \$25/yr normal, \$30/yr family
CPU: Atari 8-bit, ST/Mega/TT and Portfolio

STARR
15 John St.

Ansonia, CT 06401
Madelon Wilson (203) 735-6711
Meet: Greater New Haven State Tech. College,
88 Bassett Rd., North Haven, CT.
Day: 3rd Thu. (exc. Aug.)
Dues: \$20/yr
CPU: ST/Mega/TT
BBS: (203) 421-4861

Delaware

CDACC
3117 Walnut St.
Dover, DE 19901
CPU: Atari 8-bit and ST/Mega/TT

Florida

ABLE
PO Box 1172
Winter Park, FL 32790
Hadley Nelson (407) 671-0317
Meet: Orlando Public Library, Palm Magnolio
Room 101 E. Central Blvd., Orlando FL
Day: Last Sun. Time: 1:30-4:30PM
Dues: \$12
CPU: Atari 8-bit and ST/Mega/TT
Misc: Access to the ABLE Program Library of
User Software (ABLE PLUS) and ABLE
AID newsletter.

PACE
2439 Moorehaven Drive East
Clearwater, FL 34623-1615
Alan Frazer (813) 791-0912
CPU: Atari 8-bit
BBS: Tut's (813) 797-8449

STARgroup
2312 Ironstone Dr. E.
Jacksonville, FL 32216
S. Michael Hallack (904) 646-0567
Meet: La Miranda Apartments off Powers Ave.,
Jacksonville, FL.
Day: 1st & 3rd Tue.
Dues: \$15/yr
CPU: ST/Mega/TT, Macintosh and Portfolio
BBS: Lief's World (904) 573-0734
Misc: Free PD/Shareware disk library access,
quarterly newsletter.

TBAA
5918 Otis Ave.
Tampa, FL 33604
Butch James (813) 237-4306
Meet: East Bay Library, East Lake Square Mall
Day: 2nd Wed. Time: 7PM
Dues: \$10/yr
CPU: Atari 8-bit and ST/Mega/TT
Misc: Monthly classes in software and
peripherals

Georgia

MGAUG
Rt. 1 Box 362M4 Carl Sutton Rd
Lizella, GA 31052
Jeff Vincent (912) 836-3852
Meet: Tattnell Square Academy, Macon, GA.
Day: 2nd Sun. Time: 2PM
Dues: \$30/yr and \$4/year optional newsletter
CPU: ST/Mega/TT
Misc: Club library use is free to all paid
members. AtariUser. Participates in
annual show at local mall.

STAR
3069 N. Brook Rd.
Chamblee, GA 30341
Rick Ostapower (404) 487-4845
Day: 3rd Mon.
Dues: \$30/yr
CPU: ST/Mega/TT

Illinois

CUSTUG
PO Box 3442
Champaign, IL 61826-3442
Lee Johnson (217) 356-7916
Meet: Urbana Free Library Auditorium, corner of
Elm and Race, Urbana, IL.
Day: 2nd Wed. Time: 7PM
Dues: \$16/yr
CPU: ST/Mega/TT
Misc: AtariUser magazine, PD library access,
December MIDI concert/demo.

EAUG
2425 Crislisa Dr.

Alton, IL 62002
Hank Vize (618) 465-0342
Meet: Alton Square Mall Community Room,
Alton, IL.
Day: 1st Mon. Time: 7PM
Dues: \$18/yr newsletter membership
CPU: Atari 8-bit and ST/Mega/TT
BBS: Eastside (618) 254-6077, Garage (618)
344-8466
Misc: EAUG-Log club newsletter Member of
Midwest Atari Regional Council consortium

GAUG
55 Herring St.
Galesburg, IL 61401
Russ Watson (309) 343-6609
Meet: Community Center on Simmons St. in
Galesburg, one block south of downtown.
Day: 2nd Mon. Time: 7PM
Dues: \$10/yr family, \$5/yr student
CPU: Atari 8-bit and ST

LCACE
PO Box 8788
Waukegan, IL 60079-8788
Mike Brown (708) 336-1128
Meet: Warren-Newport Public Library, 244
O'Plain Rd., Gurnee, IL.
Day: 2nd Sat. Time: 11AM-3PM
Dues: \$20/yr
CPU: Atari 8-bit and ST/Mega/TT
BBS: Python (9600) (708) 680-5105, Pegasus
(708) 623-9570
Misc: Sponsored Midwest AtariFest (Apr. '90),
ChicagoFest (Nov. '90) and the recent
ChicagoFest by Atari (Nov. '91).

