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JULY 1992

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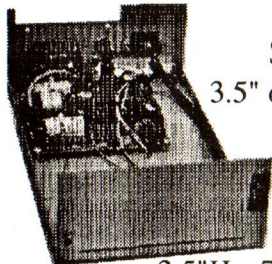
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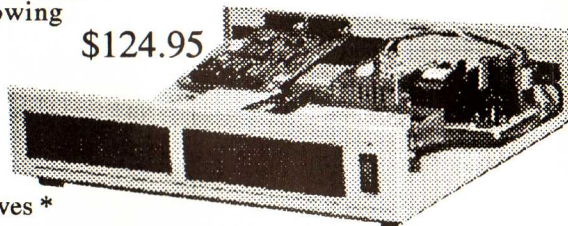
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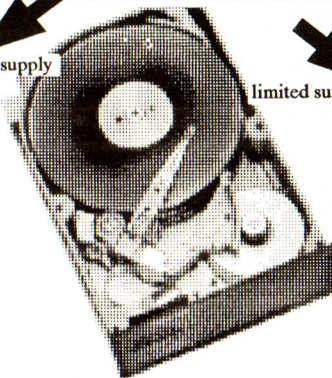
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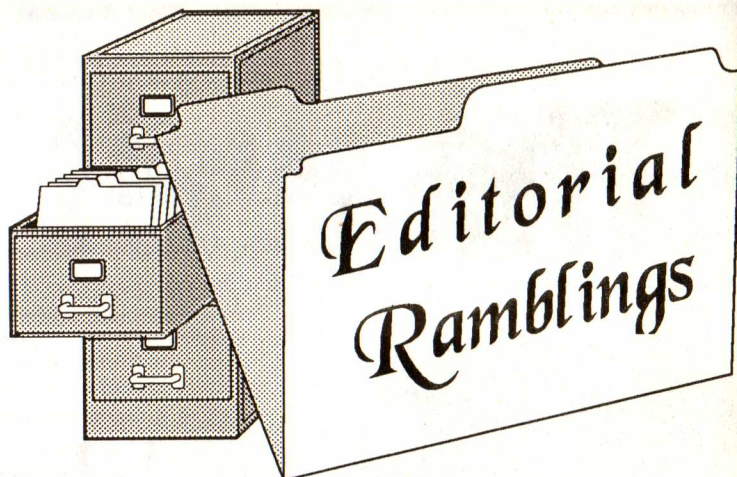
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This is going to be a rambling editorial for sure! Instead of focusing on any specific editorial topic or discussing what's contained in this issue, we're instead going to jump around from topic to topic with wild abandon. Don't try this at home, kids!

First, we very much appreciate the letters we receive from our readers—positive or negative in content, they are always informative and helpful to us. From time to time, though, we receive letters from users asking for help or reply...but no phone number is given in the letter. We just can't possibly reply via US mail to the letters we receive. If you want us to reply—and we'd be happy to do so—please give us a phone number where we can contact you. Or, if you have an account on CompuServe, GENie or Delphi, we'd be happy to reply online.

Speaking of the mail system, it's *very* important that US-based subscribers notify us (or your user group for participating club members) of *any* change in your address. If your AIM address label is incorrect in *any* way, the Postal Service will not deliver your issues.

Also, if you move and want to receive any copies of *Atari Interface* "in the pipeline" before we receive your change of address, you *must* fill out a form at your Post Office indicating that you are willing to pay to have your 3rd Class mail forwarded to your new address. If you don't do this, the Postal Service throws your issues in the dumpster.

Since we (or your users' group) cannot be held responsible for lost issues due to incorrect addresses, it's your responsibility to 1) let us know of your address change ASAP and 2) make arrangements with your Post Office to receive copies of AIM already in the mail system. It's much better to do this than to miss an issue or two (or end up paying \$3 postage each for us to send you the issue(s) you missed).

Bill & Pattie Rayl

ATARI INTERFACE

Volume 4

Your Connection to the Atari User Community

July 1992

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On the Cover

Courtesy of CompuServe's Graphics Forums, this GIF image shows several "Prehistorik" petroglyphs.

From The Reader's Viewpoint



Dear Editors,

I have not subscribed to the disks on an annual basis because I receive so many magazines and disks each month, and there is a lot of duplication.

In the case of the 8-bit disks, they have been of excellent quality and variety. It just so happens that I have a great deal of the material covered or do not have/use such items as Diamond, GOS, Textpro or Basic XE. Nevertheless, the variety is extraordinary. Somebody's doing a very good job getting material together.

I have some programs I was going to send to Atari Explorer, but their info-pack for authors seemed to discourage the sending of any 8-bit type-in programs. Some of my programs are unique and original; some are conversions and enhancements of other programs. Most need some polishing or documentation.

I have a question for David Plotkin (or anyone else who might know). I, and many, many others had material published in STart/Antic and was not paid. I'm not interested in the money part so much, but I do wonder what the status of the material used is.

To Bill Rayl—I have been waiting for some reviews of Silhouette, MegaPaint and Arabesque. There have been some, and good ones too. However, it was very difficult to decide, with such a multiplicity of programs with overlapping capabilities.

Imagine my elation to find the near-perfect review which compares all three at once! I am overjoyed! However, my worst fears were confirmed when your conclusion was similar to mine. It's

hard to choose one over any other. However, it is useful to be able to at least prioritize my needs a bit more efficiently.

I have a Star NX-1000 Rainbow printer and have been very impressed by a program called FlexiDump Plus, a demo of which was in a recent issue of ST Format. Nobody seems to have heard of it (I have no dealers near by).

The demo was spectacular in its capabilities even with a number of options crippled. Deluxe Paint allows you to print out your 16 chosen colors to see how they match your expectations. That is nice, but FlexiDump seems to match colors almost automatically. It is also very fast!

In the same vein, I have been interested in an HP Deskjet 500 printer. Computer Friends in Oregon offers replacement ink cartridges in multicolors (including CMYK). I wonder how plausible it would be to separate colors (PageStream) and run the same sheet of paper through four times to get full color?

On the other hand, there is the new HP Deskjet 500C color printer. I understand it uses CMY without black. I have seen no reviews on this yet. Unfortunately, other great looking color printers are priced too steeply for my needs.

As a former commercial photographer, I must compliment you

on your excellent color covers. The era of the slick commercial magazines like STart seems to be over for the present. I find the usual computer magazines like Compute! and PC Home Journal full of incredibly boring material. Games are well covered by ST Action. ST Format presents a variety of material well, but again, there is not the depth in their reviews.

I see the push to get an 8-bit magazine is going just so-so at best. While I still use my 8-bit quite a bit, I question whether a whole magazine full of information will be that easy to come up with on a regular basis.

I continue to enjoy my Atari computers and look forward to the future. One problem...the new Falcon sounds so interesting, I will probably put on hold getting an AdSpeed accelerator for my STe! On the other hand, the STe has been out for a couple years, and not much software has taken advantage of it yet. I hope some developers can get a little ahead of the Falcon and have something for us to use in a reasonably short time. The TT or STT solution goes beyond what I need.

Thank you for a continually improving and always enjoyable magazine.

Sincerely Yours,
Frank Kweder,
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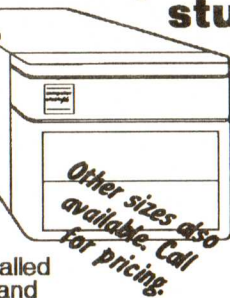
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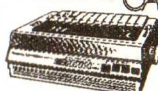
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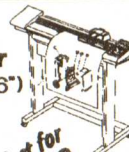
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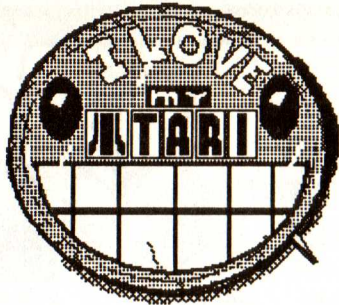
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ATARI BULLETIN BOARD

Atari News

The word buzzing around the Atari community about the Falcon project is that everything is on schedule, if not running a little ahead of schedule. We've been able to confirm that selected US developers do have Falcons in their hands. So, things are looking up for the future!

DTP News

ISD Marketing has followed Soft-Logik Publishing's example, and is offering a trade-up offer to their Calamus 1.09N DTP package. For \$95 (plus \$5 shipping) and a photocopy of your current DTP program disk and registration card, you receive a registered version of Calamus and become eligible for future upgrades, including going to Calamus SL.

This offer is good until August 31, 1992. For more information, contact ISD Marketing, 2800 John St. Unit #10, Markham, Ontario, Canada L3R 0E2 or by calling (416) 479-1880.

MegaType Software has announced two new programs for the ST and TT: BitMaker v1.1 and MegaKern (and MegaKern Lite).

BitMaker allows users to convert fonts for PageStream into bitmapped versions to speed up screen redraws. Any version of PageStream screen fonts (.12H, etc) can be created from .DMF files, and for 2.x, screen fonts (.ABF) can be created from Adobe Type 1 .PFB files.

BitMaker also gives GDOS users access to all the fonts available for PageStream. BitMaker creates GDOS screen and printer fonts from PageStream .DMF printer fonts. According to Mega-

Type, all bitmap font creation is done automatically with a few mouse clicks. No font creation knowledge is needed to create or use the rendered fonts.

Registered owners of the one or two module version BitMaker will automatically receive the updated version by mail. The price of BitMaker is \$49.95.

MegaKern and MegaKern Lite allow PageStream owners to auto-kern both .DMF and Adobe Type 1 fonts. In a matter of less than five minutes (half that on a TT), you can have a precisely kerned font with more than 1200 kern pairs ready to use with PageStream.

MegaKern will even create kern pairs which make up for sloppy character widths within the font. The result is a perfectly kerned font, which is much more pleasing to the eye.

MegaKern kerns both Adobe Type 1 fonts and PageStream .DMF fonts. A special version that also kerns .ECF fonts for Font Designer will be available for registered owners of Font Designer or Font Designer Plus so both .DMF and Type 1/Type 3 fonts can be created from the same kern file. The price for MegaKern is \$79.95.

MegaKern Lite, \$49.95, kerns only PageStream .DMF fonts. This would be for UltraScript users who can't print Type 1 fonts from PageStream. For more information, contact MegaType at PO Box 645, South Bend, IN 46624 or phone (219) 288-7468

Computer Safari, a creator of unique and high-quality fonts for PageStream, is currently running a sale on their collections of fonts and clip art. Font disks that previously sold for \$39.95 are now on

sale for an incredible \$6.88 a disk! Other collections are just \$14.95. A collection of 250 Type 1 fonts is available on 14 disks for \$119.95.

Computer Safari's collections of Star Trek PostScript clip art (over 100 images) and fonts (including title fonts from both The Next Generation and the original series as well as Klingon) are available for only \$39.95 each. Also on sale is the Clipables collection of 600 EPS images for just \$69.

For more information, or a copy of Computer Safari's sale catalog, contact them at 353 W. Main, Suite K, Woodland, CA 95695 or phone (800) 824-2547. Some quantities are limited!

Hardware News

Newell Industries recently announced an alternative to the TEC board from CodeHead Technologies. Newell Industries has produced an inexpensive hardware upgrade kit (TOS Adaptor Board or TAB for short) that allows users to install new TOS into an old ST—but, not without some hacking. The price is \$29.95.

The TAB is a small circuit board that fits inside any ST, allowing the addition of any ROMs addressed in the E00000-EFFFFFFF range. TOS 2.06 is E00000-E3FFFF. Installation requires cutting 5-10 traces on the motherboard and possibly wiring up five jumpers, depending on your system. It is possible to leave the old ROMs installed with a switch to toggle back and forth between the two sets of TOS. For more information about the TAB and/or its installation, contact Newell Industries, PO Box 253, Wylie, TX 75098 or phone (214) 442-6612.

Gadgets by Small recently announced they have started shipping their long-awaited MegaTalk boards. The MegaTalk board connects into the Mega's expansion bus, and has two serial ports capable of up to 921,600 baud and a Mac SCSI port. The serial ports are both Atari and Mac compatible (for connecting to a LAN), and the SCSI port could be used to connect to a Mac CD-ROM or scanner, etc.

In a recent Gadgets by Small RoundTable Conference, George Richardson, of the Merlin Group, talked about the Chromax color board for Gadgets' SST. It seems a new graphics chip has come out that puts all of the power into one single chip, rather than spread over several as in the past. George indicated this would make the development of the Chromax a whole lot easier, and could make their color setup more affordable for the average ST owner.

He gave some specs for this particular graphics chip that sounded impressive.

With 16 colors, resolutions supported are:

800 x 600
1024 x 768
1280 x 1024

With 256 colors, the chip supports:

640 x 400
640 x 480
800 x 600
1024 x 768 (interlaced or non-interlaced)
1280 x 1024 (interlaced)

With 32,000/64,000 colors, the chip supports:

640 x 400
640 x 480
800 x 600

For comparison, the resolution for ST medium is 640 x 200, high res on the ST is 640 x 400, TT medium res is 640 x 480 and high res on the TT is 1280 x 960.

New Educational Software

D.A. Brumleve recently announced a new educational product for the ST—Multiplay! Multiplay helps children commit basic addition and multiplication problems to memory. Multiplay has three play screens: Pattern, Puzzle and Make Puzzle.

The program comes with an installation program allowing the parent or teacher to configure the disk to suit the skills of the child. Options that the child can see can be turned on and off using the installation program. The program is for children aged 5 to 11 and costs \$40. For more information, contact D.A. Brumleve, PO Box 4195, Urbana, IL 61801 or phone (217) 337-1937.

Hybrid Arts Change

Barefoot Software, Inc. recently announced they now handle Hybrid Arts' MIDI product support and development. Products under development include

SmpteTrack and EditTrack (platinum versions), and support of GenEdit v2.0 is now available. For more information, contact Barefoot Software, Inc., 19865 Covello St., Canoga Park, CA 91306 or phone (818) 727-7143, or type Go MIDI AVEN (MIDI A Vendor Forum) to get to Barefoot's online support area on CompuServe.

Lynx News

Atari recently announced a new ad campaign for the Lynx to coincide with the release of *Batman Returns*—including a new game by the same name! June 19th *Batman Returns* debuts both on the Lynx and in the theatres. TV ads will appear around June 15th, and a 32-page, full-color, glossy Lynx insert appears in with the latest Electronic Gaming Monthly magazine.



Two other titles, *Basketbrawl* and *Lynx Casino* are expected around the same time as *Batman Returns*. Also expected is the release of *Rampart*, a castle building/battling game by Eric Ginner and Jerome Strach, who also did *Shanghai*, *Checkered Flag* and *Batman Returns*.

An announcement posted on CompuServe indicated that the Lynx version of *Eye of the Beholder* is complete and has been sent off for manufacture. That means it should hit the stores in late August instead of Christmas, as listed in Atari's CES press kit. *Eye of the Beholder* for the Lynx will be the first 512K (4 meg) Lynx game ever. It will also be the first to utilize battery back-up for game saves.

Another first for the Lynx comes from Telegames. Their game, *The Guardians: Storm Over Doria*, has been expanded and improved. Originally planned as a 256K (2 meg) game, Atari has decided to enhance the game significantly, bringing it up to 512K (4 megs) and using battery back-up. It will probably reach the stores in the fall. This will also be the first role playing game for any system that allows up to four people to play at the same time.

Show Announcement

Festival Atari de Montréal et Environs (FAME), organized by users' groups and dealers in the Montréal (Quebec, Canada) area, has been scheduled for September 26-27, 1992. Interested parties should contact either ASTMUM's Kest Carter-Morgan at (514) 272-6631 or MACAM's Terry Cowen at (514) 696-3773.

Right on Target



David Plotkin
Contributing Editor

A few issues ago, I remember reading an article from Dave Small graphically detailing some of the tribulations he went through to get the SST software going.

I have followed Dave over the years, as he has proceeded from one seemingly impossible project to another. Way, way back, he created the first Mac emulator, named "Magic Sac." This wonder allowed the Atari ST to imitate a Mac Plus.

I remember my first glimpse of Magic Sac. It was at an Atari show at the San Jose Convention Center many years ago. Dave was then working with a company called Data Pacific, and they had a booth to show off Magic Sac. I had heard rumors about the product, which Dave had been showing in various stages of completion at shows prior to the one in San Jose.

Previous to this, the product had been called MacCartridge (it was a cartridge that plugged into the cartridge port of the ST). I thought MacCartridge was a pretty good name—it seemed every other product for the Mac at that time had "Mac" in it somewhere.

Apparently, however, Apple didn't think it was a good name! They had been claiming for awhile that you couldn't use the phrase "Mac" in your product name without their permission. (I wonder what MacDonald's would have thought of that?) With literally hundreds of products for the Macintosh that had "Mac" in their name, this could have spelled big-time trouble for a lot of software vendors.

However, Apple chose, in most cases, not to enforce their God-given right (grin). In the case of MacCartridge, however, they decided they would not allow it.

Since Data Pacific didn't have the time or money to go up against Apple (who is not afraid to sue MicroSoft or

Hewlett-Packard for using an idea they didn't even invent—the icon-driven desktop), they changed the name to Magic Sac—I guess because they were packaging and selling the product in brown paper bags!

Just as an aside, Data Pacific wasn't the first company to knuckle under to Apple. Digital Research, the inventors of the GEM desktop changed the design in later versions because Apple threatened to sue.

I am sure Apple would have *loved* to get Magic Sac off the market, for the simple reason that an Atari ST and a Magic Sac cost about half what a Macintosh did then. I even heard rumors of Apple personnel using Magic Sacs.

There wasn't much Apple could do, however. The Magic Sac needed the Mac ROMs to work, but Dave didn't supply the Mac ROMs with it. You had to go to a Mac dealer and buy the ROMs separately. These were easy to find in those days, in contrast to today. But the Mac ROMs were genuine Apple (in most cases—more on that in a moment), so Apple really couldn't do anything except tighten up the supply of Mac ROMs.

Apple managed to do this quite successfully by lowering the boom on dealers who sold the ROMs (most of which were obtained from Macs that came in for upgrades to the then new 128K ROMs).

What was interesting was that, for a time, even though Apple was tightly controlling the supply of ROMs, there seemed to be plenty of them around. Of course, it wasn't that hard to make your own copies of the Apple ROMs with a device called an EPROM burner (this is illegal by the way, just like copying software)—but these ROMs appeared to be genuine Apple, with the silkscreened logo and everything.

Apple investigated, with a little help

from the FBI (copyright violation, you know?), and eventually tracked down a gentleman in the Midwest who was making a handy profit making and selling "Apple" ROMs. When they arrested him, they found a house full of automatic weapons—he was expecting trouble, I guess.

At any rate, none of this had anything to do with Dave Small, who continued to refine the software driving the Magic Sac. He worked very hard at it, turning out many revisions that were made available to registered owners at a very reasonable upgrade price.

And, Dave struggled mightily to make the Mac software work with Magic Sac, learning more about the ST (and probably the Mac) in the process than he probably ever wanted to.

You see, it turns out to be *very* hard to make one computer imitate another exactly. Primarily, this is because Dave read all the programming guidelines Apple gave the developers for the Mac and believed those developers would follow those guidelines. If they had, Magic Sac probably would have worked flawlessly.

The problem was, many developers took liberties with the guidelines. The programs still worked on the Mac, but broke when you tried to run them on a Magic Sac-equipped ST. Even Apple broke its own rules.

Of course, this had dire consequences when Apple upgraded the Mac from the original 64K ROMs that Magic Sac used to the 128K ROMs in the newer monochrome Macs and the 256K ROMs in the color Macs. Apple also assumed the rules had been followed, and the programs that broke the rules stopped working on the newer Macs.

In fact, as the Mac software vendors scurried to fix their software to work on the newer Macs, many of these programs also began to work on the Magic Sac! Of course, software that was written to only work on the newer 128K ROM Macs didn't work on Magic Sac at all, and thereby hangs another tale in the saga of Dave Small.

But I guess that will have to wait 'til next month. See you then...

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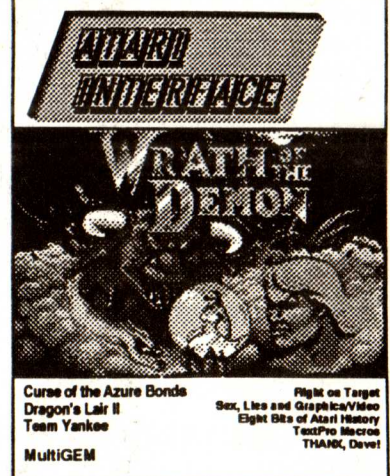
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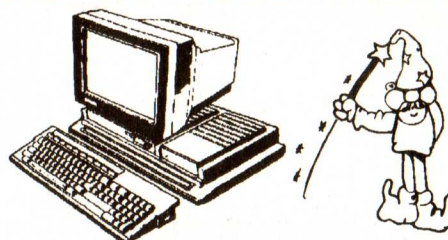
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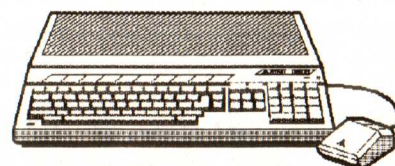


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PREHISTORIK RAIDER OF THE LOST BURGER

**BRENDA MICKA
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It's time to get back to our roots, folks. Back to the time of dinosaurs, crude weapons and the never-ending fight for survival.

Computer games are so varied. You have everything from pure text adventures to graphics that make you sit back and say "WOW!" From simplistic solitaire card games to complex simulations. But, for me, there has always been a spot in my heart reserved for the ever popular platform games. Many hours have been spent sitting in front of the Nintendo with Mario and many dollars spent on Mario-type games.

Prehistorik did not disappoint me in this respect. It is a platform game with 150 scenes (I figure probably about eight levels) of club-bashing fun.

Level Determination

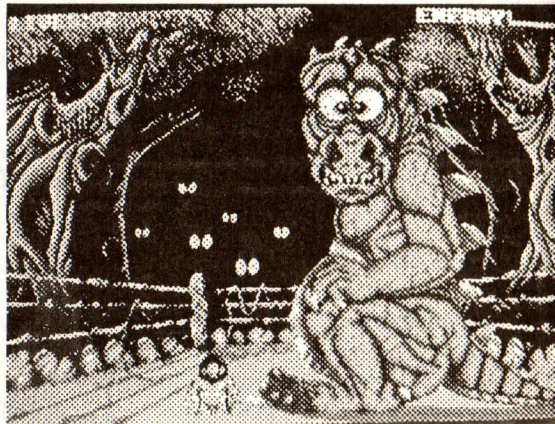
The documentation tells you there are 150 screens but not how many levels there are in the game. I tried to count screens while playing the first level and I think I came up with about 35 screens. Now, with this information, you might say there must be approximately four levels.

Except the 'big bad ugly' you have to meet "at the end of each level" is considered to be a level itself. When I killed the first "end of level monster" the game told me I had finished Level 2. Okay, so maybe there are four regular levels with these one-screen levels in between... maybe eight levels or so. I don't know, it's got me stumped....

The Why and How of Playing the Game

Prehistorik is the name of the character you play in this game. His main objectives are to gather as much food as possible and to live long enough to get it back to his people. His tribe, the Zog-

lors, ran out of food and water. So our hero (can't you see the light bulb over his head?) invented hunting.



At the top of the screen there are displays for score, food, lives, time and energy. There are a few points I need to make here. As far as score is concerned, I think it's an unnecessary part of the game. There is no high score screen to "compare" your personal score with and no reward for a high score (extra life, etc.). In addition, as soon as your last life is gone, the screen blanks and you can't see your score anyway.

The time limit to complete the levels is a good idea. Don't dawdle, your people are starving to death. The food bar indicates how much food you have picked up. If you reach the end of the level and don't have enough food, the game tells you that you have to go get more.

I may have been spoiled by the many other games I have played, but I think it should be possible, somehow (potions, eating some of the food you've collected, etc.), to get back some of the energy you lose along the way. As soon as your energy drops to zero, you lose a life. The documentation tells you there are many hidden lives around, but I have yet to find one. I have found them in the caves and gotten them from the Guru, but have not found a hidden one yet.



Club Activities

You begin the game (and each subsequent life) with a club. Bashing enemies with the club stuns them long enough for you to walk over them and receive points. They then disappear. However, if you wait too long to stomp on a stunned monster, it will stand back up and come at you once again. This is indicated by a flashing arrow above the stunned monster's head. Some monsters take more than one hit to stun, while some others can't be killed or injured at all.

You will find most of the food you need in the caves, so you must go into them or you will get nowhere fast. In the caves, you will also come up against more monsters, fire, and various bonus objects.

Most of the caves are one entrance caves (you go out the same way you came in). However, some caves have what they call a "wrong-way" sign that allows you to walk out of the cave through the right side of the screen rather than the left. Doing this could be good or bad. It allows you to avoid the monsters you dodged on the way through. The catch is that it could exit you *anywhere* on the level, not necessarily adjacent to where you went in. When you use this option and come out of a cave entrance, you are momentarily invincible. This gives you a chance to react to the new surroundings, monsters, etc. Also, if you turn around and go back in the cave...it's not the cave you left! There may be food and bonus objects inside.

What Secret Rooms?

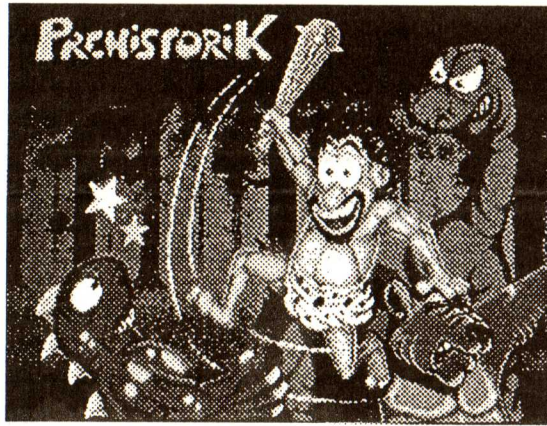
Secret rooms are also mentioned in the docs, but perhaps I haven't played through far enough yet. I haven't seen one, unless what they are referring to are the cave entrances you leave when you use the "wrong-way" exits.

Bonus Items

The bonuses that were mentioned are: Alarm (extra time), Bomb (stuns all enemies on that screen), Shield (temporary invulnerability), Axe (allows you to stun enemies with only one blow), Spring (improved jumps) and Cross of Life (extra life). These bonuses can either be picked up in the caves, or if you bash the Guru on the head with your club—he pops up in various places—he will leave one for you.

What?? No Pause?

One very large omission in this program is the lack of a pause feature. In a game that allows you to save your progress, a pause isn't a big deal. But you can't do that in this game (I can't think of a platform game where you can save). If you are happily playing and getting further in the game than you ever did before,



and all of a sudden the doorbell rings...you're out of luck! While you are gone finding out that somebody got the wrong address, our buddy Prehistorik will more than likely perish at the "hands" of the Gubba-Glub, Pyro-Tax, Chimp-Agogo, Pteriyaki or some other stone-age type creature.

Conclusion

I have played through to about the eighth screen of the third level. Even though I estimate only eight levels, this game will take you awhile to complete. The graphics are good—Prehistorik's hair gets disheveled momentarily when he jumps and the once brown bears are blue in the ice world (presumably from the cold).

Overall, I like the game and would probably recommend it to anyone who is a fan of platform games. But, honestly, I wouldn't recommend it without mentioning what I consider the biggest problem...no pause feature.

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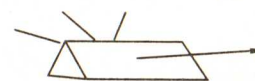
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SWAP ↔ SWAP

"Intelligence is something you demonstrated by buying SWAP, and something you will need when playing it."

The introduction to SWAP, a new game from Titus, makes this claim. The game, however, fails miserably trying to live up to its own intellectual claims. The idea behind SWAP is basically sound, but programming errors and lack of insight plague the game soon after booting.

The manual, which is translated into German, English and Italian, is a poor example of what a manual should be. The introduction is a witty description of what a "brain" is and proceeds to be a good "ice breaking" introduction.

Following the introduction is where the manual falls apart. The loading instructions tell you nothing of the status of the disk. Can it be backed up? Is it singled-sided or double-sided? Can it be copied to a hard drive? It simply tells you to insert the disk, turn your computer on, and keep the "SWAP" disk in your drive while playing the game because high scores are saved to it.

The game's playing instructions are simple enough to understand, but a few screen shots would be very helpful. The rest of the manual proceeds to tell you how to raise your I.Q. and offers a short five question I.Q. test...both of which are unnecessary.

Removing Tiles

The game is played by trying to eliminate "tiles" from a board consisting of multi-colored geometric shapes (always the same shape per level). To eliminate the tiles, you

Kevin Slate
WMAUG

move the cursor to an area where two tiles meet and left click with the mouse. This causes the tiles to flip, exchanging positions. If, when flipped, the tiles about a tile of the same color, they disappear.

This continues in an attempt to clear the board or acquire enough points to access the next level. Your point score is indicated by eight "stars" that are highlighted as you achieve greater point levels. You are also able to skip levels depending on how you do per level.

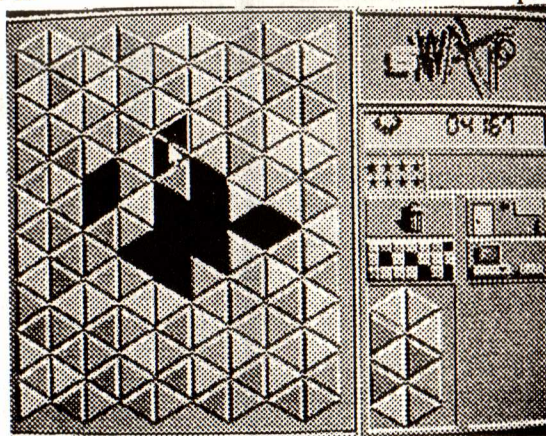
Options

A number of other options are also available (the actual options vary per level). A "Supplementary" feature allows you extra tiles to place on the board in an attempt to help eliminate others. Of course, each supplementary tile you use costs you some points—ten, to be exact. "Avalanche" allows all the tiles to fall to the bottom of the board but this one costs you one-hundred points.

"Credits", which are found in "harder levels," let you gain ingots and are used, or spent, when a flip results in no tiles being eliminated. Some levels also have a time limit. All the levels have an "Undo" feature, the ability to take back a move.

Prior to each level, an "introductory screen" tells you which options will be active for that level. Unfortunately, the manual does not describe how to interpret this screen. (The options that are not active could be "grayed out" a little more clearly.)

A practice level is also available, allowing you to configure any of the options.



Problems?

While playing SWAP, I ran into several problems and discovered a few options which I felt were necessary but not included.

To start with, the disk is not copy protected, but when using a standard disk copy, the game does not allow for more than two saves per disk. If you are trying to save more than two levels, an alert box pops up telling you "disk error," not "disk full." There were several other save errors as well.

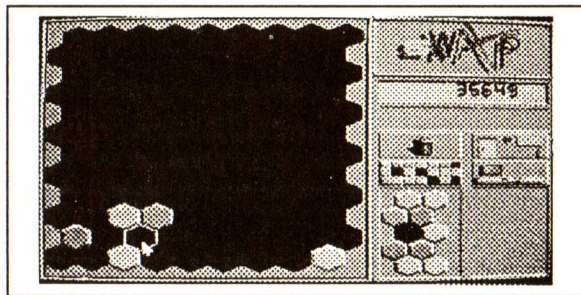
After failing to complete a level (e.g., timer running out, running out of ingots, etc.), there is no way to re-start the level (short of using undo to get back to the beginning of the level).

If you save after failing a level and try to re-load, you are placed right back where you left off...failing the level. If the timer had run out, you are sent back to your saved level only to be switched to an options menu with no time to access the level. It would be nice if the program didn't allow you to save right after failing a level or running out of time.

In one instance, I ran out of time, saved the level, reloaded, and returned to the level to find the timer had turned off!

Another unimportant but peculiar error was the inability to type the letter 'G' when trying to save a level. It appears as a letter 'H'.

The "Undo" feature is also inaccurate. It not only allows you to take back one move, but you can also take



back every move made to the beginning of a level. Doing so, however, tends to run into some problems. When you start to click on the tiles again, random tiles tend to disappear all over the board, following no particular pattern.

Summary

"Intelligence...something you'll need while playing" SWAP is an inaccurate statement that follows right along with the rest of the game's inconsistencies. In one instance, I was able to reach Level 60 by randomly clicking on tiles. There are 300 levels in all.

The basic idea behind SWAP is sound, but the game fails to perform up to my expectations. The manual is weak, and the gameplay is plagued with errors. It seems to me that SWAP's release was premature and I'd think twice before purchasing this one from Titus Software Corp.

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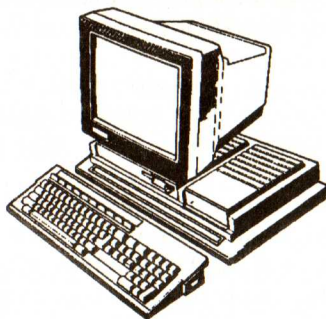
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WRITING A BULLETIN BOARD ON THE ATARI 8-bit, PART 3

JAMES BASTABLE
BAPAUG

Hello again! In my last article, I explained how Turbo BASIC prevented the 850 Interface from being used because it destroyed the handler at load up.

The program in Figure 1 creates a file on Drive 1 called 850DRIVE.COM which can be BRUNed (BRUN "D:850DRIVE.COM") to load the 850 after Turbo has loaded. Thank you Arthur Edwards of Powys wherever you are these days.

Now, on to the nitty gritty of writing your own Bulletin Board. By now you should have a grasp of how to use XIO commands, so we'll go onto the problem of speeding up data transfer rate, which BASIC struggles with. The problem lies in the PUT and GET commands which, although being ideal for handling individual bytes to and from a device, are just too slow for speeds of 300 baud and above.

Actually, we need not worry too much about incoming data as callers to your Bulletin Board will be sending data at typing speed. This is well below 300 baud, as you can imagine. The GET command can handle this happily and still have time to echo the characters.

Program 1 to accompany Part 3

Creates 850DRIVE.COM to load RS232 handler into Turbo Basic by
Arthur Edwards.

```
1990 OPEN #1,8,0,"D:850DRIVE.COM"
2000 FOR D=0 TO 87:READ BYTE:PUT #1,BYTE:NEXT D:CLOSE #1
2010 DATA 255,255,0,56,75,56,169,80,141,0,3,169,1,141,1,3,169, 63,
      141,2,3
2011 DATA 169,64,141,3,3,169,5,141,6,3,141,5,3,169,0,141,4,3,141,9,3
2012 DATA 141,10,3,141,11,3,169,12,141,8,3,32,89,228,16,1,96,162,
      11,189,0
2013 DATA 5,157,0,3,202,16,247,32,89,228,48,6,32,6,5,108,12,0,96,
      226,2
2014 DATA 227,2,0,56
```

There's An Echo in Here

You must remember that any character sent to your Bulletin Board should be echoed two ways. Firstly, it has to be echoed to the caller which is standard Full Duplex operation. Secondly, it should be echoed to your own (local) screen so you may monitor what is taking place. This second operation can be ignored if speed is essential. So a typical GET operation should follow this format:

```
100 GET #1,CHAR :REM GET FROM MODEM ONE BYTE
110 PUT #1,CHAR :REM ECHO TO CALLER'S SCREEN
120 PRINT CHR$(CHAR); :REM ECHO TO LOCAL SCREEN
```

BASIC can output data easily in excess of 1200 baud by using the PRINT command. The problem lies in your own local screen display. If you were to PRINT out a string containing 1500 characters, you would either have to print it to your screen before or after displaying it to the caller. Either way, that causes a noticeable delay to the caller. Also, what would happen if the caller wanted to abort a stream of text being transmitted?

The answer is to break the string down into smaller parts, then PRINT them out to caller. After each PRINT command, the program could go away and check whether anything has been typed. It can also see if what has been typed indicates that the caller wishes to pause the listing or abort it completely.

During this interval, you could also check whether the caller is still on line by CLOSEing the port. Or, if using a Hayes modem set correctly, you could check for the character 3 (ASCII 51)—the Hayes code for 'No Carrier'—and then CLOSE the port to check whether the caller is actually still there or not.

I use the following subroutine to do print out text in chunks, but maybe you can think of a better one.

```

10 REM assuming that BUF$ holds data.
20 REM assuming that Channel 1 is open to
   RS232.
30 REM BAUD holds the value of the Baud Rate
60 REM using 0=300 Baud or 10=1200 baud.
70 M=BAUD+4
100 IF LEN(BUF$)<M THEN PRINT #1;BUF$:PRINT
    BUF$:RETURN
110 Z=INT(LEN(BUF$)/M):CNT=0
120 FOR LP=1 TO Z
130 T$=BUF$(CNT+1,CNT+M)
140 PRINT #1;T$;:PRINT T$;
150 CNT=CNT+M
160 REM Program goes away and checks for in-
    coming data.
170 NEXT LP
180 IF LEN(BUF$)-(Z*M)>0 THEN T$=BUF$((Z*M)
    +1,LEN(BUF$)):PRINT #1;T$;:PRINT T$;
190 PRINT #1:PRINT
200 T$="":RETURN

```

Note that even though this is a subroutine, the line numbers are quite low. With standard Atari BASIC, routines that are the nearer the start of the program are accessed faster than those toward the end. This routine will PRINT larger chunks of data out at 1200 baud than it will at 300 baud.

On the Receiving End

Receiving data, as I mentioned before, is not that difficult, as it is usually typed to a Bulletin Board. With standard Atari BASIC, you cannot use the INPUT command. Although INPUT is fast enough, it will not stop trying to receive data until it gets an EOL (ATASCII 155) character.

This may not seem to be a problem at first, until you think about what happens if carrier is lost (the caller drops the line) halfway through receiving data the carrier was lost. Your program would sit there forever waiting for the ATASCII 155. And what about when you are transferring programs where the incoming data may not contain a 155 at all?

Binary GET

In most circumstances, you can simply use the GET command. But, when you want to receive data at high speed, you are going to need a more efficient command. Fortunately for users of BASIC XL, BASIC XE and Turbo BASIC, this command is readily available—Binary GET (BGET). If you are using Standard BASIC—nothing to be ashamed of—the program in Figure 2 contains a routine that loads a Machine Code

Program 2 for Part 3

Creates M/C program for Binary Get by James Bastable.

```

10 DIM ML$(46)
20 FOR LP=1 TO 46
30 READ A
40 ML$(LP,LP)=CHR$(A)
50 NEXT LP
100 DATA 32,68,218,104,104,104,10,10,10,10,
    170,169,7,157,66,3,104,157,69,3,104,157
110 DATA 68,3,104,157,73,3,104,157,72,3,32,86,
    228,189,72,3,133,212,189,73,3,133,213,96

```

program into a string called ML\$ which duplicates the Binary GET found in other BASICs.

The Binary GET is used in this manner:

X=USR(ADR(ML\$),CHAN,ADR(BUF\$),AMOUNT)
where

ADR(ML\$) is the address of the Machine Code routine

CHAN is the Channel Number being accessed

ADR(BUF\$) is the address of the string into which you wish the data to be entered and

AMOUNT is the amount of Bytes you wish to be transferred.

As a bonus, the amount of bytes that was actually transferred by the routine is returned into X. Obviously, the Binary GET can be used with other devices, such as disk drives, for speedily reading in Data.

To ascertain how many bytes of data are needed to be transferred from the RS232 and entered into the USR parameter AMOUNT, you need to do the following:

When in Concurrent mode (XIO 40), issue a STATUS and PEEK memory location 747. This tells your program how many bytes are in the buffer. If there are no bytes in the buffer, then your program could go away and check whether the caller is still on-line. Otherwise, the value found in location 747 is placed into the variable AMOUNT.

Miscellany

As a recap, if you have set up Port 1 correctly using XIO 36, simply OPENing and CLOSEing the channel tells you if the caller is still there. If the caller has dropped carrier, this action causes a TRAPable error.

When receiving information on a Bulletin Board, always assume the caller is going to do something "stupid." For example, expect the caller to type in lowercase when uppercase is required. Your program should allow for this sort of thing and alter the data accordingly.

Also, try to remember that your caller may suffer line noise (data corruption due to a bad phone line connection), so check for characters that are never used in typed messages or commands and filter them out. To find these characters, look through a list of ASCII characters and codes.

In the next article, I discuss the Xmodem file transfer protocol, the simplest and most widely used form of transferring important data such as programs.

While Xmodem support is not essential to a Bulletin Board, it is most desirable.

Until then...

Source Code for
(Binary Get) for Part 3.
By James Bastable.

```
10 ;-----
20 ;BINARY GET BY JAMES BASTABLE.
30 ;-----
40 ;USE FORMAT
50 ;X=USR(XXXX,CHAN,ADDR,AMOUNT)
60 ;CODE IS RELOCATABLE
70 ;-----
80 ICCOM=$0342
90 ICBAH=$0345
0100 ICBAL=$0344
0110 ICBLLH=$0349
0120 ICBLL=$0348
0130 CIOV=$E456
0140 *= $0600
0150 JSR $DA44 ;CLEAR 212-217
0160 PLA ;BYTES PASSED
0170 PLA ;
0180 PLA ;GET CHANNEL NUMBER
0190 ASL A
0200 ASL A
0210 ASL A
0220 ASL A ;MULTIPLY BY 16
0230 TAX ;TRANSFER TO X
0240 LDA #7 ;OR 11 FOR BPUT
0250 STA ICCOM,X
0260 PLA ;GET BUFFER ADDRESS
0270 STA ICBAH,X
0280 PLA
0290 STA ICBAL,X
0300 PLA ;GET BYTE AMOUNT
0310 STA ICBLLH,X
0320 PLA
0330 STA ICBLL,X
0340 JSR CIOV ;DO THE JOB
0350 LDA ICBLL,X
0360 STA 212 ;RETURN BYTES
0370 LDA ICBLLH,X ;TO BASIC
0380 STA 213
0390 RTS ;ALL DONE
```

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Programming in Michtron Command Language #3

A Tutorial for Michtron BBS 3.0 Sysops

Jeff Wells

Welcome Back! This is a tutorial for Sysops who run Michtron BBS v3.0 and would like to learn more about the language that drives the BBS, Michtron Command Language, or MCL. In our last article, we demonstrated some of the MCL commands through a program called MCL Baseball (MCLBBL).

There is one thing I hope you've discovered so far that is very important when writing a program in MCL, or any language. This is that there are some things you have to determine before you start coding your program. These include:

- What variables will be needed, Temporary and Global?
- What is the program to accomplish? What's the end result?
- Flowchart your program to determine what needs to be done and when.
- What input is required to make the program work?
- What is the output supposed to look like?

There are probably endless other questions we could add to that list, but, the key point I am trying to get across is that you should make a "map" of where you want the program to go. Programming without a concrete plan is like taking a trip without an atlas—you've got a good chance of getting lost. *Have a plan!* Having a well prepared plan can eliminate endless hours of asking yourself "Why isn't this program doing what I want it to do?"

In our last article, we discussed our plan, determined what variables were needed and assigned them. Then we started our program.

In the previous article, we created a menu and used the `key_match(sexp)` function to get input from the user. We also showed how to use the conditional IF statement to direct the flow of the program. Let's pick up right where we left off, just after testing if `k == 'G'`. The following code goes after that last bit of code from the last article.

```
print("PLAY BALL");
if(exist(z$)) /* Load Player */
{
    m = 1;
    open(z$);
```

In the above code, if the user entered a zero or a carriage return at the menu we previously built, the program would drop to the `print("PLAY BALL")`. Since all the other menu commands would jump to the MAIN label or execute a different MCL program module, there is no need to explicitly test if the user has entered a zero or carriage return. The only way the user could get to this point in the program is by entering one of those two choices.

The `z$` variable was earlier assigned as the file holding the players' names. We did that in the last article as well, just prior to defining the MAIN label.

In the code above, we use another conditional `if()` statement along with the `exist(sexp)` function to determine if the file exists. If the file exists, the `exist(sexp)` function returns a -1, which is interpreted as TRUE. The function returns a zero (which means FALSE) if the file doesn't exist. The same result from the `if()` statement can be accomplished with the following code:

```
x = exist(z$);
if(x)
```


By using both if() and exist() together, we don't need to assign the result of the exist() function to a variable. When using an if() statement, it will only execute if the conditions are TRUE. *Note:* It should be pointed out that any non-zero condition (not just -1) is interpreted as TRUE. So, zero is FALSE; everything else is TRUE. Got it?

I can not stress enough the importance of checking for the existence of any file before attempting to opening that file. If you do not check and you attempt to open a file that is not there, the result will be a *fatal error* and the BBS will attempt to reload MAIN.MCL.