RACC
5430 N. 2nd St.
Loves Park, IL 61111
Cal Schafer (815) 633-1259
Meet: Springbrook Congregational Church, off
Alpine just as you make the turn onto
Springbrook Rd. from Spring Creek Rd.,
Rockford, IL.
Day: 3rd Sat. Time: 9AM-Noon
CPU: Atari 8-bit and ST/Mega/TT
BBS: (815) 226-2388

SCAT
PO Box 72266
Roselle, IL 60172
Meet: College of Dupage, Student Resource
Center on Lambert Rd. between
Roosevelt and Butterfield, Glen Ellyn, IL.
Day: 1st Sat. (check BBS) Time: 10AM
Dues: \$20/yr family
CPU: Atari 8-bit and ST/Mega/TT
BBS: SCAT (708) 231-7227

STAR
337 N. 43rd St.
Belleville, IL 62223
Craig Carter (618) 233-6675
Meet: Illinois Power Bldg., 1050 West Blvd.,
Belleville, IL.
Day: Last Mon. (exc. December) Time: 7PM
Dues: \$15/yr
CPU: ST/Mega/TT

Indiana

ACORN
3627 Iowa Court
Fort Wayne, IN 46815
Bob Kelley
Meet: Shawnee Branch of the Allen County
Public Library
Day: 1st Sat. Time: 10AM-1PM
Dues: \$18
CPU: Atari 8-bit and ST/Mega/TT
BBS: (219) 744-1396
Misc: Three Rivers Festival, PentaCon, ICE
Kid's Conference Participant.

CRAG
PO Box 10995
Merrillville, IN 46411
Randy Noak (219) 663-6912
Meet: Broadway Music, Greentree Plaza, 1509
W. 81st (US-30), Merrillville, IN.
Day: 2nd Wed. Time: 7PM
Dues: \$15/yr
CPU: ST/Mega/TT
Misc: ST disks \$2.50 each for members, \$4
non-members

Kansas

FLAG
PO Box 3233
Fort Leavenworth, KS 66021
Jeff Yoe (913) 682-2883
CPU: Atari 8-bit and ST/Mega/TT

Kentucky

AEL
PO Box 34183
Louisville, KY 40232
Lawrence Estep (812) 944-8997
Meet: Central Jefferson County Government
Center, 7201 Outer Loop
Day: 2nd Sat., 8bit SIG: 1st Wed., ST SIG: 4th
Wed. Time: 11:30AM/SIGS: 7:30PM
Dues: \$20/yr per family
CPU: Atari 8-bit and ST/Mega/TT
BBS: Atari Scene! (502) 456-4292
Misc: Members subscribe to AELien
Transmissions newsletter (6 issues) for
\$1.74/yr.

BRACE
3209-B Baird Ct.
Lexington, KY 40515
Hal Nason (606) 269-8989
Meet: Lexington Free Public Library, Downtown
Branch
Day: 3rd Tue. Time: 7-9PM
Dues: \$15/indiv., \$20/family, \$10/assoc.
CPU: Atari 8-bit and ST/Mega/TT
Misc: Associate membership includes AIM but
not library access.

Louisiana

CASTE
314 W. Claude St.
Lake Charles, LA 70605
Tim Bowles (318) 477-3243
Meet: College Park Nazarene Church, 340 E.
Prien Lake Rd., Lake Charles, LA
Day: Last Sat. Time: 1PM
Dues: \$15/yr
CPU: ST/Mega/TT
BBS: General Store (14.4K)(318) 855-6939

Massachusetts

WMAUG
285 Gates St.
Palmer, MA 01069
David Scarpa (413) 283-4171
Meet: Chicopee Public Library Main Branch,
Front St., Chicopee, MA
Day: 1st Wed. Time: 7PM
Dues: \$20/yr
CPU: Atari 8-bit, ST/Mega/TT and Portfolio
BBS: WMAUG Junction (413) 283-4967

Michigan

CACE
PO Box 6161
Jackson, MI 49204
CPU: Atari 8-bit, ST/Mega/TT and IBM

GAG
PO Box E
Flint, MI 48507
Jerry Cross (313) 736-4544
Meet: GMI Institute Rm 817A, corner of
Chevrolet and 3rd Ave., Flint, MI
Day: 2nd Wed. Time: 6:30PM
Dues: \$15/yr
CPU: Atari 8-bit and ST/Mega/TT
BBS: FACTS (9600) (313) 736-3920, Carnival
(313) 235-0158, Nine Planes (313) 233-
6095
Misc: Helped sponsor 1987 MAGIC show and
1989 WOA Detroit show

GLASS
PO Box 99737
Troy, MI 48099
Byron Johnson (313) 758-2741
Meet: Troy-Athens High School, 2 blocks north
of Wattles on John R Rd.
Day: 1st Thur. Time: 7PM
Dues: \$20/yr
CPU: Atari ST/Mega/TT

GRASS
624 Dickinson SE
Grand Rapids, MI 49507
Meet: Wyoming Public Library, 3350 Michael
S.W., Grand Rapids, MI.

Day: 1st Wed. Time: 7PM
Dues: \$22/yr
CPU: Atari 8-bit

MACCE

PO Box 2785
Southfield, MI 48037
Meet: Southfield Civic Center, Room 115, at 10-1/2 Mile and Evergreen, 1/2 mile south of the Evergreen exit on I-696.
Day: 3rd Tue. Time: 7:30PM
Dues: \$20/yr
CPU: Atari 8-bit and ST/Mega/TT
Misc: Send \$2 for current ST or 8-bit disk catalog.