We then assign our player counter m to 1 (m = 1;) and open the file.

```
while(1)
{
  x = read(y$);
  if(x < 0)
  {
    gosub NEW_PLAYER;
    break;
  }
  if(logname(y$))
  {
    o$ = "\\BBS\\BASEBALL\\BASEBALL.0";
    if(m < 10)
      strcat(o$, "0");
    str(w$, m);
    strcat(o$, w$);
    open(o$);
    read(a$);
    read(b$);
    read(c$);
    a = atoi(c$);
    read(c$);
    b = atoi(c$);
    read(c$);
    read(d$);
    read(e$);
    read(f$);
    read(g$);
    read(h$);
    read(i$);
    read(j$);
    read(k$);
    read(z$);
    d = atoi(z$);
    read(z$);
    h = atoi(z$);
    read(z$);
    i = atoi(z$);
    open("");
    break;
  }
  else
  {
    m += 1;
  }
} /* End of While
}
else
{
  m = 1;
  gosub NEW_PLAYER;
}
```

By using the while(1) statement, the program loops forever until you decide to break out of the loop. In this case, we do so by using the BREAK command. You may also assign or test a condition within the while() statement. For instance, while(m < 10) executes all code under this statement's domain until the counter m is less than 10.

The read(sexp) function retrieves data from the file we previously opened. The function reads until a new line is encountered in the file or 79 characters, whichever comes first. It is important to note that you must OPEN a file before attempting a read(), otherwise, it's FATAL ERROR time again. This function returns the length of the string read or -1 if there is no more data available.

There are three different ways you can use to call the read() function. These are:

read(sexp); This attempts to read data even if there is no more data to retrieve (i.e., you are at the end of the file). Attempting to read past an end of file causes a FATAL ERROR.

if(read(sexp) < 0); This checks to see if the End of File has been reached. If at end of file, it executes whatever commands fall into the if() statement's domain.

x = read(sexp); This assigns to x the length of the variable sexp or a -1 if the End of File has been reached. You can then test to see if you're out of data by looking at the contents of x.

I recommend using the second or third illustration if you are not 100 percent sure how many times you will be reading from a file. If you *know* there are only four pieces of data within the file, and this will never change, then the first example would be your best choice.

We use example three here, and then we check the condition of the read() function. If we are at end of file, then we jump to a routine called NEW_USER by using GOSUB. After that routine finishes (and we'll deal with what this routine does at a later time) and a RETURN is issued, the program returns to the next line after the GOSUB. This line contains a BREAK, which tells the program to stop executing the while(1) loop. Control is passed to the bottom of the loop, and the next line after the loop's end is executed.

If we weren't at the end of our players' file, the program moves on and checks if the user's name matches that of the player's name obtained by the read().

This is done by using the logname(sexp) function along with the if() statement. The logname(y\$) function we used compares the contents of the string variable y\$ to the current user's name (as contained in the system variable username\$). If they are equal, logname() returns a non-zero (TRUE) response, which we test for with the if() statement.

If the user's name is stored in y\$, then we know that our current user has played the game before and we need to load his/her data. First, we determine which file to load. To accomplish this, we use the

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APA222 COLOR ALIGNMENT GENERATOR
APA027 COMEDY DISKETTE
APA014 COMPUTERIZED CARD FILE
APA051 COSMATIC ATARI DEVELOPMNT PKG
APA148 COUNTER
APA141 CRIBBAGE
APA101 CUBBYHOLES
APA210 DANDY
APA134 DATA BASE/REPORT SYSTEM
APA044 DECISION MAKER
APA166 DEEP BLUE C COMPILER
APA034 DEVELOPER'S DISKETTE
APA035 DICE POKER
APA010 DISK FIXER
APA056 DISKETTE LIBRARIAN
APA112 DISKETTE MAILING LIST
APA173 DISKMENU
APA264 DOG DAZE DELUXE 2.2
APA063 DOWNHILL
APA209 DRAWT
APA065 DSEMBLER
APA150 DUNION'S DEBUGGING TOOL
APA160 EARTH SCIENCE
APA050 EASTERN FRONT (1941)
APA232 EAST. FRONT SCENARIOS 1942, 43,44
APA233 EAST. FRONT (1941)SCENARIO EDIT
APA136 ELEMENTARY BIOLOGY

APA074 ENHANCEMENTS TO GRAPH IT
APA204 ENNUMEREIGHT
APA268 EQUESTRIAN
APA190 ESCAPE TO EQUATUS
APA235 EXCALIBUR
APA026 EXTENDED WSN
APA080 FAMILY CASH FLOW,REV.2
APA108 FAMILY BUDGET
APA128 FAMILY VEHICLE EXPENSE
APA042 FINANCIAL ASSET MGMT SYSTEM
APA197 FINGERSPELLING
APA149 FLAGS OF EUROPE
APA185 FOG INDEX
APA157 FORTH TURTLE GRAPHICS PLUS
APA131 FROGMASER
APA146 FUN-FORTH
APA132 GALAHAD AND THE HOLY GRAIL
APA168 GAME SHOW
APA164 GEOGRAPHY
APA195 GETAWAY!
APA123 GOING TO THE DOGS
APA028 GRAPHICS/SOUND DEMONSTRATION
APA188 GRIDIRON GLORY
APA104 GTIA DEMONSTRATION DISKETTE
APA199 HEX-A-BUG
APA071 HICKORY DICKORY
APA214 HOME INVENTORY
APA207 HOME LOAN ANALYSIS
APA066 HYDRAULIC PROGRAM
APA183 I'M DIFFERENT
APA196 IMPACT
APA073 INSOMNIA
APA060 INSTEDIT, REV.1.1
APA113 INSTEDIT (Microsoft BASIC Version)
APA137 INSTITUTIONAL COMPUTING DEMO
APA221 ION ROADWAY
APA103 ISOPLETH MAP-MAKING PACKAGE
APA121 JAX-O
APA135 JUKEBOX #1
APA236 KANGAROO
APA094 KEYBOARD ORGAN
APA106 KEYPAD CONTROLLER, REV.2
APA001 LEMONADE
APA096 LETTERMAN
APA037 LOAD'N GO
APA032 LOOKAHEAD
APA182 MAGIC MELODY BOX
APA156 MANKALA
APA143 MANTIS BOOT
APA055 MAPWARE
APA162 MARKETPLACE
APA259 MASTER MATCH
APA193 MATH MISSION
APA151 MATH*UFO
APA082 MATHEMATIC-TAC-TOE
APA231 MATHLIB FOR DEEP BLUE C
APA178 MELT-DOWN
APA070 MEMORY MATCH
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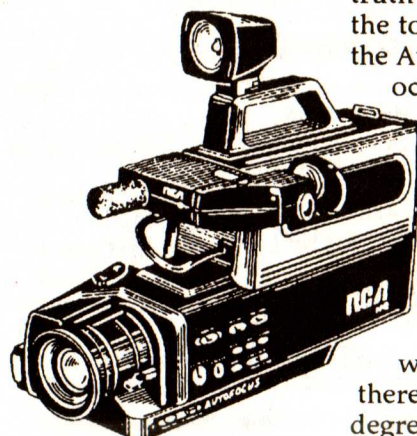
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Convector Professional



Bill Rayl

There's an old saying about a workman being only as good as his tools. Like most old sayings, there's a good deal of truth to that statement. Until recently, the toolbox has been pretty empty for the Atari desktop publisher. Even mediocre tools would have been a welcome change from no tools at all. Sure, we had a couple excellent DTP packages, but the Atari platform lacked the external add-on utilities necessary for a well-rounded DTP solution.

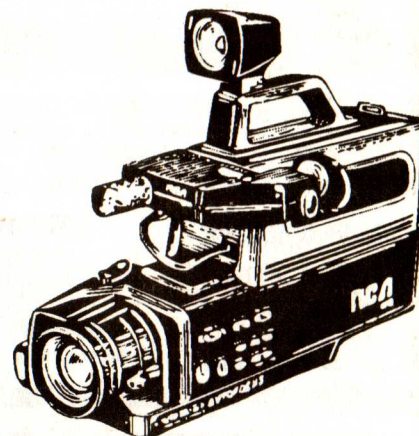
Take auto-tracing software, for instance. A year ago, there were no options available. Now, there are three packages with varying degrees of power—Silhouette, Convector Professional and Avant Vector.

While Silhouette is a full-blown graphics drawing program with auto-tracing features, the other two packages far outstrip its abilities to trace graphics. At the high end, Avant Vector has the most power and is a complete tracing and editing solution. At a retail price of \$545, it's definitely not geared to the middle-to-low-end user.

Convector Professional, marketed in North America by Gribnif Software, happily fills in the middle ground. And, it does so without compromising in features or power. In fact, you get a great deal for the suggested retail price of \$149.95. The software runs in all ST and TT resolutions (although in ST and TT low resolution, the drop down menus don't all display). At least one meg of memory is required.

What is Auto-Tracing?

By now, most of you are probably familiar with the term auto-tracing and what auto-tracing software does. For those of you who are still in the dark, auto-tracing software "automatically" traces a bitmap graphic and creates a vectorized version of the image. [Ed: For



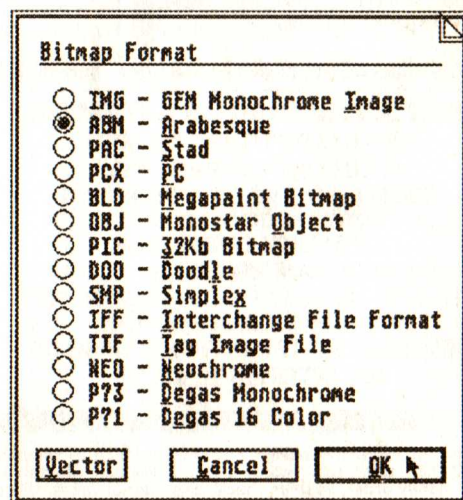
a more detailed description of rasters and vectors, see the "Rasters and Vectors" article, May '92 issue of Atari Interface.]

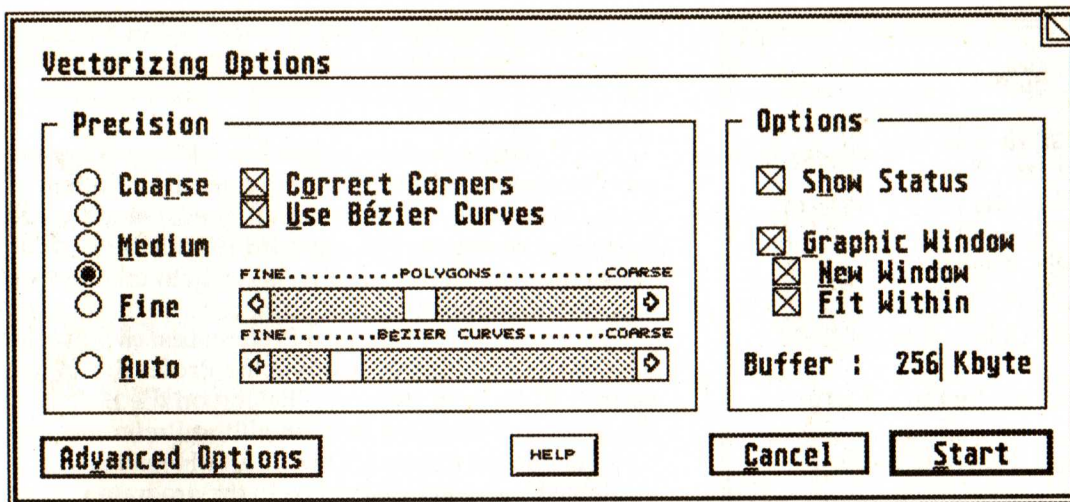
Just how automatic the trace is depends on a number of factors—quality of the bitmapped image being traced, parameters set within the auto-tracing software, the type of tracing used and the abilities of the tracing software.

Comparisons

Fortunately, Convector Professional has the power to get the job done, and it does the job well. It even has a few options that can help improve the quality of the bitmap image with which you're working. Convector Pro compares very nicely to the auto-tracing features of Avant Vector and far surpasses even Adobe Streamline on the Macintosh.

There are actually two versions of Convector Pro contained on the distribution disk—the standard ST version and a TT-specific version. The TT version takes advantage of the TT's math coprocessor, Fast RAM and 32-bit ad-





ning standard on Mac systems, PCX as the IBM bitmap of choice and IMG as the ST scanning standard (and the format used by Ventura Publisher on the IBM), Convector Professional can handle just about any graphic from the major computer platforms.

One thing needs to be noted here.

Auto-tracing programs work best with images that are *only* black and white. Graphics using various grayscale shading or fill pattern effects are going to give any auto-tracer problems. If you have graphics with lots of fills or gray areas, it's usually best to edit those out before tracing.

While Convector may be everything you'll ever need for auto-tracing, you will need an additional program to edit/modify the vector graphics you create. That's because, unlike Avant Vector, Convector has next to no editing capabilities. Instead, Convector Pro focuses on doing only one job—auto-tracing graphics—and it does that job superbly.

You do have a lot of choices when it comes to an editing package, though. That's because Convector Pro supports nearly *every* bitmap and vector graphics format imaginable.

Vector Formats

Once you've converted your graphic, Convector lets you save the vectorized file in GEM, GEM/3, Calamus CVG, MegaPaint VEK or VLB (Symbol), Arabesque AOB or Adobe Illustrator compatible EPS formats.

This wide-ranging support of file formats means you can use nearly any drawing/editing package on the market to modify the graphics. You can choose Calamus Outline Art, MegaPaint, Easy Draw, Gribnif's own Arabesque or even Adobe Illustrator (run under Mac emulation with Spectre GCR)—Convector Professional lets you use any (or all) of them!

PageStream users can even opt to edit and colorize Convector's EPS output directly within the DTP program. All you need to do is first load the EPS graphic into a text editor (I personally use EdHak from Clear Thinking) and change the "%Creator:" from "Convector" to "Adobe Illustrator." Then, you can Import the EPS into PageStream and edit to your heart's content.

I've tested the software using every one of the supported import and export formats mentioned above without a glitch. Unless I'm mistaken, Convector Professional supports more file formats than any other graphics package on the Atari ST/TT market!

Using Convector

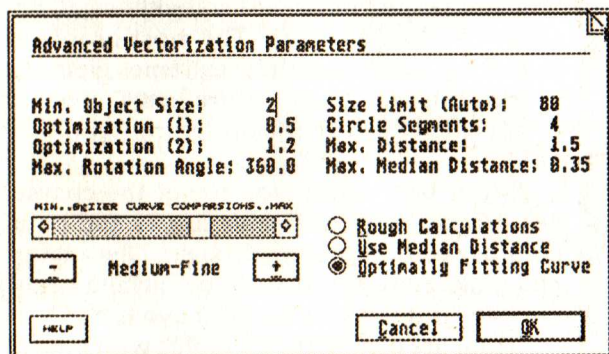
One of the best things about Convector is that it's sooooo easy to use. You'll be up and running in only a few minutes. By spending about 10 minutes reading the manual and playing with the options, you'll be an auto-tracing pro. Or, you can skip the manual, use the extensive online help and trim a few minutes off that estimate!

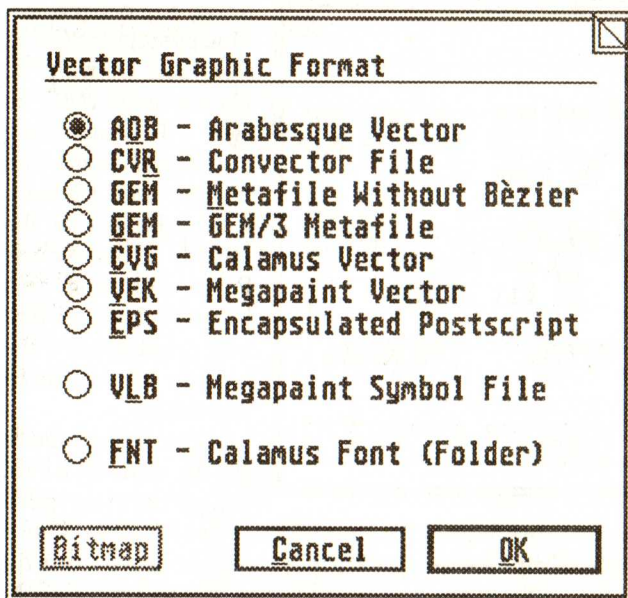
When you first load Convector, you're presented with Convector's desktop. Along the top, you have the

Bitmap Formats

Convector Professional can load any of the following bitmap formats: IMG, PCX, TIFF, IFF, Degas PI1 or PI3, Degas Elite PC1 or PC3, NeoChrome, Doodle, 32K raw PIC, STAD's PAC, Arabesque ABM, MegaPaint BLD and *more!*

With IFF as the Amiga standard, TIFF as the scan-





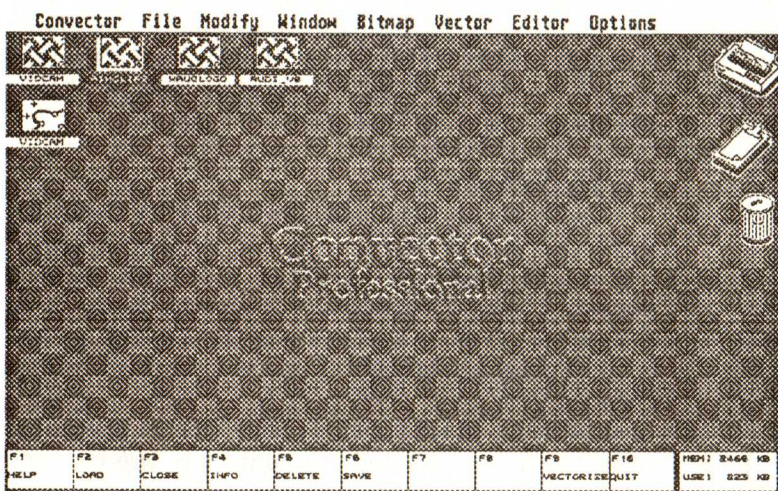
various drop down menus. A display of the various function key operations are shown at the bottom of the screen. On the desktop, you'll find a printer, clipboard and trashcan icon.

As you load bitmap graphics and create vector images, an icon for each of these is added to the desktop. Double clicking on one of these icons opens a window containing the selected graphic. If you have GDOS installed, you can print a vector graphic by dragging the icon to the printer icon. (Note: GDOS is not needed for any other program function, including saving of GEM objects. GDOS is *not* supplied with Convector Pro.)

What's Your Preference?

Before you start converting graphics, it's a good idea to set Convector Pro's Preferences to suit your needs. From the Preferences dialog box, you can tell Convector Pro to ask you for the file type to load or save, whether or not to open a window when a graphic is loaded, how to handle the UNDO function, and more.

Setting the Coarse Bézier Curves option speeds up screen redraws without affecting your actual output



file. This is a handy option if you're using a normal 8MHz ST. The Bézier Quality setting also affects only the display of graphics on your screen, and lower quality settings can dramatically speed up display.

A VDI Bézier's option is there to take advantage of possible future additions to the operating system in your computer. Atari has announced plans to add Bézier curve support to some future release of TOS. When they do, Convector Pro is ready to take advantage of that support!

After setting your desired Preferences, clicking the Save button will make Convector Professional use your defaults from then on. Clicking on the Help button gives you detailed help on all the Preference options available to you. (This online Help feature is available from every dialog box in the program.)

Bitmap Options

Once you've loaded in a bitmap image, you have only a few options available to you. You can Clip, Invert, Contour or Filter the image (or a selected block) or you can Vectorize the image. Other than the Vectorize selection, the Contour and Filter options are the most interesting.

Contour gives you the option of Outline or Inner contouring. As you might expect, Outline basically gives you an outline of the graphic, dropping out the black fills. Using Inner contouring allows lines to remain as lines.

Filter is a great option that can dramatically improve a bitmap image before Vectorizing. You can select Noise Filter, Contour Smoothing or both. The Noise Filter removes those nasty little dots and other imperfections that often appear in scanned images. Contour Smoothing helps soften "jaggies" in your graphic and is a great tool when enlarging a bitmap before vectorizing it.

Vectorizing

When it's time to convert your bitmap image to vectors, Convector Pro delivers a host of powerful options. I won't cover all of the available options here—the excellent manual and online help does a superb job of that.

Six Precision settings let you select how finely detailed the auto-tracing will be. The Coarse setting should be used for large, blocky bitmaps, while Fine is best suited to small images with lots of detail. For most graphics, something inbetween these extremes gives the best results. An Auto feature lets Convector Pro decide which Precision setting should be used.

Slider bars allow you to set the coarseness/fineness of the Bézier curves and polygons used in the tracing process. The settings you make here are directly connected to the Precision settings mentioned above.

If you are converting a graphic with little or

no curved areas, you can opt not to use Bézier curves in the tracing. Only polygons and lines are used, and the trace is done much more quickly.

A dialog of Advanced Options allow very specific fine tuning of the tracing process. While you may never need to change any of these values, the ability to modify these settings is great for the more technically-oriented user. By experimenting with these settings, you can create more exact traces...or you can really screw things up! For most people, the default settings are probably best.

Vector to Bitmap

One unexpected feature of Convector Pro is its ability to convert a vector graphic back into a bitmap image. This gives you the ability to smooth out blocky bitmaps and resave them in IMG or MegaPaint formats. It also lets Convector Pro function as a good bitmap image convertor, converting TIFF, IFF and PCX formats into the more widely usable IMG format.

Font Creation

As if all this weren't enough, Convector Pro can be used to create vector objects that can be used in popular Calamus Font editors like Genus. While the process is a bit involved, it's not overly complicated. It's definitely much easier than creating a font from scratch!

Using this feature, you can scan in font output, convert the characters to individual vector objects, Index the characters and save them. Then, using a font editor, you can create a complete Calamus Font set from

the indexed vector objects. Tools available from Mega-Type even allow you to create PageStream fonts from the new Calamus fonts. If you're into font creation, you'll definitely want to add Convector Pro to your software library!

Summary

As you can see, you get a lot for your money when you buy this package. Convector Professional gives you high-end power at a low-end price. No matter what desktop publishing package you use on *any* computer platform, Convector Pro is an ideal tool to add to your DTP environment.

If you happen to be a TT owner, the TT version of Convector Pro is simply a joy to use. In testing the software on an 8MHz STE, a 16MHz MegaSTE with math coprocessor and a 32MHz TT with math coprocessor and no Fast RAM, I was impressed with the performance on all the machines. But, the TT version is *much* faster than the others. Now all I need is some Fast RAM to really blaze along through those graphics!

I highly recommend Convector Professional. No matter what your DTP setup and regardless of what graphics editing programs you use, Convector Pro will fit right in.

Convector Professional (\$149.95)

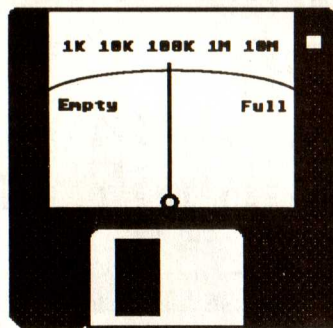
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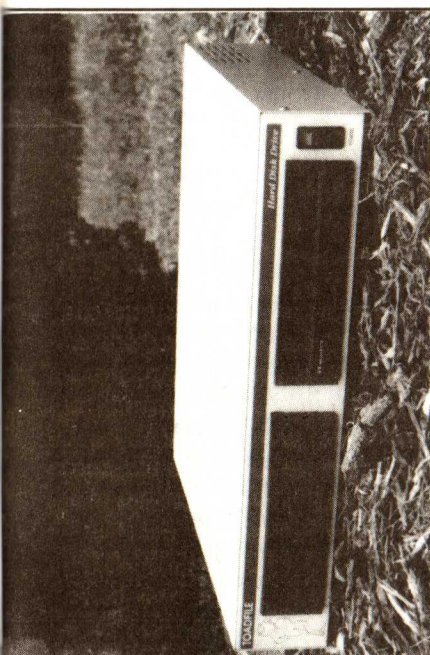
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Adding a Hard Drive to Your Atari

Anton Malje
MACE

Floppy disks have their place, but most serious computer applications require a hard drive if the user's time is to be conserved. A hard drive is also known as a "fixed disk" because it is a sealed unit. Hard drives provide very fast access and large data storage capacity. For business applications, MIDI, video bulletin displays or for running a BBS, a large amount of data needs to be available online.

Setting up a hard drive on an ST or an XL/XE requires the same basic elements. The chief difference is in the choice of host adapter. In some cases, it is possible to house the drive internally (for instance, in a Mega ST or MegaSTE).

Host Adapter

Decide which host adapter you're going to buy first, as this choice may limit your hard drive options. The host adapter connects to your computer and provides a port to connect a SCSI (pronounced "scuzzy") hard drive (or drives) or SCSI controller. You can think of a host adapter as a bridge between your computer and the hard drive.

Host adapters often include other features such as other ports, configuration screens, machine language monitors or a real time clock. The importance of these extra features will largely determine your choice.

Just browsing through a couple issues of Atari Interface, I was able to find several different ST host adapters to choose from, with ICD's being the most popular. If you are an XL/XE user, there are at least three choices—the KP Interface (formerly made by Supra), the MIO by ICD and the Black Box from CSS.

All of these provide a port for a SCSI drive controller (most are also SASI compatible). SCSI stands for Small Computer Systems Interface, which is a standardized way of interconnecting devices.

Drive Types

There are several types of drives you will encounter if you look through computer advertisements. These include MFM, RLL, SCSI, SASI, EDSI, IDE, and "card drives." The last three types are, to my knowledge, not usable with any Atari currently on the market (there is a rumor that IDE drives will be usable in a yet-to-be-released machine).

MFM and RLL drives can be used if you also purchase the appropriate hard drive controller to control the drive via a SCSI (or SASI) interface. The best way to go, though, is to buy a SCSI drive to start with. These drives have a SCSI controller board built into the drive. That means there is one less cable in the hookup, no external controller to mount and no chance of RF interference (ingress or egress) between the controller and drive. And, you get a controller that is optimized for the drive.

Drive Capacity

Next, you need to decide how big a drive you really need, and then decide how much extra space you want. Consider the size of your collection of floppy disks. Multiply the number of disks times their capacity for an estimate of your current usage, and then consider your future demands. Although a 20 meg drive may be the cheapest, you may find a larger capacity drive is only ten or twenty dollars more.

In general, the bigger the drive, the more bytes of storage it gives you per dollar. I recommend pricing out the drive with this in mind: consider the total cost of the system (host adapter, case, cables, power supply) with different drives. For each configuration, calculate the bytes per dollar each would yield. Calculate for your RAMdisk and for the online capacity of your floppy drive if you want to put your hard drive investment in perspective.

3.5" vs. 5.25"

The two most popular physical sizes of the mechanisms are 3.5" and 5.25" drives, which refers to the diameter of the platter(s) sealed within the mechanism. These platters, and the bearings they spin on, operate at a high speed and must be manufactured with a great deal of precision. A skin of air is developed on the surface of the spinning platter, and the heads ride on this rather than making direct contact with the surface. A typical drive will have multiple heads and platters.

The 3.5" drives offer the advantage of being smaller, consuming less power, generating less heat, and they tend to be of newer design. Check into the features of the drives you consider. In general, all the 3.5" drives feature autoparking (the drive heads automatically park themselves in a safe place when you turn off the drive), but many older 5.25" drives lack this very important feature.

Access speed should also be considered. Newer designs have faster access times. Drives slower than 30 milliseconds should probably be avoided.

Buyer Beware

You will find some real "bargains" on used hard drives, but I do not recommend this route unless you know firsthand the drive in question has been used lightly and not abused. Many used drives are for sale because they were showing signs of their age. An old drive may have a lot of bad sectors, be slow to come up to speed, not boot when cold or be noisy. Also, if the used drive is MFM or RLL, there is the added cost of an external controller. Buying a used drive from a stranger at a swap meet is especially risky.

Removables

While most hard drives are sealed units, there are some that have the platters in a cartridge, and these cartridges can be removed and replaced by the user almost like a floppy disk. This may suit some applications well, but the units cost more, and the platter cartridges aren't cheap.

Removables are often used in conjunction with a large capacity fixed drive as a backup device, or in applications where a large base of data needs to be stored long term with infrequent need to access old data. Most host adapters can support more than one SCSI device, so it is no problem to have more than one drive online. Before purchasing the drive(s) and host adapter, double check on compatibility. Phone the host adapter manufacturer if in doubt.

Miscellaneous Items

Once the hard drive(s) and host adapter have been chosen, you still need a case, cables and a power supply. Electronics surplus stores and computer (or HAM) swaps can sometimes be excellent sources for these items.

If there is a good chance you will want to add a

second drive in the future, you may want to get a case big enough now. A fan should be installed if the case lacks one. A thin foam filter is also a good idea.

Buying a used power supply should be done with care. It should be a high quality unit, and it should be less than ten years old. It should be tested with a voltmeter to insure the outputs are correct (+5v, +12v, -12v). If an oscilloscope is handy, the supply can be checked for hum or other problems.

SCSI devices are interconnected via a fifty conductor ribbon cable with socket connectors. Be sure pin one of each device connects to conductor one of the ribbon.

More Decisions

Once you have sorted out these details and determined what you want, you need to decide whether to purchase the whole package from a dealer or to piece it out. A dealer will usually format the drive for you, and some of them even pack the drive with Public Domain software.

If you decide to buy the setup piece by piece yourself, you will need to use a utility included with the host adapter to do a low level format of the drive.

Data is stored on sides of the drive's platters in concentric circular tracks called cylinders. You need to know your drives specifications, including the number of cylinders, heads, and bytes per sector in order to format the drive. ICD's formatting software for ST

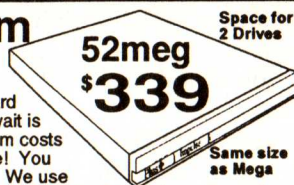
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hard drives automatically knows the configurations of many popular drive mechanisms.

After formatting, you need to configure the drive partitions, if you desire them. Partitioning allows you to divide up the drive to act like more than one drive. This can be useful in organizing your files, allowing you to subdivide things down further with subdirectories or folders.

Partitions also have another benefit. If a File Allocation Table (FAT) gets corrupted, only the data in that partition is affected.

If using an 8-bit Atari, you then have to do a high level format from DOS to each partition.

Care and Feeding

I will now briefly cover some of the care and feeding of your hard drive. Some things to avoid are vibration, heat, extreme humidity and fragmentation.

Fragmentation happens as files are deleted and new material is written into the gaps. Data files that get updated and expand with age end up getting distributed in many small pieces, a sector here, a sector there. With the normal additions, deletions and expansion of data files over time, fragmentation slows your drive and makes it work harder by having to hopscotch across the disk to read a file.

Fragmentation can be controlled via special software or by periodically moving one partition to another (empty) partition (and then, optionally, back to the original partition) via file copies. You can do this via batch files using wildcards or other tricks to make the task manageable. The ultimate way is to do a total backup of the hard drive, reformat the drive and then copy the data back onto it.

Failure?

A hard drive is built to be reliable, but it is possible to have one fail with little or no warning. Therefore, it is important to periodically backup the data.

This is where a removable hard drive makes a nice addition to a large fixed disk. Otherwise, you will likely have to backup to a pile of floppies. A double-sided 3.5" drive is recommended, and high density drives are great for this purpose. Atari 8-bit users would do well to obtain an XF-551 converted to 3.5" DS/DD, but that's another article perhaps.

Again, you can use special backup software to assist in the task, or you can rely on file copies. Usually, backup software does some compression of the data to shorten the task and number of disks used.

Never move the drive while it is running! If the drive needs to be moved, it should be "parked" before being powered down. This involves running a utility program if the drive does not autopark.

My Personal Needs

In my case, I needed a hard drive for an Atari 130XE that runs a BBS. The system needed at least 30 megs and had to be reliable enough to stand up to continuous duty.

Since my computer already had a half meg of internal RAM, I had little interest in buying the MIO. I prefer to

have my RAM all within the XE, where a single +5v line is all I need to deal with for a battery backup.

I initially decided on the KP Interface, as it was the least expensive. But after much research, I found that most of the 3.5" SCSI drives wouldn't work with the KP Interface or the MIO. Also, The KP Interface has no configuration menus, because the configuration is burned on a ROM. This means you cannot simply add any hard drive to the system.

Only the CSS Black Box could handle 512-byte sectors and most newer drives were not switchable to 256-byte sectors required by the others. The Black Box also provides many features which, in retrospect, were well worth the price.

After several cost per dollar estimates, it turned out I could get a Seagate 157N 48.6 meg drive for only slightly more than a 30 meg drive, giving me more bytes per dollar.

When I called CSS to order my Black Box, they offered to try and meet the prices on the drive, cables, and supply. They also offered me several different used drives at attractive prices, but with my mistrust in used drives, I insisted on a new 3.5" SCSI drive.

I ended up buying a package deal with the advantage of having them test it all out. All I needed was to house the drive, which I hacked into a 1020 case, along with a tiny DC fan and an LED pilot wired into the +12v line.

As a SpartaDOS 3.2 user, I was limited to a maximum of 16 megabytes per partition. This means a minimum of three partitions were required to use the 48 meg drive. I chose to set up five partitions.

Conclusions

I have used the system for over two years now without hardware failure. A few partition FAT crashes have occurred along the way, however. One happened when a partition filled up and trashed the next partition due to an overlap in my configuration. Most of the other disasters have occurred by copying from a RAMdisk with a distorted FAT. I have battery backup for my RAM, so I can usually recover after a power outage, but this has resulted in havoc on a few occasions. And, of course, some of these events have caught me with my backups out of date.

Sometimes, when I have to use floppies, I find myself wondering "what's wrong?" because I'm used to software coming up nearly instantly off my hard drive or RAMdisk.

Having the speed of a hard drive and the features of the CSS Black Box changes the nature of XL/XE computing radically. I can even find things now! It was a large investment and I was hesitant to make it, but I have never regretted it.

The main point to remember when deciding on a hard drive is to first educate yourself to the technical details and think over your requirements before making this purchase. An under-sized drive or a used drive that crashes full of your data is a heart and brain breaker! A hard drive should make things *easier* on you.

This is an important investment in terms of money and time, so it pays to be informed before purchase and set up.

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AAAUA ATARI 8-BIT USER GROUP

Presidential Ponderings By Alvan Sherrill

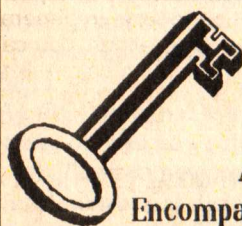
Many of you probably have received literature from Jeff McWilliams who is proposing an Atari eight bit only magazine. (Also, see page 5 of the March 1992 AIM.) As noble as this effort is, I would like to see this energy go in another direction, namely increased support by AIM magazine. AIM is an excellent magazine which is currently supporting, at least nominally, all Atari computers. Jeff reminds us of the demise of A.N.A.L.O.G. and ANTIC and cites declining coverage by Current Notes, AIM and Atari Explorer magazines. Sadly, this is true. But the solution is not the elimination of coverage in AIM and launching yet another magazine on the uncertain waters of commercial publication; rather, let's concentrate our energies and resources with AIM. Let's examine some reasons.

First, up to 1/3 of the articles can be general in nature [i.e., topics that apply to both (all) machines. Topics like printers and drivers, telecommunications, modems, monitors, ASCII/ATASCII code, binary code, radio packet transmission, etc.].

Second, advertisers will be reluctant to advertise in every magazine that treats only a specific computer, unless, of course, there is a huge user base. While there currently is a substantial Atari 8-bit user base, it is not overwhelming, nor is it likely to be in the future.

Third, many 8-bit users are also ST users or potential ST users. Conversely, many ST users also enjoy their Classic 8-bit. Also, if 8-bit users continue to get the short end of the stick and virtually be ignored by the Atari Corporation and many commercial sources, there is a very real possibility that many 8-bit users will conclude that they made a poor choice and decide to switch over to MSDOS. Of course, Atari IS a wise and viable choice for many users, but I can foresee disenchantment in major proportions.

I urge Unicorn Publications and Jeff McWilliams to work together to make AIM THE computer resource magazine. If it is decided to drop 8-bit support in AIM and launch a separate 8-bit magazine, I will support the effort. After all, it would be "the only game in town." But, I do not believe it can long survive as a separate publication.



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For those of you who don't know who we are, ACCESS

is the Atari Computer Club Encompassing Suburban Sacramento (California). We are proud to be an EXCLUSIVELY 8-BIT user group, carrying on the 400/800/XL/XE tradition. If you have trouble finding software for your 8-Bit, check out our Disk Library and the ACCESS BBS. We provide help and information to the local Atari community. In addition to AIM, our members receive "The ACCESS Key," our local newsletter.

We offer a number of meetings each month to give you more information on your computer and to answer your questions. And of course, we are anxious for you to share what YOU know, since there always seems to be something new and fascinating in the Atari world.

Our GENERAL MEETING is at 7:30 pm on the FIRST WEDNESDAY of each month in Classroom B of the S.M.U.D. training building at 1708 59th Street, between Folsom Blvd and R Street, just off Highway 50. This is our main get-together.

Other monthly meetings are held on the following TUESDAY night at the home of Barry Gordon (Modem SIG), the SECOND THURSDAY AFTER THE GENERAL MEETING at the home of President Bob Drews (Board of Directors Meeting), and THE LAST SATURDAY OF THE MONTH at Tim Naber's house (Disk SIG). Telephone them for additional details. We hope you can be part of these groups.

Our meetings are very informal and lots of fun. The format is called RANDOM ACCESS, meaning it's up to you to bring something to share -- a new program you might be working on or an old favorite that you want to show off. There will be a sign-up sheet at the door.

We will start with a "question and answer" session, so be sure to write down specific questions or technical problems you might have. During this session we won't go into detailed answers, but we will point you to someone who is likely to know the answer, and then you can get together with him (usually Barry Gordon!) during the later part of the evening, after any demos or presentations, when all pretense of organization is dropped and we gravitate into informal groups and "catch as catch can."

We're comfortable with a "laid back" kind of club: casual, informal, just friends getting together on a monthly basis to share what we know or to learn from what somebody else is sharing. It's a great group. We have a lot of fun at the meetings. If you are reading this and are not a member, come on and join us. We hope to be a group "where everybody knows your name."

Anyway, we hope to be in touch with you other 8-Bit user groups. Why not drop us a line -- electronically on the ACCESS BBS (916-428-8662) or "the old fashioned way" (at PO Box 1354, Sacramento, CA 95812-1354).

Miss an AIM Disk of the Month? Looking for a hard-to-find program? Let us help!

AIM has produced an ST disk since Jan. '90, an 8-bit Disk since April/May '91 and a Mac/Spectre disk since Oct. '91.

For a catalog of back AIM disks, please send a self-addressed, stamped, business-size envelope to

Atari Interface Magazine

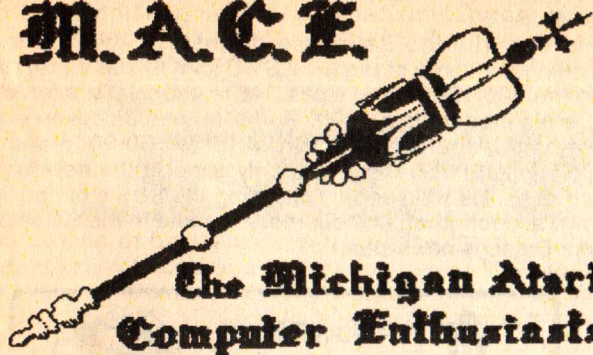
Back Disk Catalog

3487 Braeburn Circle

Ann Arbor, MI 48108

Disks are \$5 + \$1s/h each

M.A.C.E.



**The Michigan Atari
Computer Enthusiasts**

April Meeting

Our monthly meeting was held at the Southfield Civic Center and started at about 7:45. The School would have been closed at this time so the officers went back to the Civic Center. The meeting was held upstairs in one of the rooms that were partitioned into sections. Ray Simmonds and I were the first ones to setup, so we got the table in the front. Dave put his computer on the shelf over the radiator. We were all situated and ready to have fun for the next few hours.

Ted started the meeting by saying that all interested parties could come to the officers meeting held (usually) the first Saturday of the month at Mark Tappen's house. Then he got to the most important business, the new Amendments. The two Amendments that I detailed in last month's Journal passed and are now part of the charter. The amendments were passed to give the Librarians more responsibility in setting prices for disks and more freedom in being competitive with other clubs selling similar disks.

Mike let people know a little about the mysterious Falcon. It's supposed to be the all purpose computer. It's supposed to have a processor slot for a 386 chip and a cartridge port for a spectre cart. Could have a graphics card that supports 16 million colors. Has an 030 processor that can run the majority of software available on a host of platforms. All this and cost very little. Mike Drysdale of Team Computers also commented about advertising saying that the dealers will still be doing the bulk of the work for Atari. He also remarked about the Lynx commercials and acknowledged that the ads were stirring people to buy them in droves. On another question Mike responded with a comparison of the SST versus getting a Mega-E or TT. He seemed more inclined to get a Mega-E or TT. After that we started the demos.

I brought my printer to run the hardware and software that I had. I digitized part of a line drawing to show the clarity of features and the ability for contrast, and showed that same picture already done. Ray showed a digitized picture of the MACE logo which looked very colorful. I also had a shaded, colored picture of an eagle in front of a gem studded wall it to show the colors and sharpness of detail. Both of our programs work with hardware so there is no need for copy protection techniques. I don't think that the Easy Scan for the 8-bit is available anymore but, you might want to call Team Computers as they have been trading a lot of 8-bit stuff lately. Image Scan for the 16-bit is still available and probably the most inexpensive digitizer on the market. Someone asked if the software would do OCR (Optical Character Recognition), and the answer is no, because OCR is a different program. Mainly mated to hand scanners, the small hand sized scanners 'grab' the image and then the OCR software does its work. The Image Scan software only aids in the capture of an image.

The next demo was from the creator of EdHak. Craig Harvey wanted a text editor and then added the ability to read memory locations and disk sectors. He had the latest version of the program and the latest manual to go with it.

With ease Craig edited disk sectors and memory locations, he explained and showed us the latest copy of the manual. All memory locations are discussed in the manual so you'll know what your looking at when you load it into EDHACK. The manual even has an index so you can look up information quickly. All the members enjoyed the demo and hope Craig will be back.

The Library demos were next, AIM disks and MACE disks for both the 16 and the 8-bit were reviewed. All in all I think the meeting went very well, the demos were well done, the guest was well known with a great program, and we gained a little knowledge from the meeting. We were also back at the Civic Center. The meeting came to a close at about 9:30.

May Meeting

May is originally the Birthday of MACE and this May meeting will celebrate that fact. May, a spring-time month, is a month in which life is born and it was the perfect time for The Michigan Atari Computer Enthusiasts to start a club. So it was, eight years ago that the owners of Atari Computers came together for the first time. Unlike a lot of computer systems, Atari has survived the years and is still here today. The main changes being new owners (for Atari), new computer lines and new users. Today Atari computers can serve as UNIX workstations or laptops that can last ten hours on AA batteries.

Along the same lines MACE has changed from being a club with only one computer line to devote time to, to a club that must support all the computers that Atari makes. This has the effect of spreading us out thin, we can't do five demos a night for the 8-bit computer line anymore. We still don't do any demos for the TT yet (Not many programs out exclusively for TT line). The needs of our membership have changed in the years since we started. So enjoy the party and remember that there are all kinds of Atari's out there, just like there are all kinds of people out there and we will support them all.

June Meeting

Our next meeting (June 23) will be about Telecommunications, a topic everyone can use. Terminal programs will be a subject as well as Bulletin Boards. Modems might come up as a topic since the new 9600 baud modems have come out. Hope to see you there next month.

Southland Computer Show

On Sunday, June 7, 1992 the officers will represent MACE and Atari at the Southland Computer Show. Several of the MACE officers will show the other computers what we are made of and maybe attract attention to Atari in general. Doesn't hurt to get a few new club members either. You can be there too, come and see the MACE display table or talk to the MACE officers. It will be open from 10:00am until 4:00pm, general admission is \$4.00 dollars (less for children and persons over 65). Other computers will be there too, IBM's, clones, Mac's, and who knows maybe even a TT!

The Garage BBS

300/1200/2400/9600 HST

FoReM Node 621

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PACS **Atari 8-bit SIG**

PACS was represented at the Trenton Computer Show was really BIG. The weather was cold and it threatened to rain all day. Parking was remote and the free shuttle buses to the main campus were a welcome sight. Our president Bill Friedman was there manning the PACS table giving out information on PACS and the DataBus. Thanks Bill for doing your part to promote PACS.

The Atari was represented at the show by JACS the Jersey Atari Computer Society and The Lower Bucks Users Group (LUG) who had a lot of demos running on 8-bits and STs on the second floor of the student center. But much to the regret of some of my fellow Atari fans they had no software for sale at the show at the various vendors tables indoors.

At the Flea Market (outdoors of course) among the many booths there was quite a bit of ST software for sale as well as hardware. There were even vendors selling 8-bit machines and software. The only drawback was the weather, otherwise it was a very enjoyable day. I enjoyed meeting the editor of Between Bytes Roger Heller (JACS) and maybe next year they will join NEAT as guests at our Computer Festival. I hope we will be able to get them to come next time as I am sure they will have a lot to show us for the Atari 8-bits as well as the STs.

The Meeting last month went well with our getting two new members for the 8 Bit Sig though some of our regulars were missing due to the holidays I guess. But the ones who were there were pleased with the SIG's acquisition of a printer now we can print DOCs at the meetings when we need them, demo word processing programs and print out program listings if needed. The SIG's 130XE is still not fixed though we hope to have it repaired soon.