SALSA

PO Box 1342
Sault Ste. Marie, MI 49783
Roger Aube (705) 759-3922

STAG

4765 N. Eastman Rd.
Midland, MI 48640
Bryant LaFreniere (517) 835-2234
Meet: Rudy Zauel Memorial Library, corner of Center and Shattuck in Saginaw Township.
Day: 2nd Sat. Time: 9AM
Dues: \$20/yr
CPU: Atari 8-bit and ST/Mega/TT
Misc: Free PD disk with membership/renewal, PD disks are \$3 or 2 for \$5. Participates in Community Fair at Fashion Square Mall each January

STING

PO Box 321
Marne, MI 49435-0321
Meet: Donna Meyer (616) 942-5167
Plainfield Township Library, 2650 5 Mile Rd NE, 1/2 mile east of N. Kent Mall.
Day: 2nd Wed. Time: 6:30-9PM
Dues: \$15/yr
CPU: Atari ST/Mega/TT
BBS: STING (616) 532-5736

WAUG

14 Payeur
Ann Arbor, MI 48108
Dave Brzezinski (313) 971-3927
Meet: Michigan Student Union on State St. at the corner of S. University in Ann Arbor.
Day: 2nd Tue. Time: 7:30PM
Dues: \$15/yr
CPU: Atari 8-bit, ST/Mega/TT, Macintosh and Portfolio
BBS: MOlin's Den (313) 451-0524
Misc: Monthly 8-bit and ST raffle, free ticket for members, SX212 modem available for loan.

PACE

4835 Crosley Ave.
Duluth, MN 55804-1219
Tracy Hendershot (218) 525-1058
Meet: Duluth Radisson Hotel, check local BBSes for exact location. Meetings are bi-monthly (Jan, Mar, May, Jul, Sept. and Nov.).
Day: 3rd Sun. Time: 1:30PM
Dues: \$30/yr.
CPU: Atari 8-bit and ST/Mega/TT
Misc: Newsletter, free ST/8-bit disk, free printer ribbon reinking, free copying of ST/8-bit PD libraries.

Minnesota

ACE of SL

PO Box 3508
St. Louis, MO 63143
Nick Barr (314) 741-1505
Meet: Thornhill Branch of St. Louis County Library, Fee Fee and Willowick, Maryland Heights, MO.
Day: Date and time varies
CPU: Atari 8-bit and ST/Mega/TT
Misc: Club newsletter. Member of MARC.

KCAC

1107 W. 88th St.
Kansas City, MO 64114
Gary Leach (913) 236-9643
CPU: ST/Mega/TT

Montana

RACE

Box 364
Frenchtown, MT 59834
Tom Tucker (406) 626-4410
Meet: National Guard Armory, 2501 Reserve St., Missoula, MT.
Day: 3rd Sun. Time: 7PM
Dues: \$16/year
CPU: Atari 8-bit and ST/Mega/TT
Misc: Membership includes free PD disk.

North Carolina

RACE

4360 Hunters Club Dr.
Raleigh, NC 27606
Lewis Midyette (919) 828-4319
Meet: Announced on Galaxy BBS, look under Bulletins for "A word from the president of RACE"
CPU: Atari 8-bit and ST/Mega/TT
BBS: Galaxy (919) 552-0974

North Dakota

MACUG

129-2 Sirocco Dr.
Minot AFB, ND 58704

Nebraska

O-ACES

PO Box 723
Papillion, NE 68046
Pete Killian (402) 592-5427
Meet: La Vista Recreation Center, 8116 Parkview Blvd. (just off 84th St., south of Food-4-Less and east of 84th at the light.)
Day: 2nd and Last Wed. (exc. Nov. & Dec.)
Time: 7:30PM
CPU: Atari 8-bit and ST/Mega/TT

New Jersey

JACS

PO Box 710
Clementon, NJ 08021
Mike Hopkins (609) 783-1423
Meet: Camden County Library
Day: 3rd Tue. Time: 7-9PM
Dues: \$24/yr (August renewal)
CPU: Atari 8-bit and ST/Mega/TT
BBS: (609) 346-1224
Misc: Between Bytes newsletter, AtariUser available at meetings Send SASE (business size) for copy of current ST or 8-bit disk catalog.

New Mexico

AACE

1021 Sagebrush Trail SE
Albuquerque, NM 87123
Richard Houser (505) 299-3977
Meet: Gas Company of New Mexico. 4625 Edith Blvd, Albuquerque.
Day: Gen: 1st Sat and 3rd Tue., 8bit: 2nd Tue.
Dues: \$20/yr payable in January
CPU: Atari 8-bit and ST/Mega/TT
BBS: Astro (505) 260-0448
Misc: PD library access, BBS membership. Swap meet on 1st Sat. of June and December.

Nevada

HISUG

PO Box 2152
Sparks, NV 89432
Gary Marston (702) 885-2081
Meet: Round Table Pizza, Baring Village, 1201 Baring Blvd., Sparks, NV.
Day: 3rd Thur. Time: 7PM
Dues: \$20/yr
CPU: Atari 8-bit and ST/Mega/TT
BBS: UNreliable (702) 358-6307

SNACC

48 Lafayette St.
Las Vegas, NV 89110
Harvey Cannon (702) 459-4089
Meet: Winchester Center, 3130 Mcleod
Day: 1st Thur. Time: 7-9PM
CPU: Atari 8-bit, ST/Mega/TT and Portfolio
BBS: SNACC (702) 438-2208

New York

ACORN

PO Box 24920
Rochester, NY 14624

Don Allis (716) 293-3415
Meet: Brighton HS, 1150 Winton Rd. South, Room 262S.

Day: 2nd Wed. Time: 7PM
Dues: \$20/yr (add \$6 for AIM)
CPU: Atari 8-bit and ST/Mega/TT
BBS: Dimension's End (716) 436-3078
Misc: ACORN Kernel newsletter, AtariUser, extra BBS access. ST Beginners and 8-bit Basically Speaking classes held before general meeting.

BRAG*ST

PO Box 1035
Buffalo, NY 14225
Mark Pierra (716) 691-7844
Meet: Erie Community College, North Campus, Room S-105 in the Student Center.
Day: 3rd Thu. Time: 7:30PM
CPU: ST/Mega/TT
Misc: Monthly raffle. Board of Directors, 1st Thurs. at Your Host Restaurant, Harlem at Sheridan, 7PM.

CDACE

PO Box 1910
Schenectady, NY 12301
Bob Thompson (518) 439-5356
Meet: Computer Cellar in the Westgate Plaza, Albany, NY.
Day: ST: Last Wed., XL/XE: Qtrly. Time: 6:30PM
Dues: \$20/year
CPU: Atari 8-bit and ST/Mega/TT
Misc: ST disks \$2, free XL/XE library access.

LIAUG

PO Box 92
Islip, NY 11751
John Aalto (516) 589-6754
Meet: Nesconset branch of the Smithtown Library, Nesconset, NY.
Day: 1st Sat.
Dues: \$20/yr
CPU: Atari 8-bit, ST/Mega/TT, Portfolio and Lynx
BBS: New Nest (516) 234-4943, Star Scan (516) 399-4252

OHAUG

3376 Ocean Harbor Dr.
Oceanside, NY 11572
Alex Pignato (516) 678-6081
Meet: Plainview-Old Bethpage Library, 999 Old Country Rd. in Plainview
Day: Usually 2nd Sat.
Dues: \$24/yr
CPU: Atari 8-bit ONLY!
Misc: Charter member of NEAR*US user group consortium.

WNYAUG

PO Box 59
Buffalo, NY 14216
Mike Husband (716) 825-8486
Meet: Room 116E, Bacon Hall, State University College of Buffalo, 1300 Elmwood Ave.
Day: 1st Thu. Time: 7:30PM
Dues: \$15/yr new, \$12/yr renewal
CPU: Atari 8-bit
BBS: Wizard's Attic (716) 681-1654
Misc: POKEY newsletter disk

Ohio

ACCT

4487 289th
Toledo, OH 42611
Dave & Brenda Micka (419) 729-1891
Meet: Dave & Brenda Micka's home.
Day: 1st Wed. Time: 7-9PM
CPU: Atari 8-bit and ST/Mega/TT
BBS: Disk Drive-Thru (419) 885-3441
Misc: Disks \$2 8-bit, \$4 ST

ACEC

1287 Dennison Ave.
Columbus, OH 43201

CVACC

PO Box 9173
Akron, OH 44305
Don Crano (216) 376-7618
Meet: First National Bank, Mogadore, OH.
Day: 2nd & 4th Tue. Time: 7:30PM
Dues: \$20 family
CPU: Atari 8-bit and Mega/ST/TT
Misc: Discounts at local computer stores, club

newsletter The Password

MAUG

PO Box 134
Ontario, OH 44862
Chuck Steinman (419) 529-2478 after
5PM

Meet: A&B Computers, 1151 Park Ave. W.,
West Park Shopping Center, Mansfield,
OH.

Day: 3rd Sat. (exc. July) Time: 7-9PM

Dues: \$12/yr

CPU: Atari 8-bit and ST/Mega/TT

BBS: DataQue (419) 529-5197

Misc: Members can access AIM ST and 8-bit
disk files on the BBS. AtariUser available
free to members at A&B. Back issues of
AtariUser available for \$1 each.

MVACE

PO Box 24221
Huber Heights, OH 45424
Dan Steffen (513) 832-0749

Meet: Jaycees Clubhouse

Day: 2nd & 3rd Sat. Time: 9:30 to Noon

Dues: \$20/yr, \$12 for students or newsletter only

CPU: Atari 8-bit and ST/Mega/TT

BBS: ACE (513) 233-9500

NASAC

1810 Cheviot Hill Dr.
Springfield, OH 45505-3508

Meet: Vandalia Elementary School, Room #2,
333 Bohanan Dr., Vandalia, OH 45377.

Day: 2nd Thu. Time: 7:30PM

Dues: \$12/yr

CPU: Atari 8-bit, ST/Mega/TT and IBM

Misc: Monthly newsletter "The NAS-HACKER,"

STANCE

1174 Larkspur Dr.
Lyndhurst, OH 44124
Joseph Adato (216) 449-6881

Meet: B&G Electronics, 15729 Madison Ave.,
Lakewood, OH.