The discussions at the PACS board meeting on the BBS was interesting but if they do go to higher baud modems those of us with 300/1200 baud modems may have some problems at log on. We might get some garbage characters at first but we were assured that they will still support the lower baud rates. We will have to wait and see how things progress. At this time no changes have been made so you can log on as always and join the discussions on the Atari Sig area of the board.

ST and MIDI News

We are happy to let you know we will be able to give you more support now that some of the 8-bit members have gotten STs. Joseph Christie has gotten a MEGA4 STe with a 50 Meg HD and has said he is willing to be the NEW ST librarian so we will now be able to make copies of ST disks with out having our friends at NEAT help us. Thanks Joe I am sure that the ST members will be glad to help you build a new library with donations of Shareware and PDL disks. He also is interested our getting the AIM ST disks. He has a MIDI Demo Disk for his first offering from the ST library which will be available in Room M11B, it has 6 songs on it and seems like a good choice to start off with.

Jim Bruce has also gotten an ST and joined the ST part of the Atari Sig this month so lets welcome him to the group. We still don't have an ST at the meeting but hope to in the near future which should liven things up somewhat as a meeting without any Demos can get quite boring.

Joe and Jim have a lot of plans in the works for the ST members so be sure to get together with them at the meetings if you have any suggestions.

Joe also has a copy of the JACS ST Public Domain Library listing for you to look over. The disks can be ordered from JACS, PO Box 710 Clementon, NJ 08021. The cost is 1-10: \$3.50 each plus \$2.00 shipping and handling for each

order (no limit); 11-20: \$3.25; 21-30: \$3.00; 31-40: \$2.75; over 40: \$2.50.

In line with the Baud rate discussion Joe has been checking out some of the local ST BBS's to see if they support the 300/1200 baud rates. He is especially interested since his modem is a 1200. So far he has discovered two local boards the ST EMPORIUM (215) 750-9065 and ST WORLD (215) 755-6743 who only support the new higher baud rates. He will keep on checking the BBS's out as time allows and report on it at our meetings and in the ST section of our Databus newsletter.



General meetings are the 3rd Monday of each month at the North Park Recreation Center Social Room, 4044 Idaho Street, at 7 p.m. ST workshop/8-bit meetings are on the 1st Thursday of each month at the North Park Adult Center, 2719 Howard Street, at 7 PM. All meetings are open to the public. Annual SDACE subscription dues are \$18, which includes increased BBS access, AIM subscription, SDACE quarterly newsletter and reduced rates on the disk-of-the-month.

SDACE, PO Box 900076, San Diego, CA 92190

President	Dan Phillips	(619) 462-1289
Vice President	Dean Smith	(619) 582-8157
Secretary	Jim Trageser	(619) 223-4608

SDACE Notes by Jim Trageser

San Diego Atari Computer Enthusiasts are busy planning for a LARGE Atari presence at the San Diego Computer Fair Sept. 18-20. We have been asked to display everything from Calamus SL to DynaCADD to Cubase to MidiMaze to an Atari-to-Amiga Falcon head-to-head competition (how many other computers can cross platforms in real time applications?). We also hope to display an STBook and a Portfolio.

SDACE members are serving as project managers for two areas of the computer fair, and we are one of the most active user groups involved. While organizers of the fair (San Diego ComputerEdge magazine and the San Diego Computer Society) are unfamiliar with the Atari's capabilities, they have been very impressed once exposed to the Atari, and very receptive to our participation.

We're also noticing a large level of interest among our non-Atari friends and neighbors regarding the rumors of the Falcon machine. Folks seem bored with the MS-DOS world, and are waiting for someone to introduce something radical and exciting. We're keeping our fingers crossed!

Any Southern California readers not involved with SDACE but interested in participating in the San Diego Computer Fair to show off the Atari's incredible power should contact us at 619/223-4608.

Night Lite BBS

300/1200 Baud
(503) 665-3866

Sysop Dan White

Supporting Atari 8-bits!
11PM to 6AM Pacific Time



The ST Users Network (STUN) held their annual elections on May 20th.

President	Steve Cole	(801)521-8507
V. President	Eric Nikolaisen	(801)272-9203
Seceretary	Neal Baker	(801)967-7517
Librarian	James Hepworth	

STUN supports and maintains its own BBS called the BOLT, available 24 hours a day, 300-14,400bps. Running Ratsoft ST BBS software.

STUN meets the third Wednesday of each month. We meet at Murray High School (5400 South STate STreet), At 7:00pm.



WAUG General Meeting Minutes of 4-12-92

The Washtenaw Atari Users Group meets the second Tuesday of every month at the Student Union on the University of Michigan Campus beginning at 7:30 PM. Beginning in July of 1992 we will be meeting at the Colonial Lanes on South Industrial in Ann Arbor at the same time and day. We support all Atari computers including 8 bit, ST/STE/TT and Portfolio. A vast library of public domain and shareware programs is available as is help for both new and experienced users. WAUG is supported by Molin's Den BBS at (313) 451-0524 and Clear Thinking BBS at (313) 971-6035. We can also be reached by phone c/o Craig Harvey at (313) 971-8576 or by addressing mail to 14 Payeur, Ann Arbor, MI 48108.

The May meeting was held at the Student Union as usual and opened at 7:30 PM. President Dave Brzezinski opened with announcements about the upcoming June elections and swap meet night. Dave mentioned that it would be nice if we could have some new blood joining the ranks of our leadership.

Also announced was the fact that we will begin meeting at the Colonial Lanes Bowling Alley beginning in July. Everyone seemed to be pleased with the facilities there (especially the parking) and we have just about worn out our welcome at the Union.

ST Librarian Mike Olin had so many new disks to present that he had to pass out a set of sheets to describe the offerings. 12 disks in all were presented for the membership including new disks full of utilities, STE demos, GFA Draft and DBWriter on one disk, the AIM disk and a host of other programs.

8-bit librarian Dick Selke presented both the April AIM 8-

bit disk with a new menu program and the May disk with some brand new demos from Germany.

Treasurer Russ Crum reported that we were still very healthy financially with over \$1200.00 in the treasury.

Dave took the floor next to announce that we will be offering 720K disks to our members for 50 cents each as many or few as they need. He also took the opportunity to fill the members in on the progress of our proposed mall show. At the last officer meeting no progress had been made in getting any cooperation from any local malls, so it was decided to take a look at getting together with other local groups and some local Atari stores at a computer show in the area.

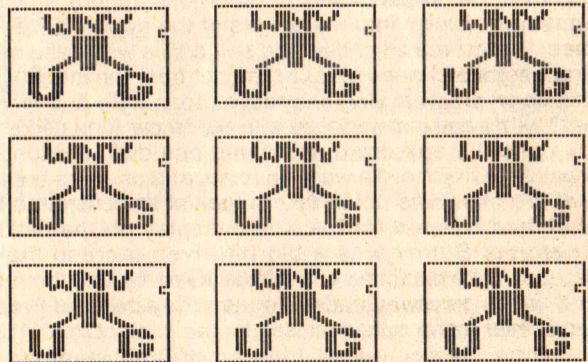
Dick presented his demo of Das Omen for the 8 bit. A very impressive program including sound and animation, it's on the May AIM 8 bit disk.

Mike showed off some of the STE demos from the new library disks. One particularly spectacular demo enabled you to scroll and rotate and move objects forward and back with the mouse.

Mike also did the demos for our featured subject, utilities. X Boot, Warp 9 and the fast file copier Cheetah were shown along with Divert which makes calls to any drive go to the drive you specify, and Sentry a hard disk optimizer program. Bill Rayl did a demo of the Codehead's Hotwire program that lets you configure a menu system and replacement desktop for your machine.

After our monthly drawing for door prizes the meeting was adjourned at 9:00PM.

Respectfully submitted,
Dan Cable Secretary



WNYAUG Officers

President	Mike Husband
Vice Pres./Editor	John Kasupski
Treasurer/Asst. Ed.	Dave Shane
Secretary/Asst. Ed.	Christine Hess
At-Large	Bruce Andrew
Librarians	Betty Knab/Norm Knab
Sysop	Don Koepf
Wizard's Attic BBS	(716) 681-1654

The Western New York Atari Users' Group, based in Buffalo, NY, serves owners of Atari ES computers ("E"ight-bit chip, "S"ixteen-bit addressing...Atari 400, 800, XL, XE, and XEGS!). We meet on the first Thursday of each month at Bacon Hall, Rm. 116 East, Buffalo State College, 1300 Elmwood Avenue, Buffalo, NY.

WNYAUG members receive subscriptions to the POKEY Newsletter Disk and Atari Interface Magazine, discounted prices on disks from the WNYAUG Software Library, and access to the WNYAUG members Only section on the Wizard's Attic BBS.

All correspondence is encouraged. Our address is WNYAUG, PO Box 59, Buffalo, NY 14216

WNYAUG is a not-for-profit group which is not affiliated

with Atari Corporation. We ARE a member of NorthEast Atari Regional User Support (NEAR-US), an organization of Atari user groups with the similar purposes of providing support for users of Atari computer equipment.

Meeting Minutes for April, 1992

The April, 1992 meeting of Western New York Atari Users' group was called to order by Mike Husband, President, at 7:41 PM. Sixteen persons were in attendance.

Mike began by delivering the keynote address to open the celebration of WNYAUG's Tenth Anniversary of service to the Atari community. Our group was originally formed (back then it was known as The North Buffalo Atari Users' Group), in April of 1982. Mike's address was short, but meaningful, and when it was finished, we tabled discussion of other business to make way for the planned festivities.

These began with the drawing for the door prize. Everyone who attended got a free ticket for this drawing, but Mike Husband was the winner of the Atari pin that was awarded.

Several other prizes were raffled off. Yours truly won an Atari lapel pin, Dave Shane won an Atari tie tack, David Soborowski (son of member Daniel Soborowski, whose wife attended along with their son David) won a game disk (sorry, I forgot the name of the program he won), Wayne Maracle won the Hackers' Grab Bag, and there were some other lucky winners who did not leave empty-handed.

Christine Hess then unveiled the homemade birthday cake she had baked for the group. The cake was made to look just like an Atari 800XL computer, complete with glowing red LED (the LED was a real 12-volt LED, and it was lit!), letters on the keyboard, etc. And to top it all off, it tasted great. She also made "real" potato chips (from FRESH potatoes, no preservatives or other junk added), which disappeared quickly into the gullets of the appreciative members. Fresh-brewed coffee and soft drinks were also served, and we got a chance to take time out from the monthly business and program demonstrations to mingle and visit with each other and just socialize with our fellow Atari users.

We did break down and demo one disk, though -- the monthly POKEY disks were on hand, and one was booted so that the members could take a look at the custom artwork Mike had created for the Koala display on the disk. The Energizer Bunny was a big hit, even moreso than the birthday cake depicting our WNYAUG name and the number "10" which preceded it. Once again, our esteemed President (and Chief Artist) outdid himself for the good of WNYAUG.

Upon his somewhat belated arrival, member John Chmielewski, SysOp of The New 8-Bit BBS, received a round of applause in recognition of his upgrading his board with BBS Express Pro! recently. Now if only Don K! would find time to get our Wizard's Attic BBS back in shape <grin!>.

The meeting (or party, such as it was) adjourned (disbanded?) at 10:00 PM, after Mike noted that the May meeting will feature the election of officers for the coming year. Plan on attending, lest you find yourself unexpectedly elected to an office!

WNYAUG Meeting Minutes May, 1992 Meeting

The May, 1992 meeting of Western NY Atari Users' Group was moved to Room 116 West, next door to our usual location in Bacon Hall, at the request of Buff State administration officials, to accomodate a meeting of the group "Young Black Minds."

A former WNYAUG member named Paul Torchia visited us for the first time in quite some time. Sadly, though, the purpose of his visit was to tell us that he was selling all his Atari ES equipment. Paul provided a lengthy list of all the stuff he has available, which is posted on The 8-Bit BBS.

I first met Paul a few years ago, it was from Paul that I purchased my first Atari storage device (an Atari 410 Cassette Program Recorder). I can attest that he has QUITE a collection of stuff, including the complete works of

Shakespeare and Mark Twain (that's Antic and Analog, for those of you who are less familiar with my sarcastic tendencies), as well as some interesting hardware and software.

As of this writing, all Paul's stuff is available (best offer takes it). However, in light of what Paul learned at the meeting, pertaining to the Atari ES and hard drives, I still hope he'll change his mind!

Several disks were demonstrated, including the May POKEY, the copy of the SAGE N-O-D sent to us by Robert Buman of SAGE, and the demo disk from the Atari Expo 1991 (a great compendium of graphics and digitized sound).

Dave Shane reported that he and Don Koepf are looking into producing membership cards for the group. This is the result of our experience at the TAF Show this past April, where card-carrying user group members received a discount on the admission price. Hopefully, by the time we run into this situation again, WNYAUG will again be issuing membership cards...which, if all goes well, will also be able to double as name tags!

Dave also noted that WNYAUG again has blank formatted diskettes available for sale to members at the low price of just \$4.00 per box of ten disks, including labels and write-protect tabs.

Finally, Dave volunteered to prepare the monthly Disk-Of-The-Month until our librarians return from their current series of vacation trips - and, WNYAUG wishes Norm and Betty Knab safe travel and much enjoyment on their journeys this spring/summer!

Wayne Maracle Sr. reported that he has completed work on his database listing all articles from every issue of Analog Magazine. The database, which uses the public domain EasyFind program, has been donated to WNYAUG by Wayne and is an excellent reference guide for finding specific topics among the countless Analog articles that appeared in that magazine during its lifetime.

Wayne also donated to WNYAUG, a copy of the Atari Conversational Italian educational software, to be added to our software library. Thanks, Wayne!

John Kasupski again mentioned the need for WNYAUG to engage in some mass media advertising, perhaps in The Buffalo News or other local publications. John cited the sudden rash of information requests, BBS calls, etc. that occurred in the wake of our group's being mentioned in the Personal Computing column in The Buffalo News and noted that one woman who wrote for information indicated that she's been looking for an area user group for about six years!

Dave reported that the total gross proceeds from the Tenth Anniversary Party and April meeting was \$107.00, including \$60.00 from the auction that was held, with the balance coming from membership proceeds, disk sales, etc.

The group authorized the purchase of printer paper for use by the officers and POKEY staff.

Kevin Packard donated some diskettes to be used for an upcoming edition of the POKEY Newsletter Disk.

The 1992 Election of Officers was conducted, with the following slate of officers being elected:

President	Michael Husband (re-elected)
Vice President	John Kasupski
Secretary	Christine Hess
Treasurer	David Shane (re-elected)

The President confirmed the continuation of appointed positions to be held by those currently holding them:

Librarian	Betty Knab
SysOp	Don Koepf
At-Large	Bruce Andrew
Newsletter Editor	John Kasupski

Following the installation of officers, the meeting was adjourned. The next meeting will be held on Thursday, June 4, 1992 at the regular time and place.

Respectfully Submitted, John D. Kasupski

President's Notes by Mike Husband

The Western New York Atari User's Group Tenth Anniversary Party was a success. I wish to thank all the members who attended. A special thanks goes out to Lonnie Hudkins for his column "Personal Computers" which appears in the Buffalo News. On Sunday March 29, 1992, the WNYAUG appeared: In large bold type, "Atari Party", and the article then listed information about the WNYAUG. For reminding some of our old members that let their memberships run out, Lonnie Hudkins deserves credit for the good attendance and for telling Western New York that the WNYAUG is still going strong after ten years.

Credit for the membership increase is due to the work of John Kasupski and Christine Hess, who went through the old membership list and the phone book and tracked down some old members who had forgotten about the WNYAUG.

Apathy...I do not like to bring it up, so I will not. I will bring up something that I hope to see in the POKEY Newsletter. I would like to know WHY the members bought the Atari Computer??? I hope to see YOUR article Soon!!!

If you were in attendance at the WNYAUG Tenth Anniversary you saw and tasted Christine Hess's culinary delights. The Atari 800XL Cake with its red power light was delicious and the homemade potato chips were good too. I am still amazed that the pretzels were homemade! They tasted just like the name brands.

Elections will be held at the May 7, 1992 Meeting. More on this next month. I hope I will still be Dictator (OOPS, Freudian slip, I mean Democratically Elected President) of the WNYAUG! I have been hearing rumors of a Coup!!!

Tony Troidl, sysop of the Cat's Lair BBS, informed me Dave Arlington is head of the Parker Lewis Can't Lose Club! He is running it via a computer BBS. He appeared on *Parker Lewis Can't Lose* on May 3rd, 1992. Dave was in the diner!

President's Notes by Mike Husband

The May 7 turnout for the Western New York Atari User's Group was not very good. I do not believe we even had enough for a forum. The officers that showed up did decide to have the elections as previously planned. I am sad to see Kevin Packard leave us as Vice President. I wish to thank John Kasupski for volunteering to serve as Vice President and Christine Hess for volunteering to serve as Secretary.

The POKEY Newsletter Disk, I am happy to say, is seeing the country and maybe the world -- with just a little help from the WNYAUG. We send the POKEY to a few places, and it ends up in places we never sent it. This is good!!! I just wish I knew how the POKEY Newsletter Disk duplicates itself and sends itself to places that the WNYAUG does not send it to. I do not want to sound like an alarmist, but the only thing that I know that can duplicate itself and spread itself around is a Computer Virus!!!

I am pleased that John Kasupski enjoyed my rendering of the Energizer Bunny with a little extra WNYAUG Power!!! I have something on the palette now. I MUST admit that I find writing very difficult. Even this small article, I find very hard. As I stated before, I'm an artist, NOT a writer.

I do believe that any hope of new software and hardware for the Atari 8-Bits lies in Europe. It's all IBM & Mac's in the States. Eastern Europe is the place where the Atari 8-Bit still has the Power Without The Price. I believe WNYAUG should help them in any way that we can.

I hate to do it, but I am going to end this article on the down side. Seeing the turnout at the last WNYAUG meeting did not make me feel too good!!! In fact, as of late, I have been feeling a little burned out. I just hope this feeling goes away!!!

(Editor's Note: I spoke to Mike by phone as soon as I received this file to ask if there was anything I could do to help, and I'm glad to report that Mike assured me that his burned-out feeling has, indeed, gone away. So, this article ends on an upbeat note after all!)

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Also, check out our ST/Mega, Mac/Spectre and Atari 8-bit Disks of the Month for the very best PD and Shareware software available each month!



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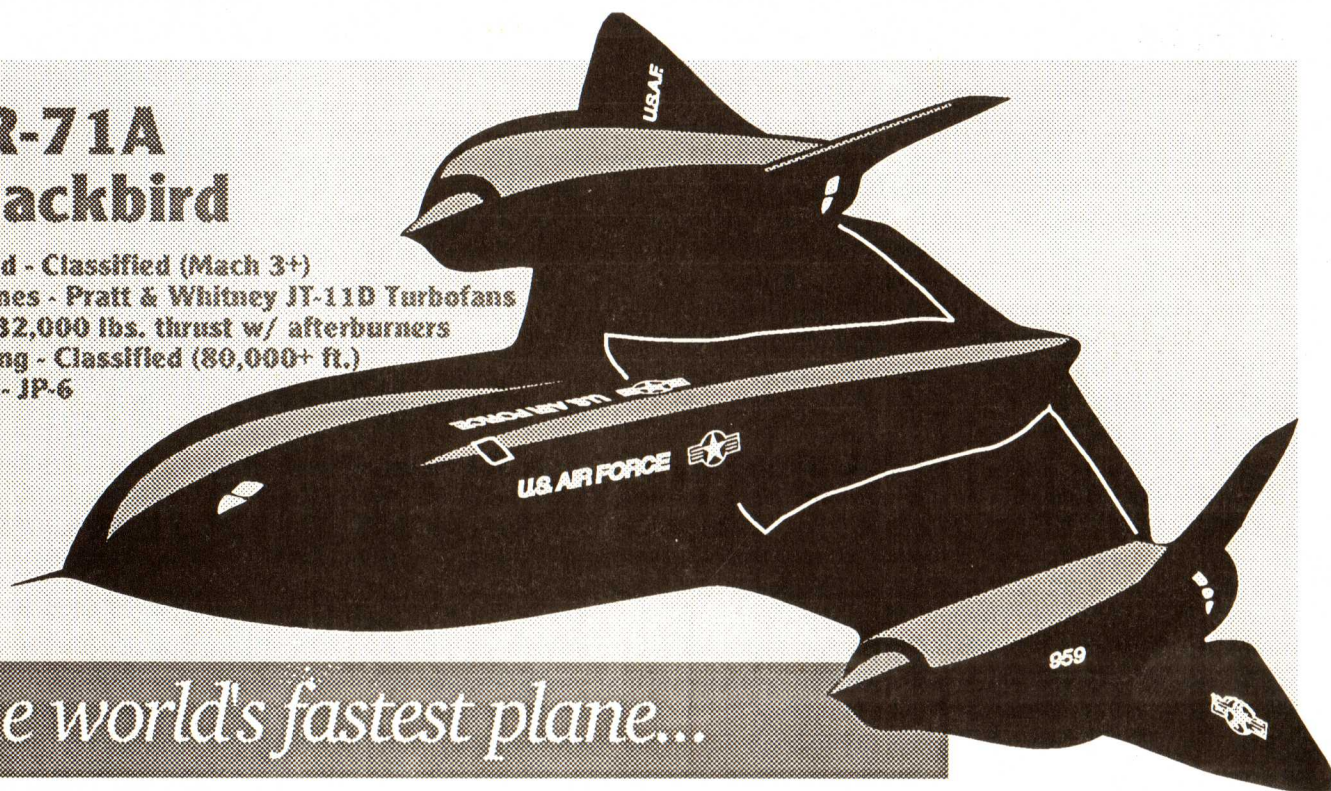
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Atari High-Density Floppy Upgrade Installation Guide for MegaSTE and TT (What to do and what not to do!)

Gary Lentz
SWAG

On Saturday, May 23, 1992, I received the long awaited high-density floppy upgrade kit from Atari for my MegaSTE. Suggested retail price for the MegaSTE version is \$139.95, while the TT kit is \$10 more.

The kit includes an Epson SMD-340 high-density floppy drive, TOS 2.06 ROMs for the MegaSTE or TOS 3.06 for the TT and the new "AJAX" floppy controller chip. The Atari description is: "2MB FDD KIT (MEGA STE)" and the Part No. is CA401229-001. The TT version is Part No. CA401220-001.

These kits are intended to be dealer installed and no instructions come with them. Installation of the two kits is basically the same. While this article refers to my MegaSTE installation, I'll point out any TT-specific variations at the proper points in this article.