Day: 3rd Mon. Time: 7:15PM

Dues: \$12/yr with one time sign up fee of \$13

CPU: ST/Mega/TT

Oklahoma

TACE

16564 SE 18th
Choctaw, OK 73020
Ron Hamilton (405) 387-5649

Meet: Moore Public Library, 225 S. Howard, just
off SW 4th and I-35, Moore, OK.

Day: 1st Sat. Time: 1PM

Dues: \$15 family, \$7 correspondence (July
renewal)

CPU: Atari 8-bit and ST/Mega/TT

BBS: TACE (405) 366-1977

Misc: Will mail copies of AtariUser magazine to
individuals for approx. \$1 per issue.

Oregon

ACUNET

2662 E. Nob Hill Dr. SE
Salem, OR 97302
Ron Purdy (503) 588-7509

Day: 4th Tue. Time: 7PM

Dues: \$15 with AIM, \$10 without

CPU: Atari 8-bit and ST/Mega/TT

BBS: Salem Public Lib. (503) 588-6130, Page
(503) 363-0171, The Jungle (503) 393-
4274.

COAC

PO Box 6824
Bend, OR 97708
Aaron Leis (503) 388-7516

Meet: Ann Rita Conference Center (in front of
the St. Charles Hospital on Neff Rd.),
Bend, OR.

Day: 1st Sat. Time: 5PM

Dues: \$20/yr new, \$17/yr renewal, \$1/yr for each
additional family member.

CPU: Atari 8-bit and ST/Mega/TT

DCASTE

1033 Barager
Roseburg, OR 97470
Jim Steingrobe (503) 673-1687

PAC

PO Box 1692
Beaverton, OR 97005

David Hunt (503) 286-6276
CPU: Atari 8-bit and ST/Mega/TT
BBS: ACE of America (503) 285-4417

Pennsylvania

NAPCO

642 E. Waring Ave.
State College, PA 16801
Greg Brown (814) 238-4255

CPU: Atari 8-bit and ST/Mega/TT

PACS

Atari 8bit
Box 312, LaSalle Univ.
Philadelphia, PA 19141

Meet: Drexel University, Room M11B,
Matherson Blvd., 32nd and Market St.,
Phil., PA.

Day: 3rd Sat.

Dues: \$25/year with an additional \$2 for new
members.

CPU: Atari 8-bit

BBS: (215) 942-9600 to 9604 (9603/4 for 300
baud)

Misc: The DataBus newsletter, AtariUser

SAGE

PO Box 10562
Erie, PA 16514-0562
Dennis McGuire (814) 833-4724

Meet: St. John's Lutheran Church, Erie, PA.

Day: 3rd Sun. Time: 2PM

CPU: Atari 8-bit and ST/Mega/TT

SPACE

PO Box 11446
Harrisburg, PA 17108
John Slade (717) 938-3656

Meet: Camp Hill Mall Community Room

Day: 3rd Mon. Time: 7:30PM

Dues: \$15/yr

CPU: Atari 8-bit and ST/Mega/TT

Misc: SPACE Probes newsletter

WACO

230 Clairmont St.
North Huntingdon, PA 15642
Patty Marshall (412) 225-8637

Meet: North Huntingdon Town House, near
Irwin, PA.

Day: 2nd Tue.

Dues: \$24 family

CPU: Atari 8-bit, ST/Mega/TT, Mac, IBM and
Portfolio

Misc: Huge foreign PD libraries. Participates in
many Atarifests in the northeast.

South Dakota

RACE

9512-A Adams
Ellsworth AFB, SD 57706
Rick Burton (605) 642-5353

Meet: Rapid City Public Library

Day: 4th Sat. Time: 2PM

Dues: \$12 basic, \$15 newsletter

CPU: Atari 8-bit and ST/Mega/TT

Tennessee

CACE

280 Capshaw Drive
Cookeville, TN 38501
Dan Hale (615) 526-8002

Meet: Putnam County Library, Cookeville, TN.

Day: 1st Sat. Time: 1PM

Dues: \$10

CPU: Atari 8-bit and ST/Mega/TT

BBS: Generic BBS (615) 432-5809

MASH

3265 Austin Peay Hwy.
Memphis, TN 38128
Randy McKinna (901) 388-3384

Meet: State Technical Institute in the Fulton
Auditorium.