I installed the upgrade myself and I made one error which resulted in the crashing of my internal hard drive. Yes, the FAT got "fried, scrambled and otherwise messed up" and no recovery of the data was possible. Bummer! But thank the Saint of Computer Users that I had backups. I'll tell you how to avoid making the same mistake I did at the proper time, too.

Open 'er Up

Start by unplugging everything connected to the system. Then, remove the internal hard drive. On the bottom side of the computer the hard drive mounting screw is usually located under the Atari warranty warning sticker. It's the only screw that requires a standard screwdriver.

Loosen this screw until it hangs freely. Turn the computer right side up and you can now lift the hard drive out of the computer. Disconnect the power lead and the ribbon cable socket from the drive controller board (or from the drive on the TT). Set the hard drive assembly aside.

Turn the computer upside down again and remove all the case mounting screws (you'll need a Phillips screwdriver for this). Turn the computer rightside up again, and you can now lift off the top cover. The internal floppy drive is mounted to the top cover, but don't get excited about removing it yet. Just lean or prop up the cover with the floppy still attached.

Replacing TOS

The existing TOS ROMs are located in the lower right, just in front of the SIMM memory boards on the MegaSTE and the socketed RAM on the TT. If you have a TT with a plug-in ST RAM board, you will need to remove this board to get to the TOS ROMs.

Note the TOS ROM chip numbers (there are only two in the MegaSTE, four in the TT). The numbers on the MegaSTE end in 18 on the left and 19 on the right. The 2.06 ROM numbers also end in 18 and 19. On the TT, the TOS chips are in two rows of two, with the numbers ending with 25 through 28 (they are also labeled 00, E0, 0E and EE).



Remove the old ROMs (remembering which chips came from which sockets) and install the new ROM set, making sure the numbers correspond. Be careful! It is rather a tight fit for the backside pins, especially if you have four megs of memory installed in a MegaSTE. Also, make sure the notch on each ROM lines up with the notch for each socket.

Use a chip puller to remove the old ROMs, or gently pry them up from side to side using a small standard screwdriver.

Setting the DIP Switch

Just in front and to the right side of the TOS ROM sockets is a blue (or red on the TT) eight position DIP switch. Turn switch #7 On (push it up). Turning this switch on adds a "High Density" option to the Desktop's Format Floppy dialog box. If you fail to do this your new high density floppy will not format in high density.

If you're a TT owner, skip down to "Adding AJAX."

For MegaSTE owners, you now need to remove the hard drive controller board. That's the board the hard drive ribbon cable was plugged into. Remove the mounting screw in the lower left corner of the controller board and lift it straight up and out.

Adding AJAX

You should now find the WD1772 floppy drive controller chip. It's located above the RAM/SIMMs. Remove this chip and install the new AJAX controller chip. Make sure the chip notch is to the left (the same side as the notch on the socket). Again, a chip puller is best for this operation, but a thin screwdriver will work.

MegaSTE owners can now re-install the hard drive controller board. Make sure the socket on the bottom of the board is lined up with the pins sticking up from the motherboard. Press straight down and re-install the mounting screw.

TT owners can now re-install their ST RAM expansion board, if they have one.

On to the Drive!

Now it's time to replace the floppy drive. Remove the four screws that attach the floppy drive mounting plate onto the underside of the computer case cover. Then, remove the four screws that attach the mounting plate to the bottom of the floppy drive. Disconnect the floppy drive power lead socket from the back of the old floppy drive.

Important!! Take note: Look at how the ribbon cable and socket are attached to the old floppy drive. The socket *must* be turned over (upside down) when you plug it into the new high density drive.

Compare the back of the old drive with that of the new drive. Note the pin numbers on the new drive—Pin #1 is at the bottom left and Pin #33 is at the bottom right. The old drive you are removing most likely will be an Epson SMD-380. The pin-out on that drive is re-

versed—Pin #34 is at the bottom left and Pin #2 is at the bottom right. *Failure to reverse (turn over) the ribbon cable socket can result in trashing your hard drive's FAT!*

Finishing Touches

Now that you have properly plugged the ribbon cable onto the new high density floppy, you can put everything back together. When attaching the mounting plate to the bottom of the new floppy, make sure the plate is properly positioned. An instructional message is engraved in the mounting plate.

After you have replaced all the case mounting screws on the bottom, you can re-install the internal hard drive. For the TT, this simply requires properly reconnecting the power and ribbon cables.

On the MegaSTE, make sure the controller board socket is seated tightly on the pins. Press down on the right side to check seating. Push the ribbon cable socket onto the pins sticking up from the top of the controller board. *Careful now!* It's rather a tight fit for fat hands, and it is easy to bend one or more of the pins. Re-attach the hard drive power lead.

Replace the hard drive assembly by holding it in place, turning the computer over and tightening the hard drive mounting screw on the bottom.

Now you can plug everything back in and fire it up. You will need high density diskettes—the ones with the extra hole on the right side—to be able to format in high density. You should find High Density listed in the Desktop's Format dialog, or you can use a disk format program that supports high density formatting.

Why My Hard Drive Crashed

I was in a hurry and wanted to get my new "toy" up and running. I didn't compare the floppy drive ribbon cable pinouts. I simply attached the floppy ribbon cable socket in the same position on the new floppy drive as it was on the old one.

When I got everything back together and turned the computer on, both the internal and the external floppy drive lights came on and stayed on. I should have stopped right there and turned the computer off.

But, I didn't do that. Instead, I tried to access the internal hard drive, which was set to autoboot. When I did that, the lights on the two external hard drives *and* my SyQuest drive came on and stayed on! I tried a couple warm re-boots and a couple cold re-boots before I shut everything off. *Error! Big time error!*

I started over and opened the computer, checking the proper seating of the newly installed chips. When I got around to the floppy drive and compared the cable pinout, I found my error. I turned the cable socket over and put everything back together. When I fired the system up, everything worked like it should. Everything, that is, except the internal hard drive, which I had to reformat, repartition and use my backups to put it back like it was.

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DOWN TO BASICs

Sloopy Malibu

BASIC! The word causes fright and fear in the hearts of some computer users. In some others, it sparks interest. On the Atari 8-bit computers, this language is one of the most widely used. It is one of the most stable and one of the best languages available for the Atari.

In this series, I plan on showing you how to program in BASIC at an intermediate level—what to look out for and how to do things properly. As for the subject material, I am going to use BASIC to do things you would normally want or need to do in real world programming.

I am starting this month by giving you a list of materials required for any BASIC programmer, and a list of optional but highly recommended tools. In the next column, I will cover programming the game controllers (joysticks, paddles, Atari Pad, etc.). After that, I will delve into the character set.

From then on, it will be pretty much whatever you and I decide. If you have a specific topic you'd like covered, send your ideas to the magazine c/o Down to BASICs or leave me (Sloopy Malibu) Email on the AIM BBS at (313) 973-9137.

The Bare Necessities

Here are the things required for any BASIC programmer:

An Atari 8-bit computer with 16K+ of RAM.

A BASIC Cartridge if using a 400/800 or XL. The XLs have a nasty bug in their internal BASIC, so that is why I say you

need a BASIC cartridge for them.

Some storage medium, usually a disk drive, hard drive or cassette. Although this isn't truly "required," there may be a few programs you'll write that need a place to put data to be read in and such. And storing your programs on a disk or tape is a whole lot more convenient than retyping them in every time you want to use them!

A working knowledge of how to type in programs into your computer and, if you have a storage medium, how to load and save them.

Recommendations

On to the highly recommended list. This is a list of references that, although not needed, are helpful. Without these resources, you will not be able to go much further in each topic I'll cover in these articles.

The User's Manual for your machine (the BASIC Manual in the case of the 400/ 800). This is a good reference for all the BASIC commands.

Mapping The Atari by Ian Chadwick. This book is just a memory map of the Atari 8-bit computer, but it has usage examples.

Programmer's Reference Guide for the ATARI 400/800 Computers. This book goes further into commands than I will in these articles. It is a good BASIC reference manual. (If you have this, you don't need the *User's Manual* mentioned above.)

Inside Atari BASIC. A decent book on the individual commands available.

These books are available (as of this writing) from American

Techna-Vision (see their ad in this issue). I have exclusively used them for four years now without a problem. Well, they do have this problem of saying things I order will be delivered in two weeks, but they shows up in only one. Who am I to complain? (grin)

An alternate source for *Mapping the Atari* is me. I have a few copies and will sell them for \$15 each.

Now we are off to the good stuff...here is a list of basic BASIC commands you need to know, as well as how/why they are used. Don't worry; they are not complex.

DOS	REM	LET	END
RUN	STOP	LOAD	SAVE

These are simple commands. Although they may need initial explanation for beginners, they do not require indepth discussion. Here is a quick run down of them. If you need more details, refer to the *Programmer's Reference Guide* mentioned earlier.

DOS—Usage: 'DOS'

Takes you to your DOS menu.

REM—Usage: '20 REM this is a remark'

Puts REMarks (comments) in your programs, at the line number specified.

LET—Usage: '30 LET X=100'

Signifies that a variable is being assigned a value. Although redundant, it is in the language. Its main purpose is for readability.

END—Usage: '999 END'

Signifies the end of a program. It isn't really needed at the end of a program unless you have subroutines following the program's ending point.

RUN—Usage: 'RUN' or 'RUN "D:filename.ext"'

Executes the current program



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in memory or loads and executes the said file from the disk drive.

STOP—Usage: '40 STOP'

Halts program execution at the current line number (used mainly for debugging purposes).

LOAD—Usage: 'LOAD"D:filename.ext"'

Loads the named file from the drive into memory.

SAVE—Usage: 'SAVE"D:filename.ext"'

Saves the current program in memory onto the drive.

Final Suggestion

As for the DOS you use, that's your choice. I use both MyDOS and SpartaDOS. The amount of RAM you have isn't any problem either. Almost all the programs we'll be writing in this series will run on a 16K machine with DOS loaded. The only exception I can think of right now is when I do a segment on expanded RAM.

That's it for this month.

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"Splitter" By Travis Guy

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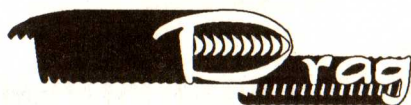
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Ed Hall (AAAUA)

Drag is a clone of BoulderDash, one of the best games ever written for Atari 8-bits. The original was released by First Star Software and became popular enough to generate a sequel, BoulderDash II.

Later, Electronic Arts repackaged both under the name Super BoulderDash. There was also BoulderDash Construction Kit from Epyx, and an English variant by Mastertronic called Rockford. And, if you couldn't afford the commercial products, there were PD versions of both the game and the editor.

Imitating a classic may seem like a formula for success, but it is actually a risky proposition. First of all, there is the danger that the original may have lost its appeal. If it hasn't, the way is still not clear, for the clone obviously cannot be a carbon-copy. It must be similar enough to cash in on the original's appeal, yet different enough to induce people to shell out for it. Finally, a clone always invites comparison with the original.

Comparing Boulders and Frogs

Drag is a multi-level digging game whose protagonist, Drag the frog, excavates gems. Obstacles consist of impenetrable walls, stationary mines and two kinds of falling objects—boulders and bombs. But, where BoulderDash was primarily an arcade game with strategic elements, Drag is almost entirely a puzzler. There are 4 reasons for this:

1. Instead of a time limit, Drag



has a "move" limit. (This, in turn, has generated a new game element: oxygen canisters, which reset the move counter.)

2. There are no pursuing insects—in fact, there are no organic enemies of any kind.

3. Where BoulderDash utilizes four screens to make up one level, Drag uses only one. This gives Drag a more compact look and feel.

4. The "physics" are slightly different. In Drag, objects do not fall as soon as they are excavated; there is a delay of several moves before they drop. During that extended "hang time," falls can be triggered with a press of the joystick button.

The overall effect of these differences makes Drag a more thoughtful game than its progenitor. Each screen is like a chess problem, and many are devilishly constructed, requiring lots of careful study and experimentation. You'll have to plan each move carefully, then execute perfectly.

Finally, a word about graphics. BoulderDash was a success not only because of its compulsive gameplay, but also its wonderful graphics. Even today, those graphics remain as fresh and attractive as when the game first appeared.

Happily, Drag's graphics do

not suffer in comparison; they are simply gorgeous. However, Drag himself is not as cute as the impatient, toe-tapping Rockford.

Now Dig This

BoulderDash and BoulderDash II each came with 16 "caves" to explore. Drag has 50 levels plus an editor—an exceptional value at the asking price of \$10.50.

I love game editors—designing your own screens can be as much fun as playing them. Drag's editor is a self-booting program on the back of the game disk, where there is plenty of room to store your own creations. It's so simple to use that a single paragraph of instructions covers all its features.

For those suffering from terminal frustration, the editor also offers a handy way to cheat. This means Drag will never be one of those games whose higher levels cannot be glimpsed without investing months of play in reaching them. I like that.

Drag is another product from the prolific KE-Soft. It's a professionally programmed piece of software that's fun to play, and whose game editor and large number of pre-rolled screens offer unlimited playability.

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A-T-A-R-I

ANSWERS, Tips And Relevant Information

Paul Alhart (AFED)

Usable USR Routines

Just the other day I overheard a computer technician say "There ought to be a law against anything written in BASIC." When I asked him why, he replied "Because it's a stupid language."

I let the subject drop there, but it did get me to thinking. I have heard and read many comments like this about BASIC over the years. Mostly they are made by *non-programmers* or programmers who are snobs. The truth of the matter is that BASIC is probably the most widely used high level programming language there is for any personal computer platform.

BASIC is a powerful yet easy to learn language. It allows you to write programs quickly without having to worry about the little details involved with I/O, memory management and messy things like that. On the other hand, compared to most compiled languages, BASIC is very slow.

There are lots of tricks that can be used to speed up BASIC programs, though. One of them is the use of machine language from within a BASIC program. In Atari BASIC, this is done by using the USR command. Although the routines themselves are written in machine language, the bulk of the program can be written in good old BASIC.

The machine language routines must be in your computer's memory and the program must be able to locate them. There are several ways to do this. The code could be in the form of data statements

which are read by the program and POKEd into specific memory locations or into a string. This takes time though, and generally accounts for the message *Initializing...Please Wait*, that you see at the beginning of some programs.

Another way is to write the code in the form of string data to begin with. Although this requires the programmer to type in lots of those funny looking characters, there is no initialization delay when the program is run. Also, for this method to work, the code must be relocatable.

OK, so we have gotten a little off the subject of simple BASIC programing. Rather than chance losing any of you by delving into an in-depth study of machine language and Atari BASIC, I'll just jump right ahead to the fun part, the Usable USR Routines.

On this month's AIM 8-bit DOM you will find several canned USR routines I have collected over the years. They can be used in your own programs to add speed and features that are not directly supported by Atari BASIC.

There are two LISTed files (USR.LST and PICTURE.LST) and a 62-sector picture file (PICTURE) which is used to demonstrate PICTURE.LST. Use Bob Puff's UnArc utility to extract them from the file USR.ARC.

USR.LST contains the following routines:

Double PEEK—This routine gets a 16-bit decimal address and places that address in the variable "I". You supply only the first location of the address. For example, If you specify 560 the results would be (I=PEEK (560) + 256*PEEK(561)).

Double POKE—This one also requires the location of the first address to POKE to. All other entries will be considered 16-bit or two byte numbers (0-65536) to POKE to successive memory locations. For example, X=USR (DPOKE,960,100,4000,3) places the following values in memory: 960(100), 961(0), 962(160), 962(15), 963(3), 964(0)

Single POKE—Works the same as above, but only POKES 8-bit numbers (0-255 decimal). Great for setting color registers or placing data in successive memory location like Page 6.

RAINBOW—Cycles the color register of your choice for four to five seconds before returning it to its previous value. As written, it will cycle the background color (color register 4). To rotate a different register, change the 12th machine language character in the routine (the character just before the first inverse "P") as follows: ^V (Control V) = register 0, ^W = register 1, ^X = register 2, ^Y = register 3 and ^Z = register 4.

Clear Memory—Clears blocks of memory by writing zeros to all locations specified. You supply the starting address and number of bytes to be cleared. Be careful! This routine can also erase portions of memory vital to the O/S, causing your computer to crash if you supply the wrong address.

Clear 256 Bytes—Works the same as Clear Memory except that you supply only the starting address. Then, 256 bytes (or one Page) of memory is cleared starting at that

location. This is useful for clearing Page 6 or for clearing memory to be used for player/missile graphics.

P/M Move—This one is actually two routines, one for moving a player Up the screen, the other for moving Down. You must supply the base address of the player you wish to move.

Memory Shift—Moves a block of memory to a new location. It's useful for swapping character sets. You supply the From address, the To address and the number of bytes to be moved.

CIO—Quickly copies large blocks of data between memory and other I/O devices using IOCB#2. It's great for moving a disk-based data file into memory, as you will see in the program **PICTURE.LST**.

To use CIO, IOCB#2 must first be opened for the desired operation. In **PICTURE.LST** it is opened in LINE 35 to READ from D:PICTURE. Changing the 4 to an 8 in the OPEN statement opens IOCB#2 to WRITE to D:PICTURE.

Next, you must supply three arguments to the **USR** call. The 7 tells CIO to read from the I/O device and write to memory. A 9 here reverses the process as long as the IOCB was opened using an 8 for write. The next argument is the first address in memory you wish to read from or write to. The last argument is the number of bytes to read or write.

PICTURE.LST is a short BASIC program that makes use of some of these routines. Besides being a useful subroutine, it should help you understand the

usage and power of **USR** routines. It gets a 62-sector (MicroIllustrator) picture file from a disk file and display it on your screen.

PICTURE.LST first uses **DPEEK** to find the display list and the beginning of screen RAM. It then sets up a graphics 7+ display list (Lines 27-33). On XL/XE machines, this is the same as a GR.15 call from BASIC. There is no BASIC equivalent command on the 400/800, however. Use of this method of setting up the display list will work on any 8-bit Atari. Change **GRAPHICS 8+16** in Line 27 to **GRAPHICS 8** if you would like to have a text window at the bottom of the screen.

Line 34 uses **SPOKE** to set all the color registers to the desired values. This line is not required if you want to settle for just the default colors.

Line 35 opens IOCB#2 to read from "D:PICTURE".

Line 36 tells CIO to read 7680 bytes of data from D:PICTURE and put in in memory. In this case, it puts it directly in screen RAM so you can see it. Next, **RAINBOW** is invoked for a little special effect.

You need 7680 bytes of data for a full GR. 7+ screen. Change this value to 6400 if you are going to use the split screen text window. By changing the 4 in the OPEN statement to an 8 and the 7 in the CIO call to a 9, any picture being displayed would be saved to a 62-sector disk file. Line 37 is used to hold the picture on the screen till the **BREAK** key is pressed.

Yes, that's me in that TV test pattern. Makes it all worth while doesn't it? 'Til next month....

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THE GOOFY GURU

Another SIO Cable Modification

Charles Kelley (SNACC)

It may have come about when you found you had both a printer interface and an SX212 to support. It may have come about when you found that the XF551 or the US Doubler did not like your setup as well as the ads said they would.

What you need is the latest Goofy Guru project—the Four Headed Hydra cable.

Other similar projects have appeared, no doubt, but...well, decide for yourself.

Building the Cable

Start by going to a discount hardware, auto supply or department store and buying a disposable knife. This is the type where, if the blade goes dull, you snap off the dull end. Mine cost 99 cents at a local K-Mart store.

Take two standard Atari SIO (peripheral) cables and mark a point on both about 2/3 of the way down the cable. You are now going to remove the outer black layer of both cables. To do this, expose about 1/8-inch of the blade and mark matching 3-inch sections of each cable. Cut all around the cable at the top and bottom of these sections. Make your cuts by rotating the cable under the knife at the top and bottom edges of the section you wish to expose.

You next peel off the foil layer to expose a maze of color coded wires. Warm up a soldering iron. For this project, you may wish to not only use a low wattage soldering iron, but you may want to use a very cheap one. You must use the iron to strip the wire properly,

and you will gunk up the point. Heat stripping the wires will make or break your final cable. No other stripping method is recommended.

Strip a section of the most alike wires you are able to match up. Watch out for wires that appear to have the same color but actually have an added black stripe with the main color.

Lay the exposed ends together, crossing each other, and twist. You start by having the loop of one wire laying on top of the other. Twist where they overlap. You should end up with a ring laying between two twists of wire, where one twist joins exposed sections of wire and one joins sections of wire that are still insulated.

Next, find the proper pin for the color of wires joined and test for continuity between the matching connectors. *Then, and only then, solder the joint at the twisted section where the wires are stripped. Leave the twist that remains insulated alone.*

Now, take electrical tape and wrap each of the joints. The double twist in the wire should be left. The resulting joint has never been cut and should be much stronger than that made with similar modifications. You also have a better cable electrically.

The next step is equally important. After you have completed, tested and soldered all of the proper wires, you are going to wrap the cables together with electrical tape. (Trust me. The details on why you need the double twist and the wrapping are very, very important and very, very boring).

The strongest way to do this is to begin on one cable. Wrap that cable leg, continue to wrap over the splices in the middle, and then

wrap around the same cable leg past the splices. Then, snip the tape and begin wrapping the other cable leg. This wrapping will result in a much stronger cable.

The first advantage to doing this project is that your computer signals have to travel over a smaller distance. The second advantage is that you have more ports open for devices that only have one cable. This project produces cables that are stronger, and they should have less electrical problems over other modifications, too. A lot of similar projects just forgot some basic cable splicing techniques.

Who knows, less cables may even cause your computer widow to smile again?

The Goofy Guru series originated in the pages of the Southern Nevada Atari Computer Club and continues to irritate all. Everybody else asks for donations these days (I break things too), so I live at 125 N. 1st Ave. W., Duluth MN 55802 and, well, I prefer short redheaded women most of all...

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Odds and Ends

Ellen Lentz (ACCT)

Joseph Hicswa, 8-bit VP of the Jersey Atari Computer Group (JACG), is looking for a Pinochle game for the 8-bit. If any of you out there know of one, he would appreciate hearing from you at 23 Passaic Ave. C3, Passaic, NJ 07055.

John H. Dean, 16-bit VP of the JACG, sent me a Pinochle game for the ST. If any of you program both for the 8-bit and ST, and would be willing to translate it to the 8-bit, I would be more than happy to send it on to you.

Ideas for Clubs

Joseph also informs me he and other club members check want ads for Atari systems being sold. Sellers are contacted, told about the club support, and copies of the club newsletter are sent to them. Some continued with their Atari, while others share the newsletters with whoever buys the system. They've acquired some new members through this process.

JACG is also planning to mail a newsletter and flyer to state-wide high school and college computer classes informing Atari owning students about their club and support. These ideas might be something other clubs could consider to increase their membership.

The Atari Computer Club of Toledo, Ohio (ACCT) is planning to show their support for the Classic 8-bit by making donations from the Club Treasury to several Shareware authors. The Atari community depends on these authors to help *Keep Atari Alive*, and this is a gesture to show our appreciation.

Visualizer Support

Those of you who have the program VISUALIZER—a great, easy-to-use program which came out in the early 1980s for creating titles for VCR tapes—might be interested to know there is a program available (PS2VIS.BAS) from the Ol' Hackers Club to translate Print Shop Icons to the Visualizer format. You use a joystick to position the icon anywhere on the Visualizer screen. It is available for \$2.50 from:

Ol' Hackers AUG, Inc.
c/o Alex Pignato
3376 Ocean Harbor Dr.
Oceanside, NY 11572

Make the check payable to the treasurer, Ron Fetzer.

If anyone is aware of other programs which translate pictures (Micro-Painter, MicroIllustrator, etc.) to the Visualizer format, we would appreciate hearing from you.

Printing Utilities

Are you tired of wasting half a page printing 40-column documentation files?

Thomas J. Andrews, of the ACE of Syracuse group, has written a

program called Print Star. It reads 40-column text files and formats them into two or three columns, which can be printed at six or eight lines per inch on standard 8-1/2 by 11 paper. Print Star requires 48K, at least one disk drive and an Epson-compatible printer.

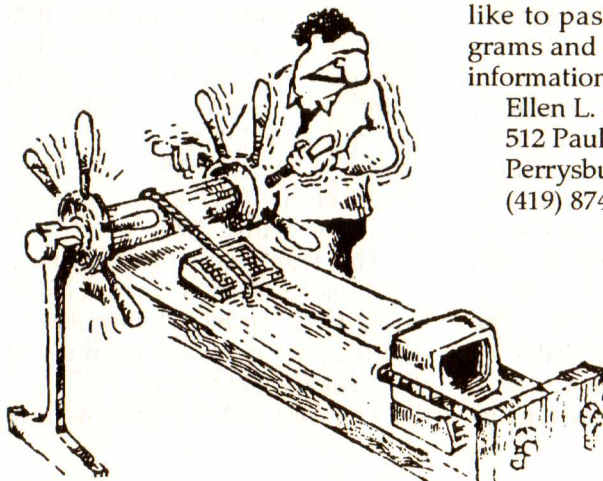
Tom has also written a program (COL40) to convert wider text files into 40-character format to use with Print Star. Tom is a unique shareware author. His fee is simply a letter with suggestions for a better program. He wishes to develop Print Star into a multi-purpose text file printer that is both versatile and easy to use. To accomplish this, he is asking for input on what *you* would like to see in such a program. Send your suggestions to:

Thomas J. Andrews
7805 RS Route 20
Manlius, NY 13104

For copies of these programs, contact Ken Wickert, 8-bit VP of the ACE of Syracuse, at (315) 458-6077 for instructions on ordering by mail.

If you have systems you would like to have reviewed, programs you have found particularly useful or other information you would like to pass along, send the programs and documentation and/or information to:

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SPARTADOS, HARD DISKS AND STABILITY

M.E. Stefan-Acta

Welcome to The Power User, a column dedicated exclusively to assist Atari 8-bit users in maximizing the usefulness of their hardware with currently available peripherals and software. Without further ado, let's begin this month's topic.

This month's discussion focuses on solving problems that occur when using SpartaDOS 3.2d with a hard disk system. At this point, you must be asking "What's wrong with SpartaDOS?"

In order for me to answer that question, I must first explain what is right with your Atari. Atari 8-bit computers, as with all other platforms, include routines built into the operating system (OS) to handle input/output (I/O) between the computer and its peripherals. Part of those routines are dedicated to handling disk I/O. The routines built into your computer are nothing short of perfect. No other computer has a more stable, cleaner or friendlier set of routines.

The Problem

Unfortunately, the OS routines do not have built-in support for high speed drives. Therefore, when ICD created SpartaDOS, they had to provide routines in the DOS itself to handle communications with the disk drives. The SpartaDOS built-in routines did a decent job at handling the US Doubler Ultra Speed mode. However, ICD was not able to make their routines nearly as stable as Atari's OS routines. As a consequence, SpartaDOS has an un-

usually high tendency to scramble your directories.

This is not a problem for floppy drives users because SpartaDOS does a very good job at communicating with floppies. And, in the unlikely event that a directory gets scrambled, it's fairly easy to recover.

However, for those of us lucky enough to own a hard disk, it's a completely different situation. When using SpartaDOS with a hard disk, there is a high probability it will scramble your directories due to the DOS routines' failure to close open files automatically.

The Solutions

There are a number of solutions to this problem. You could get the SpartaDOS X-cartridge, since it's been reported not to scramble your directories. However, it is too incompatible and has too many bugs for me to recommend it to anyone. My opinion is that all users should stay away from this product.

Another solution is to use MyDOS 4.5. I can say from personal experience that it will not damage your directories. I can further state that it's probably the best hard disk DOS available for the Atari 8-bit computers. However, no good BBS systems run under it, and for that reason, I can not use it. (David Hunt and Bob Puff are working on making their BBS programs compatible with MyDOS.) I can only recommend MyDOS to people who do not run a BBS.

The final solution involves patching X32D.DOS to work like it should. All of the patches discussed here are available from many BBSes across the nation.

The first patch I can endorse

here is X32C.DOS. It's a patch of SpartaDOS routines that attempts to get them to work right. It does a good job, but it is not nearly as stable as MyDOS.

The next patch worth discussing is X32P.DOS. This patch increases the available memory in your computer by 1K. That's all it does. However, you can use this patch with the X32C.DOS patch. If you use this patch, you lose BASIC XE compatibility. But, to be honest, that is no big deal. Therefore, you can have increased stability and increase your memory at the same time.

The last patch I will discuss here is X32Z.DOS. This was designed for use with the US+ OS from CSS. It forces SpartaDOS to make direct calls to the Atari OS routines in order to do disk I/O. This patch produces the best results, since it cuts the problem from its root. Furthermore, this patch can be used concurrently with X32C.DOS and X32P.DOS. The result is the most stable, most powerful, and friendliest DOS you can have in your Atari 8-bit computer.

There is a price to pay—you lose Ultra Speed mode unless you have the US+ OS or a Black Box. That aside, I personally use this DOS and can recommend it to all hard disk users out there.

In conclusion, there are two viable solutions. You can throw away SpartaDOS and use MyDOS instead, or you can patch SpartaDOS into X32CPZ.DOS and have the most powerful, reasonably stable DOS for the 8-bit Atari.

Next month, we'll look at task switching with SnapShot. See you then!

PROGRAMMING KIT FOR THE 8-bit

Ellen Lentz (ACCT)

Here's another great package from Ron Fetzer of the Ol' Hackers Atari Club of Oceanside, New York. The Programming Kit consists of three disks—an improved Turbo BASIC programming language; a compiler which compiles both Atari BASIC and Turbo BASIC programs, making them run 10-15 times faster; a tutorial (with many examples) that teaches you how to do programming in a structured, modular way; programming modules that can be ENTERed and used in your own programs; and tutorials on Arrays and five different types of Sorts. The Programming Kit is designed for the beginning and intermediate Atari user.

A Little History

Turbo BASIC was originally written by Frank Ostrowski from Holland and has been around for some time. It works only on the XL and XE computers, although there is a version available for the 800. Turbo BASIC is completely compatible with Atari BASIC and runs five times faster. In addition to the regular Atari BASIC commands, you get 42 more commands and 22 more functions! You have a usable RAM of 34,021 bytes, which is 1,747 more bytes than you get with Atari BASIC.

Turbo BASIC has been improved by John Picken of the Garden City ACE in British Columbia, Canada. The Time\$ function has been fixed so it runs *on time* and does not gain 12 minutes each hour. To create a self-booting file, you now can give it any name but

the extender has to be .ARB (Auto-run BASIC). The prompt changed from READY to TURBO. This will let you know you are using the NEW North American (NTSC) version. For advanced users, there is a machine language routine which allows you to vector anywhere you want with the BYE statement.

The Kit

All three disks, both sides, contain Turbo BASIC and are self-loading. Hold down the OPTION key while you are booting them up.

The Compiler is on side A of Disk 1. The compiler instruction screen is now in English, written by G. Meyer of Ames, Iowa. Also on Side A is a self-booting program which allows you to read or print the documentation for the Compiler and the Turbo BASIC Update.

As an aside, there are several advantages to using a compiler. BASIC reads each line and converts it into machine language before it can be executed. If it finds a GOTO or GOSUB, it starts at the top of the program and reads each line until it finds the line referenced. In the compiler, each line is converted to machine language and the appropriate references are stored. It saves the time of conversion and searching, thus making the program run much faster.

The expanded documentation for Turbo BASIC, written by Dave and Laura Yearke of the Western N.Y. Atari Users Group, is on side B of Disk 1. It is an autorun file which allows you to read or print the Turbo BASIC documentation.

Disks 2 and 3 are the products of Ron Fetzer. Ron is a retired

math and computer teacher. His experience in teaching is reflected in the excellent tutorials on these two disks. Disk 2, sides A and B, are self-loading and present "Programming Made Easy," with details on how to write very large programs using Turbo BASIC and structured, or modular, programming techniques. As professional programmers do, you break a program down into smaller pieces, write them and then put them together to make the program.

You are shown how to write a block diagram and a skeleton program. This is what I call Top-Down, Bottom-Up programming. You create the modules you are going to use (Bottom), then plug them into your skeleton program (Top), by using the PROCedure-ENDPROCedure commands. Once you learn this technique, your programs become easy to read, easy to take apart, and are mostly self-documenting.

Disk 3, side A, contains close to 40 modules and utilities you can use in your own programs. Side B contains instructions on how to use them. In addition, lines 1 to 9 on each module contain explanations of what to do and how to use the module.

The modules were stored with the LIST command, so you can load them into a word processor and change variables with the SEARCH/REPLACE command if you wish. (Be sure to save them out as ASCII.) You then load them into your program with the ENTER command. This will replace any command(s) with the same line number(s), so be sure you have RE-NUMbered appropriately.

The modules do everything from DOS commands to screen printing to sorting. There are five different Sort modules included. The utilities include such things as a program to change the cursor shape, a program to give you center positions for strings, a HEXI/DECI converter, a word counter for your text files, and a loan program module. All the modules are very short and easy to understand.

Programming Made Easy shows you step by step how to use the modules, how to string them together to form a coherent program and how to renumber your code. It also shows you how to use your RAM-DISK as an effective tool in constructing a program.

Disk 3, side B, in addition to "How to Use the Modules," contains text files on "How To Use Arrays" and "How To Do Sorting." These are self-loading and can be read or printed.

You cannot sort unless you use an array. Since String Arrays are not allowed in either Atari BASIC or Turbo BASIC, you are shown how to write "Pseudo String Arrays" that act exactly like regular string arrays. Short programs demonstrate these techniques.

The text file on sorting explains the Bubble Sort in great detail. There is also a String Bubble Sort. In the Mini Sort, the smallest element is put first in the array until the whole array is sorted. The Shell Sort is also explained. In the Relational Sort, you have two arrays that must retain their relationship, but only one array is sorted. This kind of sort would be used, for instance, for a Telephone Directory where the names are sorted but the numbers always have to stay with the names.

Ron is to be congratulated on this excellent Programming Kit. As you might recall, he is also the author of the Disk Management System, reviewed here in an earlier issue. To obtain this three-disk package, send \$7.00, with a check made out to the club's treasurer, Ron Fetzer, to:

Ol' Hackers AUG, Inc.
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Keep them coming, Ron. As long as we have programs like yours, we really can enjoy our *Happy Atari Computing*.

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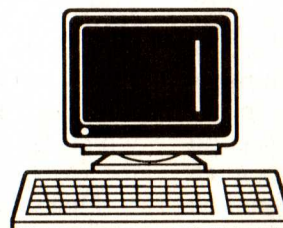
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HIGH TECH ON THE HIGH SEAS

A REVIEW OF LUCASFILM GAMES' STRIKE FLEET

Being an avid computer wargamer, when a friend of mine bought Harpoon for the IBM, I drooled with envy. I wished and wished the game would be ported over to the ST, but to no avail. So, when I found Strike Fleet on the shelf at the local computer store, it was an instant sale. I haven't been disappointed.

Strike Fleet is a simulation of Modern Naval Combat. No longer are the 16" Guns of the Iowa Class battleships the most feared surface weapon. Today, surface ships engage each other outside of visual range, not only with aircraft, but also with a wide variety of missiles. Surface combatants trade gunfire only after surviving each others' missile barrage.

This game simulates this well, for the action is furious, the playability high and the realism only slightly flawed. The game contains 14 scenarios—the first six being Training and the last eight tied together as a campaign.

The first scenario teaches you to be calm in the face of incoming missile attacks and allows you to learn how to fire Surface to Air Missiles (SAMs). The second scenario teaches you how to control more than one ship and how to hunt submarines using helicopters. Each successive scenario teaches you a little more about the game until, finally, you are ready for the ultimate test—the campaign.

While playing the campaign, when you finish a scenario, you are given a ranking and an access code. This code tells the computer not only what campaign scenario you wish to play next, but also what your last ranking was. The object of the campaign is to finish with as high a ranking as possible.

The scenarios are fought in four different locations—the Atlantic Ocean, the North Sea, the South Atlantic and the Persian Gulf.

Enemy forces come in all shapes and sizes: five different types of submarines (from the tiny Salta Class of Argentina to the impressive Victor III Class of the USSR), ten different types of surface ships (from Iran's Light Patrol Crafts to the massive 28,000 ton Kirov Class Missile Cruisers, the ships which the manual states, "were almost single-handedly responsible for the recommissioning of the Iowa Class of US battleships."), three different types of aircraft and 13 different types of missiles.

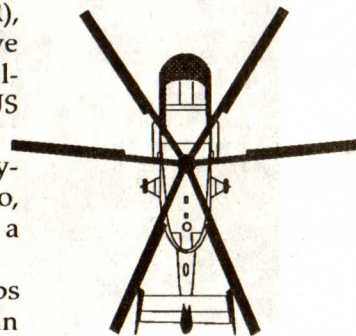
At your disposal are 10 different types of ships, from the light Pegasus class Hydrofoils to the Ticonderoga Class AEGIS Cruiser. Most ships carry one, if not two, helicopters. These are not only good for hunting submarines, but I like to launch a bunch of them and do an airstrike against surface ships with torpedoes.

When you load a scenario, you are given the option of adding or subtracting ships from your fleet. Each ship class has a point value. If you subtract ships, you gain points which can be spent on a different type of ship. The fewer points you use, the higher your final ranking will be, the theory being that if you can do the job using fewer ships, you must be a better Commander. Once you have chosen the ships you wish to use, you're off to the Battle Zone.

Each Battle Zone has three map magnifications: Fleet, Task Force, and Ship. To get from Fleet magnification to Task Force magnification or from Task Force to Ship magnification, you move the cursor to the area you wish to magnify and left click the mouse. The area, which was shaded gray, now zooms in.

At Fleet magnification, you may only give orders to your Flagship, the one ship you have in charge of the fleet. Whatever you tell your Flagship to do, the others will also do. You can set the destination for the entire fleet by moving the cursor on the map to where you want the Fleet to go and right clicking the mouse. All ships will head for the destination. The Flagship will move no faster than the slowest ship in

DAVID ELMORE
ACCT



the Fleet, so if the Flagship is told to move at full throttle, all ships in the fleet will match speeds so nobody gets left behind.

At Task Force magnification, you may give orders to individual ships. You may have them leave a Fleet and start a new one. You may then have ships join the new Fleet or, if already split off, rejoin the old.

To leave a Map and go to the ships, you click on a button marked Bridge. The Bridge is where all battles are fought. From here you may fire guns, launch missiles or torpedoes, launch helicopters, scan Radar or Sonar displays, manually change course or speed, change ship status from Rest to General Quarters and back, return to the map display or move to a new ship.

While on the Bridge, you get a visual picture of what's directly in front of you. Helicopters and ships can be seen moving in front of you. If the enemy is close enough to you and you're firing guns, you can see the splashes on the water from your misses.

On the lefthand side of the Bridge display is your Ordnance Board. It keeps a running total of each ship's eight different Weapon systems. Each ship may carry Long Range Anti-Ship Missiles, Short Range Anti-Ship Missiles, Anti-Aircraft Missiles, Dual-Purpose Cannon Shells, ASROC Anti-submarine Weapons, torpedoes, Chaff bursts and Phalanx bursts.

On your Radar or Sonar display will appear ships, aircraft, missiles and torpedoes. If you point to one of

these and left click, you get a Binocular view of the target. You can then see the target's course, its speed, its bearing to your ship and the distance it is away.

If attempting gunfire, you get crosshairs on this display. Place them where you think you can score hits and blaze away. If you wish to fire a missile at the target, point the cursor to the weapon system you wish to use on the Ordnance Board and click.

There are also two warning lights on the Bridge. *Lock* means a weapon has locked onto that particular ship. *Depth* means a ship is getting into shallow water and risks running aground.

Also included in the game is Remote Targeting. What this means is you can use one ship's or helicopter's Radar to target something for another ship who could not have seen it normally. In practice, this means sending a helicopter out ahead of the Fleet to scout the way. When the helicopter discovers an enemy target, you use Remote Targeting, return to another ship and fire Anti-ship or Anti-Aircraft missiles. All this done without the Fleet coming into danger.

This game is fun to play and exciting. While Harpoon covers a more strategic view of Naval combat, this game gets you up close and personal. The graphics are great, ships hit and damaged have plumes of smoke rising from them. Things get happening so fast you get flustered and make mistakes. When you make mistakes, well, stuff happens.

The game is simple enough; you will become familiar with the game mechanics quickly, but complex enough that this isn't just an arcade game.

As far as reality goes, I have only one complaint. In this game, when a helicopter lands, it is instantly ready to go out again. Not that I'm really complaining. I can't think of a Commander who wouldn't want his aircraft instantly refueled and re-armed as soon as they touch down. On the other hand, this isn't realistic.

Two other things about this game I consider flaws. First, there is no save game option. Campaigns can be ended and restarted inbetween scenarios, but, while playing a scenario, you have to play to the end or quit. The first scenario takes about 15 minutes to play, but one of the campaign scenarios took me 3-1/2 hours to finish!

Second, there is a feature in the game that speeds up the clock, allowing for faster play when things aren't happening. This is fine, but when things start happening, the clock doesn't automatically slow down. Many times I've been sailing along, suddenly, a Bomber appears and launches a barrage of missiles at my ships. Before I can react, *boom!*, they've struck and sunk one or more of my ships. In Harpoon, the clock stops so you can meet the incoming threat. I wish this game did that.

Overall, I consider this game to be a great value for the money. It plays well and is realistic (except for the helicopter turnaround time). I like it a lot and highly recommend it. I hope Lucasfilm Games does well with this title and continues to develop for the ST.

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Porting from the ST

Making the ST and Portfolio Talk to Each Other

Bill Rayl

Probably the hardest thing an Atari ST user encounters as a new Portfolio user is getting the two computers talking to each other for the very first time.

The Portfolio has built-in software for file transfers via the Parallel Interface and the Parallel Interface comes with compatible transfer software to run on an IBM. Unfortunately, this method cannot be used on an ST, even under IBM emulation. The reason for this is that the ST's parallel port does not use a couple pins that are extremely important to this software.

So, how do you use your ST to transfer software to the Portfolio for the first time? Every article written on the subject in Atari publications so far tells you that you have four basic options:

Borrow someone's IBM and use it to transfer a telecommunications package to your Portfolio.

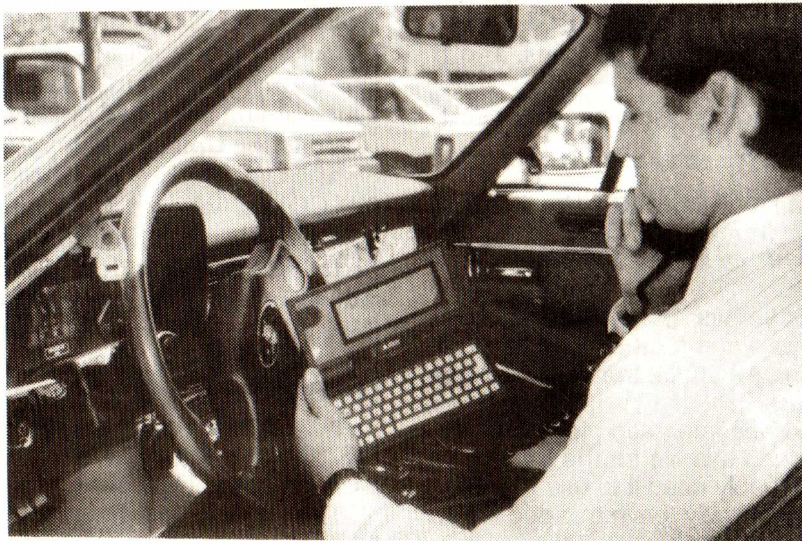
Buy the DOS Utilities card from Atari or an Atari dealer (retail price \$89.95). It has XTERM, the PD terminal package of choice for the Portfolio.

Find someone else who owns a Portfolio and has already gotten a terminal package onto it, then have them copy it to your RAM card. (Some people have even gone so far as to send their cards to Don Thomas at Atari to have him give them a copy of XTERM!)

Purchase TransporT from Artisan Software (retail \$29.95) and use a null modem cable to transfer your terminal package to the Portfolio.

Of these options, TransporT is the one I'd recommend most...if you want to use only those choices.

Sometimes, the impossible isn't really all that hard.



You see, all of those articles have missed the least expensive way to get a terminal package onto your Portfolio from your ST. In fact, some of those other articles state that what I'm going to tell you here is impossible.

Other than the cables you'd need to buy anyway to use the Portfolio with a modem, chances are you already have almost everything you need.

The Supplies

All the hardware you need is:

An ST

A Portfolio

The Serial Interface for the Portfolio

A modem cable and null modem adaptor (or just a null modem cable)

Your best option is to use a modem cable with 9-pin female connector on one end and 25-pin male connector on the other. Then, get a null modem adaptor with one 25-pin male end and a 25-pin female connector on the other end. This way, you can use the modem cable minus the null modem adaptor for normal telecommunications.

If all you can find is a modem cable with 9-pin and 25-pin female connectors and a null modem cable with both male ends (these do seem to be the most prevalent), don't worry. Just pick up an RS232 Gender Changer with 25-pin female connections at both ends. Your local Radio Shack should carry all of these cables and adaptors.

The ST software you need is a terminal package that supports transfer rates of as low as 110 baud. This includes Flash! and many PD and Shareware packages. Chances are the ST terminal package you already use can handle this.