Day: 2nd Mon. Time: 7PM

Dues: \$24/yr (renewal in July)

CPU: Atari 8-bit and ST/Mega/TT

BBS: MASH COM (901) 377-1904

NAUG

PO Box 121752
Nashville, TN 37221
Walt Sullivan (615) 228-7353

Meet: Cumberland Museum and Science Center

Day: 3rd Thu. Time: 7-10PM

Dues: \$24/yr full; \$12/yr associate

CPU: Atari 8-bit and ST/Mega/TT

BBS: Nashville Exchange (9600) (615) 383-
0727, Troll's Cave (615) 872-0757

Texas

AAAUA

PO Box 79-1426
San Antonio, TX 78279
Al Sherrill (512) 492-6633

Meet: Balcones Heights Community Center, 107
Glenarm, San Antonio, TX. 107 Glenarm,
San Antonio

Day: 1st Tue. Time: 6:30-9:30PM

Dues: \$24; Subscribing: US-\$16, CAN/MEX-\$36
(\$14 no AIM), Other-\$54 (\$18 no AIM)

CPU: Atari 8-bit

Misc: Library of around 700 disks. (FR)ANTIC
monthly newsletter. Swap meet and
computer workshop each 3rd meeting.

AACE

1601 Larkwood Dr.
Austin, TX 78723
Eve Kuniansky (512) 323-2016

Meet: Library. Pizza buffet 1st Thursday of each
month 6:30-8PM.

Day: 2nd Sat. Time: 2-5PM

Dues: \$24/yr Jan-Dec

CPU: Atari 8-bit, ST/Mega/TT, Portfolio and
Lynx

Misc: Newsletter, C classes, library access.

ACCEPT

245 Longhorn Court
El Paso, TX 79907-5215
Steve Bruck (915) 858-1117

Dues: \$20

CPU: Supports Atari 8-bit, ST/Mega/TT,
Macintosh and IBM

BBS: STEP (915) 755-STEP; STE-EP (915)
821-9220

Misc: Discounts from Jenkins' Computers,
special STE-EP access.

GTAUG

6621 Capitol St.
Groves, TX 77619
Ray St Cyr (409) 727-7215

Day: Usually 2nd Tue.

Dues: \$24/yr (Sept. renewal)

CPU: Atari 8-bit, ST/Mega/TT, Macintosh

BBS: (409) 722-6526

HACE

PO Box 460212
Houston, TX 77056
Bill Kithas (713) 855-0815

Meet: Health Economics Corp., 2400 West Loop
S., Houston, TX.

Day: 4th Wed. Time: 6:45PM

Dues: \$22/year

CPU: Atari 8-bit, ST/Mega/TT

BBS: (713) 458-9923

Misc: UPDATE ATARI newsletter, store
discounts, door prizes, workshops.

HASTE

4930 Shadowdale
Houston, TX 77041
Phillip Stojankik (713) 896-9131

Meet: Megabyte Plus, 5181 FM1960W, Houston,
TX 77069.

Day: Last Sat. Time: 10:30AM

Dues: \$20/yr

CPU: ST/Mega/TT and Portfolio

BBS: HASTE (713) 921-0550

Misc: Hosts the annual Atari Safari show.

SALSA

PO Box 18731
San Antonio, TX 78218-0731
Tim Hebel (512) 656-5315

Meet: Balcones Heights Community Center, 710
Glenarm, San Antonio, TX.

Day: 2nd Tue. Time: 7-10PM

Dues: \$20 w/AIM, \$15 regular

CPU: ST/Mega/TT

Misc: Club newsletter, discounts, Disk of the
Month for \$2, New user classes.

Utah

LACE

3897 S. 2275 W.
Roy, UT 84067-3515
Irwin Brooks (801) 731-1516

Meet: Clearfield Library basement, Roy, UT.

Day: 2nd Wed. Time: 7PM



Dues: \$20/yr
CPU: Atari 8-bit and ST/Mega/TT

STUN
PO Box 27285
Salt Lake City, UT 84127
Randy Larsen (801) 967-0209
Meet: Murry High School
Day: 3rd Wed. Time: 7PM
CPU: ST/Mega/TT
BBS: The Bolt (801) 968-3921

Washington
CACUG
Box 767
Chewelah, WA 99109
CPU: Atari 8-bit and ST/Mega/TT

FACCS
PO Box 5121
Spokane, WA 99205
Tim Osborne (509) 624-1917
Meet: Eager Beaver Computers, next to the
Garland Theatre, Spokane, WA.
Day: 2nd Thu. Time: 7PM
Dues: \$15/yr family
CPU: Atari 8-bit and ST/Mega/TT

Starbase
8307 27th NW
Seattle, WA 98117
Steve Drake (206) 782-3691
Meet: Mountlake Terrace Library, 23300 58th
Ave West, Mountlake Terrace, WA.
Day: 2nd Fri. Time: 6PM
Dues: \$18/yr
CPU: Atari 8-bit and ST/Mega/TT

SWAG
PO Box 1515
Vancouver, WA 98668
Gary Lentz (206) 573-8224
Meet: Clark County Fire District #5, Station 3 on
213 NE 120th, Vancouver, WA.

Day: Last Sun. (exc. July) Time: 6:30PM
Dues: \$12/yr
CPU: Atari 8-bit and ST/Mega/TT
BBS: Bear Cavern (206) 574-1146

Wisconsin
MilAtari
PO Box 14038
West Allis, WI 53214
Lee Musial (414) 466-7557
Meet: Greenfield Park Lutheran Church, 1236 S.
115th St.
Day: 3rd Sat. Time: Noon
Dues: \$22/yr
CPU: Atari 8-bit and ST/Mega/TT
Misc: MilAtari hosts the Computer Gaming area
at GEN-Con each year.

Canada—Ontario
KAUG
153 Oxley Dr.
Chatham, Ontario N7L 4R3 CANADA
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Day: 4th Tue., Sept-May
Dues: \$20/yr
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BBS: KAUG BBS (519) 351-3901

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15 Blueridge Court
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Hardy Zeltins (613) 825-4196
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TASTE
185 Varsity Row
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CPU: ST/Mega/TT

WAUG
3199 McKay Ave.

Windsor, Ontario N9E 2R4 CANADA
Brian Cassidy (519) 966-0305
Meet: Roseville Gardens Community Centre,
4200 Roseville Garden Dr., Windsor,
Ontario, Canada.
Day: 3rd Thu. Sept-June, exc. Dec. (2nd Thu.)
Time: 7:30PM
Dues: \$25 Canadian
CPU: Atari 8-bit and ST/Mega/TT

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Day: 8-bit: 1st Thu., ST: 3rd Thu.
Dues: \$25 8-bit, \$30 ST, \$35 both (Canadian)
CPU: Atari 8-bit, ST/Mega/TT and Portfolio
BBS: Enchanted Realm (514) 366-4556
Misc: Disk-based newsletter, free AIM disk
access, AtariUser magazine

England
BaPAUG
248 Wimborne, Oakdale
Poole, Dorset BH15 3EF ENGLAND
Day: 1st Fri. Time: 7:30PM
CPU: Atari 8-bit and ST/Mega/TT
Misc: 8:16 Newsletter

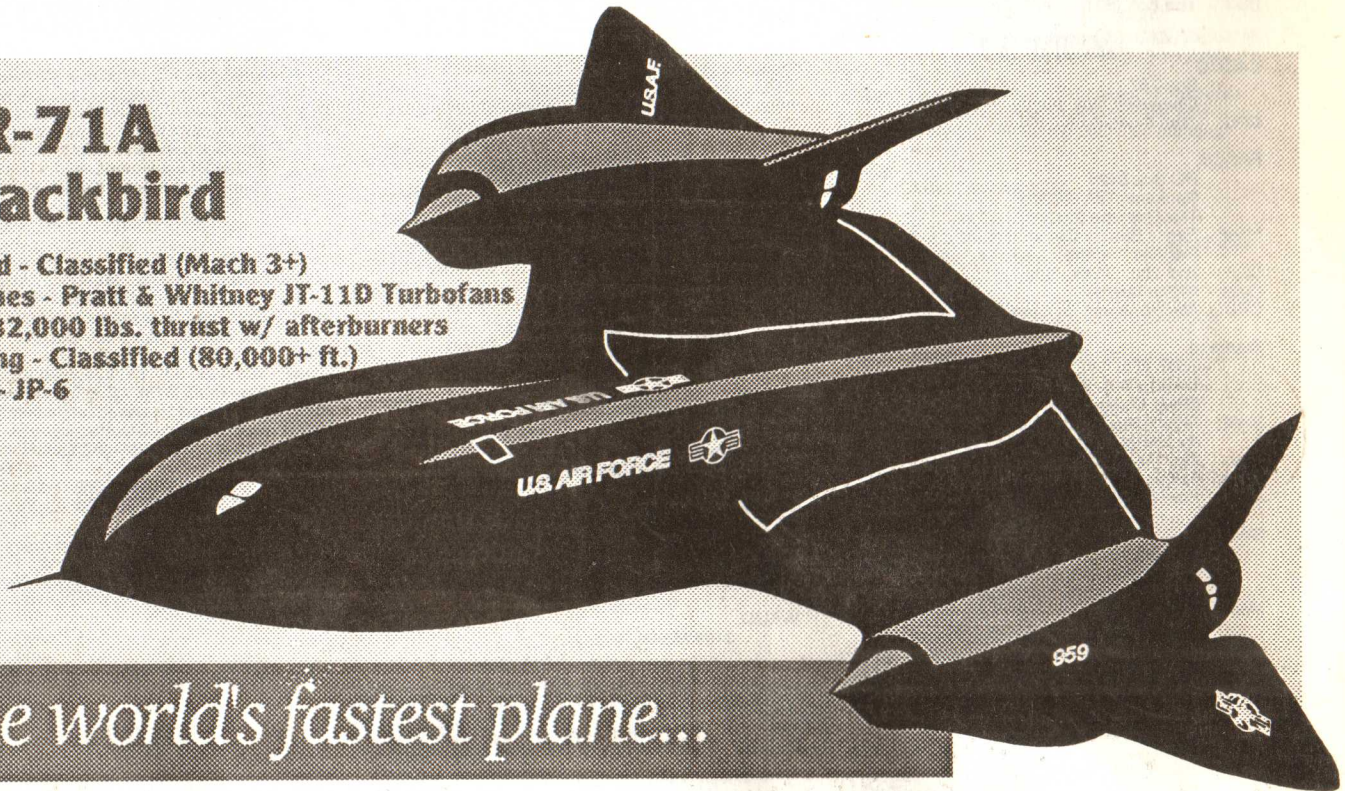
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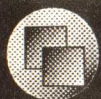
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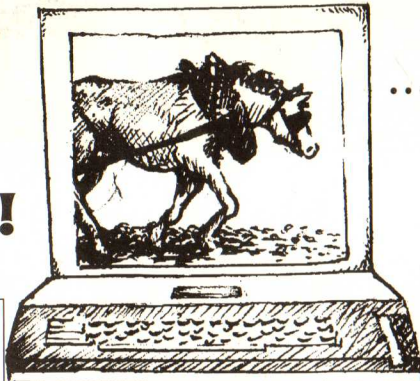
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The Floppy Board has arrived! This long-awaited Black Box add-on has been in the making for quite a while, but we've packed it with features that are worth the wait! This sophisticated device allows connection of up to four 5.25" or 3.5" floppy drives (drive sizes may be mixed). Access to these drives will be at parallel bus speed, approaching that of hard disks!

The board consists of 13 special integrated circuit chips, fully powered by the power supply of the Black Box. It has its own on-board microprocessor to take the load off the computer's processor for disk I/O. The board fits perfectly over the Black Box (inside the custom cases!). It is not a stand-alone device; it must be used in conjunction with the Black Box.

High density disks are supported, so 1.2 meg 5.25" and 1.44 meg 3.5" drives may be connected. This is the only 8-bit controller to fully support these drives and densities! With four 3.5" 1.44 meg drives connected, you can achieve more total storage than a 5 meg hard disk! Archiver compatibility is supported! This means you can back up those titles no longer available. Although it's not as powerful as our Super Archiver, it will have the same editing power, with good backup capability.

Software included with the Floppy Board includes a utility to READ and WRITE IBM and ST disk formats! This will yield the easiest possible way to port text and data files between your 8-bit and ST or PC! This will be compatible with most all of the current formats. Also included is a high-speed sector copier designed to make extremely fast, verified copies of disks. A future upgrade to the Hard Drive Pro Backup (our hard disk backup tool) will make special use of the floppy board, and squeeze even more data on each disk than standard formats allow. It is possible to actually store 1.6 megs of data on a 1.44 meg 3.5" drive, so backing up a full 20 meg hard disks might only take 14 disks! Usage of the Floppy Board's on-board processor will allow overlapping reading and writing, making the backup really fly.

Two versions are available: the basic unit, and the Deluxe version. The basic unit provides the interface necessary for low density drives (360k for 5.25" and 720K for 3.5"), and comes with the IBM/ST transfer utility. The Deluxe version adds the high density capability, adds Archiver compatibility, AND adds the features of the Black Box Enhancer, which include a high-resolution 16 grey scale printer screen dump, and a powerful built-in sector editor, disassembler, and copier (which accesses the full 16 megs possible of hard disk partitions, and uses all available extra memory). Note: the Floppy Board replaces the ROM on the Black Box, so current Black Box Enhancers cannot be used with the Floppy Board.

The basic unit is only \$109.95, and the deluxe unit is only \$149.95. Add \$5 for shipping/handling.

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The **BLACK BOX** is a parallel-port device for your XL or 130XE computer that adds tremendous power to your 8-bit Atari. It is a T-shaped board with two buttons, two switches, and a set of dip switches visible from the outside. The **BLACK BOX** performs three main tasks: interface to a SASI/SCSI bus (for interface to most common hard disks), a parallel printer port, and a RS232 (modem) port. You may partition your hard disk(s) into as many drives as you wish; up to 9 may be active at any given time. By pressing one of the buttons on the **BLACK BOX**, you will enter the configuration menu, where you can re-assign drive numbers, swap partitions in and out, etc. When you exit, you will be returned to your program - undisturbed! Each hard disk partition has its own write-protect flag, and may be set to single or double density. Every hard disk may be write-protected with the flip of a switch. As an option, you may use your computer's XE RAM as a printer buffer, or order the **BLACK BOX** with 64K of on-board RAM. Another amazing feature of the **BLACK BOX** is the built-in **screen dump**. By simply pressing a button, the contents of your screen will be dumped to your printer! (You can define text or graphics modes with a switch!) The RS232 port supplies the full spec signals for added compatibility. Its handler takes up no user memory, and can handle 19,200 BAUD! A **machine language monitor** has been added to allow memory disassembly, memory/register changes, and more. The basic **BLACK BOX** unit is \$199.95, and \$249.95 with 64K RAM (for printer spooler). S/H/I is \$8. An optional custom **BLACK BOX** case is available for \$39.95. The Black Box is a product of Computer Software Services... Not the Black Box Corporation.

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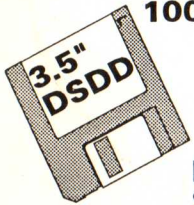
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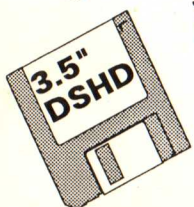
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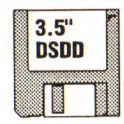


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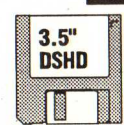
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