If not, there's another option. First, you need the Atari Control Panel (or any software giving you the capability to set your RS232 parameters). Since the Control Panel comes with every system Atari sells, it's a good bet you already have it, even if it's not installed. Then, you need a program that can send information out the serial port. I personally used EdHak (available from Clear Thinking) to test this, and it worked beautifully.

As for the files you are going to transfer to the Portfolio, you need the following:

HEXBIN.COM—A utility to convert HEX files into BINARY runnable format. File size: 257 bytes. Checksum: 408D. (Checksums will be explained later.)

XTERM2.HEX—HEX version of the XTERM2 telecommunications package for the Portfolio. Supports Xmodem and ASCII file transfers and lots more.

XTERM2.DOC—Text documentation for XTERM2. You don't really need this file for the transfer to work, but you'll probably need it to use XTERM2 effectively. You can simply leave this doc file on

your ST and read it from there or print it out for reference.

CHECKSUM.COM—A small utility that gives you a Checksum corresponding to a given file. This file is optional to the process, but it helps. File size: 129 bytes. Checksum: 30A7.

These files are all Public Domain files available from the Portfolio Forum on CompuServe (GO APORTFOLIO). If you're at all interested in the Portfolio, this is *the* place to be. There are literally hundreds of programs for the Portfolio there...all just a quick download away.

The files are also available on this month's ST disk, in the ST2PORT.APP self-extracting archive.

The Starting Block

We'll assume you have all the files listed above somewhere on your ST. For this article, I'm going to describe doing the transfers using Flash. If you are using some other terminal package, you may need to slightly modify these directions.

Start with both the ST and Portfolio turned off. It helps if you have both machines fairly close together, so you can type on them both without moving from where you are.

Plug the Serial Interface into the Portfolio. Attach the modem cable's 9-pin end to the Interface, plug one end of the null modem adaptor into the "normal" 25-pin end (adding on the Gender Changer if needed) and then plug the whole thing into the ST's serial port.

On the ST Side

Boot up the ST and run Flash. Set the baud rate in Flash to 110 baud (use Alt-B and click on the "110" button). While in the dialog box, make sure you have 8-bits, no parity and 1 stop bit set, as well. Click OK when done. If you want to watch the file's progress as it sends, you should also set Flash to Half Duplex (type Alt-P).

Now, we'll go set the ASCII transfer options. Press the right mouse button to switch to the GEM screen. Select "Ascii UL/DL" from the Edit drop down menu. At the dialog box, set LINE PAUSE to its maximum of 9 and turn everything else off *except* METERING, which should be turned on. Click OK.

Go to the Upload drop down menu and select "File Ascii." Use the File Selector to find the file HEXBIN.COM. Click *once* on the file, but don't send the file yet (i.e., select the file but don't press Return, don't click OK, and don't double-click the file!). Place the mouse pointer right above the OK button and leave it there.

On the Port Side

Boot up the Portfolio and get into Setup. Select "RS232 port..." from the menu. Set the Baud rate to 110, Parity to None, Data bits to 8 and Stop bits to 1.

Then, select Initialize! from the menu. If you get a

"Communication error" message the first time, try Initializing the Interface again. If you repeatedly get this error, there's a serious problem with either the Interface or its connection to the Portfolio. Turn the Portfolio off, make sure the Interface is firmly connected and try Initializing it again.

Once the Interface is initialized, get to the DOS prompt (press Esc a couple times). At the DOS prompt, path to your RAM Card by typing A: and hitting a carriage return. Then, type the following (*Don't hit a carriage return after this yet!*):

```
COPY AUX: HEXBIN.COM
```

Ready, Set...

The next step takes a little bit of timing on your part. Thankfully, you don't have to be too quick about this, though. What you need to do is press Return on the Portfolio and then click the ST's left mouse button (or press Return) *before* the Portfolio times out trying to copy from the Serial Interface. You'll know if the Portfolio times out, you'll see an "Abort, Retry, Ignore" message on the Portfolio but the ST is still sending.

If the Portfolio does timeout, simply type 'A' to Abort, retype the COPY command (or press and hold the Fn key, followed by F3) and re-setup for the file transfer on the ST side. Then, try it again.

If everything goes well, the ST will finish sending while the Portfolio continues to display "AUX to A:\HEXBIN.COM." A few seconds later, you'll see

```
Not ready error
Abort, Retry, Ignore?
```

Yes, that's the same message you'll see if the Portfolio times out. That's why it's important that you can recognize the difference between success and failure here. If the ST is still sending and this error occurs, the transfer has failed. If the ST has finished sending and you see this error, everything is great.

Type 'A' to Abort and type DIR (followed by a Return). You should see the file HEXBIN.COM safely stored on the RAM Card with a file size of 257 bytes.

Round and Round

Repeat the above file transferring steps for XTERM2.HEX and, optionally, CHECKSUM.COM. You can use CHECKSUM to verify that the files transferred successfully. At the DOS prompt, simply type CHECKSUM, followed by the name of the file you want to test and a return. For instance, to test HEXBIN.COM, enter the following (with a carriage return) at the DOS prompt:

```
CHECKSUM HEXBIN.COM
```

Once you have both HEXBIN and XTERM2.HEX on the Portfolio, you're in the home stretch. At the DOS prompt, type the following line (with a carriage return at the end):

```
HEXBIN XTERM2.HEX
```

The HEXBIN program will now convert the hexadecimal values in XTERM2.HEX into a binary, executable program. The output file is automatically called RESULT.OUT. Type, again from DOS and with a return at the end:

```
REN RESULT.OUT XTERM2.COM
```

The new program file should be 2,898 bytes in length and have a checksum of 99F3. If not...try, try again.

That's All Folks!

You should now have a working terminal program on your Portfolio. Turn your Portfolio and ST back off (just to be safe) and disconnect the modem cable from the ST. Keep the Serial Interface connected to the Portfolio. Remove the null modem adaptor or null modem cable and use the normal modem cable to connect the Interface and Portfolio to your modem.

Boot up your Portfolio and go to Setup again. Reset your RS232 port to whatever your highest baud rate is on your modem—XTERM2 can handle 9600 baud with no problem! You can skip Initializing the port, because XTERM2 will do it for you.

Now, get to the DOS prompt again, path to A: if necessary, and run XTERM2 by typing "XTERM2" (without the quotes) followed by a carriage return. You should be greeted with XTerm's copyright notice and mini help screen. From here on out, anything you type in is sent directly to your modem. If using a Hayes-compatible, you can use ATDT to dial the modem, etc. Support files on CompuServe can even give you a Dialing Directory of sorts for XTerm.

Make sure to read XTerm's documentation and keep a hardcopy of the docs handy for reference.

That's all there is to it, folks! It may seem a little convoluted, but it's no different than null modem file transfers to any other computer...except you're starting out with no transfer software on one of the machines.

I should note here that it may not be necessary to use 110 baud *and* set metering to its slowest possible option. Better to be a little slower than necessary than too fast, though. I have had only mediocre success in transferring files at 300 baud, so I don't recommend using faster than 110 baud. At 110 baud and metering set to 9 in Flash (or Slow in EdHak), I've had 100% success with over a dozen file transfer attempts.

Another important note is that you should not try this method with larger binary programs (like ACOM.EXE or even XTERM2.COM). It simply will not work, because these files contain control characters that stop the transfer dead. Things like Control-C, Control-D, etc. end the transfer. Play it safe and transfer the files listed in this article. Then, use your newly created XTERM2.COM to do Xmodem file transfers from then on. Of course, you can use this method at any time to transfer ASCII text files to and from your Portfolio.

Sometimes the impossible isn't really all that hard.

WHO READS AIM?

Analysis of the Reader Survey

Patricia
Snyder-Rayl

This article has been long awaited by those who answered the survey questions we ran in an issue some time back. The response was typical of mail-type campaigns. I'd like to thank those people who did respond, and if you're not one of them, see how you fit into what the survey results show!

The survey started off with the sex question. *Are you male or female?* The answer wasn't a surprise to anyone who's a member of an Atari user group. Just over 94 percent of AIM readers are male, and 4 percent are female. The remainder is questionable! Maybe there were people who weren't sure.

Next came the age question. *How old are you?* A little over 33 percent are aged 30-40, while almost 29 percent are 40-50. The next highest percentage was almost 16 percent, aged 20-30. So, over 3/4 of the AIM readership is between the age of 20 and 50. A small fringe, about 8 percent are over 60 and under 20.

Probing even more personally than your age and sex came the third question. *What is your income?* The results show 63.5 percent of AIM readers earn between \$30,000 and \$49,999 in annual income. The rest is spread out pretty evenly at the lower and upper portions of the scale. This would seem to correspond to the age results, since the older people are, the more they tend to make—to a certain point.

The next question was for our use, mainly. *How many people read your copy of AIM?* The percentages show us that almost 64 percent don't share their AIM with anyone, while two people read each issue for 29 percent of our readers. The percentages got rapidly lower with higher numbers of readers.

Following this came the user group question. *Do you belong to a user group?* Not surprisingly, since AIM's backbone

is clubs, just over 75 percent of our readers belong to a club, while 20 percent do not. Again, if you think about it, these results were expected.

This next question had a little more variety to the answers, so the results were not so cut and dried. *What Telecommunication services do you use?* GENIE came out on top at 31.8 percent, with CIS right behind at 21.7 percent. Delphi received 10.1 and Other (BBs presumably) got 14.4 percent. This doesn't total 100 percent, since some people didn't answer, most likely because they didn't have a modem.

Next came the usage question. *Do you use your computer for business or personal use?* The results broke almost evenly over personal and both answers. Personal usage received 49.2 percent of the total, while Both won out with 50.7 percent of the answers.

Now that we knew what, in general, people used their systems for, we wanted to know how many people used it. The highest percentage went to single use with 36.2 percent. The next highest was three people at 21.7 percent followed by 2 people at 18.8. Four and five users were only small percentages.

Now that we knew how many people used the system, we wanted to find out what that system was. *What system do you own?* The choices were 8-bit, ST and Both. Just over 28 percent owned only 8-bits, and 38.8 percent owned only STs. Almost 33 percent owned both systems.

The next question was for the people who answered that they owned an ST. *Have you upgraded to TOS 1.4?* A surprising 63.8 percent said no, while 36 percent said yes.

How long have you owned an Atari computer? People who have owned an Atari for over seven years make up 55 percent of the respondents. After that comes

five to six years at 20.2 percent. Three to four years is 13 percent with two years or less at 7.2 percent.

More Statistics

The next few questions were rather boring and dealt with the actual hardware setup in the systems people used. This can easily be summarized for you. Over 73 percent of AIM readers have double-sided drives (this includes 8-bit as well as ST owners). Almost 87 percent own color monitors, while 45 percent own monochrome monitors (readers could check both types). A very small percentage own Multisync or Monitorm monitors.

Almost every reader of AIM has a dot matrix printer—this was 92.7 percent. Also, just under 80 percent own modems. The next big winner was a hard drive at 53.6 percent. Over 10 percent of the respondents owned a Mac emulator. Just under 6 percent own a Portfolio, and 11.5 percent own a Lynx. Thirteen percent of AIM readers own a non-Atari computer.

The "wanna buy" list is a lot more fuzzy in its results. The largest percentage for equipment readers want to buy was a laser printer at 17.3 percent. Following that came a hard drive and a CD-Rom at 15.9 percent each. After that comes a removeable hard drive, a Mega/STe and a Mac emulator, all with 11.5 percent each. A modem and a non-Atari computer tie at 8.6 percent to round out the results.

Next, we asked people to tell us, in a ranking of one to 14, what they did most with their computers. Because the answers varied so widely, I went the easy route and took only the first two preferences. Word processing was the big winner at 34.8 percent. Telecommunications and Entertainment/Games tied at 14 percent each. Following that came Databases/Spreadsheets and Desktop Publishing at 7.4 percent each.

What level of computer user would you say you are? The answers were Intermediate at 68.1 percent, Advanced at 23.1 percent and Beginner at 5.7 percent.

The final question dealt with the articles in AIM. Did the respondent think the articles in AIM were dull and boring or terrific and exciting. It seems most AIM readers (63.7 percent) think articles are informative and (62.3 percent) easy to read. Almost 58 percent say the articles are just the right size, while a little over 17 percent say they're too short. Of course, if you don't agree with this, please let us know! <grin>

Enough Statistics, already!

So, the bottom line is, if you're reading this article, you're probably a guy, aged 30-40, making about \$40,000 a year, who doesn't share his AIM with anyone! You also belong to a club, use GENie or CIS, and own a color monitor, dot matrix printer and modem. You also are an intermediate computer user who likes to type and play games and thinks AIM is just great! Glad to have you aboard!



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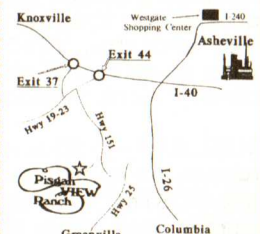
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Area Map

ST/TT Disk

All files on this disk are self-extracting archives created with DoubleClick'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 July '92 disk. For more complete docs, see the text files contained in most of these archives.

89A_87A.APP—A small utility to convert GIF images from the 89a format to the more widely accepted 87a format.

DASH.APP—Mr. Dash is a Boulder-dash clone from Germany. Great sounds, good graphics and very playable. Mono and color versions included.

GCHESSE.APP—GNU Chess is one of the best chess games around, and now it's available on the ST! This version features a graphical user interface, ability to edit the pieces and the board, CPU vs. Human or CPU vs. CPU modes, a save game option and lots more. Full documentation and C++ source code included.

JAMES12.APP—"James the Desktop Butler" desk accessory from Luxembourg. This multi-function DA features a screen saver, mouse accelerator, diskstep rate setter, VBL emulator, VT52 emulator, virus checker and about twenty other functions. Version 1.2P.

MITHRIL.APP—A 3D animation that runs in low or high resolution on any ST/STe/TT. Mithril generates images itself rather than loading them from disk. In low resolution, it does gradual color cycling and uses the expanded STe/TT color

palette if available. In high resolution, it has fine shading and slightly smoother animation. Written by Mark Slagell of SilkWare.

MUTA.APP—Metamorphic Animator Desk Accessory for CAD-3D with the ability to output the intermediate 3D objects to a file, so you can use other rendering programs on them.

POOLFX92.APP—An update to Poolfix3 and Poolfix4. Fixes a couple of serious problems in prior versions of Poolfix. Freeware from Sweden.

SCAN4PIC.APP—A great little graphics utility from Stephen Coates of the UK. Scans selected programs for recognizable graphics screens and lets you save them out for viewing with your favorite picture viewer!

SERIALFX.APP—A program and CPX to fix problems in the ST/TT Modem 1port (for STE/TT users) or the Serial Port (for ST users). Allows you to lock the port into RTS/CTS mode, to support use of RTS/CTS with programs that do not support RTS/CTS (like Flash 1.6). Also fixes the RTS/CTS problems of overflowing modem buffers encountered with some modems. SerialFIX works with all current versions of TOS (1.0 to 2.06/3.06).

ST2PORT.APP—Four files mentioned in the "Porting from the ST" article in this month's issue. HEXBIN.COM converts HEX files to binary, CHECKSUM.COM determines a file's checksum, XTERM2.HEX is the HEX version of a popular PD terminal program for the Portfolio and XTERM2.DOC is the doc file for XTerm2.

TYPIST.APP—An excellent Typing Tutor program with support for QWERTY and Dvorak key layouts. Various typing exercises teach you how to type or help you improve your typing speed and accuracy. Includes C source code!

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 July '92 Mac/Spectre Disk of the Month:

ATAXX—A board game that's very similar to Othello, but with some interesting twists. There are options for board size and opponent type (human or computer).

BBEdit 2.1.1—An all purpose text editor with lots of interesting features including pattern ("grep") search ability. Full documentation is included.

Caps Lock Notify—A very small utility that simply notifies you each time the Caps Lock key is pressed.

DESEA—DESEA strips the "self-extracting" code from most types of self extracting archives, saving considerable disk space. The one drawback is that you'll need an archiver (or unarchiver) program to unpack your files. Complete documentation is included.

Stuffit Expander—This application unpacks most types of compressed files including Compact Pro, Stuffit 1.5.1 and Stuffit Deluxe/Classic.

Print2PICT—A chooser document that allows you to send printed output to a PICT file. You can then use that file in any Macintosh application that accepts PICTs. Great for mixing text and graphics.

DISKS OF THE MONTH

Disk

Remember? v2.3—Ever forget Grandma's birthday? A car payment? Where you left the kids? Well, forget all that...and use Remember? v2.3. You'll never be late for another taping of "Lifestyles of the Rich and Famous" again.

Retriever Light—A neat little database DA that's great for keeping track of all sorts of stuff. Simplicity is the name of the game here. The DA is easy to set up and use, but it is still quite powerful. A very useful desk accessory.

TOM/INIT II—An init that allows you to have "tear off" menus in all applications. It even allows you to tear off hierarchical menus. Great for use with large screen monitors. Never again make those tiring trips all the way back to the menu bar.

Each AIM 8-bit Disk of the Month is a single-sided, single density "floppy" 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 July '92 8-bit disk:

SIDE 1

ALFBACK.ARC—A hard drive/MIO backup program featuring file compression to save on disks!

8-bit Disk

CGSDEV.ARC—Developer's Kit for the Color Graphics System from Tom Hunt and CTH Software. Contains all the info a programmer or sysop needs to install CGS on his/her BBS. [The CGS system for viewing these graphics appeared on the May '92 AIM disk.]

FATBACK.ARC—A great program for hard drive owners using SpartaDOS, FatBack saves your drive's FAT tables and directories to a file. If the drive's FAT tables get munged, simply restore them from your backup!

USR.ARC—Contains two LISTed BASIC programs and a picture file. USR.LST contains several USR routines you can add to your own programs. The routines are described in this month's A-T-A-R-I article from Paul Alhart. PICTURE.LST uses some of these USRs to load and display a 62-sector picture.

Side 2

ATARIOIL.ARC—A demo that shows the process involved in drilling for and pumping oil. Shows how the oil is separated from gas and transported to the refinery. Very good graphics and quite educational.

NOISY.DCM—The Noisy Giant is a Micro Tales animated storybook for young children. Sound and graphics animation enhance the textual story. This one is sure to be a hit with the youngsters.

Readers can purchase these disks from their local AIM participating user group or by sending \$6 (\$5 +\$1 s/h) per disk 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 July '92 ST, Mac or 8-bit Disk when ordering. When ordering the Mac/Spectre Disk, please indicate Mac or Spectre format.

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BBS: (602) 833-9216
Misc: Reduced library prices, club BBS access.

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St., off Hwy 50.
Day: 1st Wed. Time: 7:30PM
CPU: Atari 8-bit
BBS: ACCESS (916) 428-8662

AFED

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Lompoc, CA 93436
Herb Kanner (805) 733-4026
Meet: Mid-State Bank, 828 North H St. (rear).
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Dues: \$10/single, \$15/family
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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.
Dues: 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 for details.
Day: 4th Tue.
Dues: \$8/yr
BBS: Steve's (916) 661-1538
Misc: PD library access, Yackity-YAC
newsletter, AtariUser.

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: Pامona HS,
8101 W. Pامona 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: ABLE Program Library of User Software
(ABLE PLUS) and ABLE AID newsletter.

FACE

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.

JACE

109 Davis St.
Neptune Beach, FL 32266
Bill Zaiser (904) 247-0230
Call (904) 724-2610 for directions.
Day: 1st Sat. Time: 6:30PM
Dues: \$12/yr
CPU: Atari 8-bit only
BBS: The Wall (904) 730-8659

PACE

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

queST

11201 122 Ave. N. #119B
Largo, FL 34648-2626
Terry Weigand (813) 581-7988
Meet: Tampa College (Clearwater campus),
15064 US Hwy. 19 N., Clearwater, FL
Day: 1st Sat. (Holiday, 2nd Sat.) Time: Noon
Dues: \$15/yr
CPU: ST/Mega/TT
Misc: Large PD library and book library.

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 software and peripherals classes.

GEORGIA

MGAUG

Rt. 1 Box 362M4 Carl Sutton Rd
Lizella, GA 31052
Jeff Vincent (912) 836-3852

Meet: Tattnall Square Academy, Macon, GA.
Day: 2nd Sun. Time: 2PM
Dues: \$30/yr and \$4/year optional newsletter
CPU: ST/Mega/TT
Misc: Club PD library free to full paying
members. AtariUser, newsletter and AIM
disk included in full membership.

STAR

3069 N. Brook Dr.
Chamblee, GA 30341
Tommy Mersinger (404) 938-2718
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
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).

QCACC

PO Box 1036
Moline, IL 61265
Donna Lemaster (309) 755-3183
Meet: Moline Public Library, 403 17th Ave.
Day: 1st Mon. Time: 7PM
Dues: \$15/yr
CPU: Atari 8-bit and ST/Mega/TT
BBS: (309) 755-2748

RACC

3693 Renfro Rd.
Cherry Valley, IL 61016
H. Jake Olbrich (815) 332-5303
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
Dues: \$20/yr family
CPU: Atari 8-bit and ST/Mega/TT
BBS: Knights of Camelot (815) 226-2388
Misc: RACC News monthly newsletter.

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.
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.

ASCI

1752 Alimingo Dr.
Indianapolis, IN 46260
Dan Ward (317) 254-0031
Meet: Speedway Christian Church, 14th and
Winton Ave., Speedway, IN.
Day: 1st Mon. Time: 7:30PM
Dues: \$15/yr
CPU: ST/Mega/TT and Portfolio
BBS: The Zoo (9600) (317) 356-5519, It's Not a
Game Machine (317) 581-9031,
Crossroads Broadcast (317) 878-4069
Misc: Co-sponsors annual MIST Atarifest,
member Mid-Indiana ST (MIST) coalition.

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

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 receive AELien Transmissions
newsletter (6 issues) for \$1.74/yr.

BRACE

3209-B Baird Ct.
Lexington, KY 40515
Hal Nason (606) 272-0383
Meet: Lexington Free Public Library, Downtown
Day: 3rd Tue. Time: 7-9PM
Dues: \$15/indiv., \$20/family, \$10/assoc.
CPU: Atari 8-bit and ST/Mega/TT
Misc: Associate gets AIM but no 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

MASSACHUSETTES

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, 9 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
Tim Feenstra (616) 249-9742
Meet: Wyoming Pub. Library, 3350 Michael SW
Day: 1st Wed. Time: 7PM
Dues: \$10/yr
CPU: Atari 8-bit

MACE

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 & 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.
Participates in Community Fair at Fashion
Square Mall each January.

STING

PO Box 321
Marne, MI 49435-0321
Donna Meyer (616) 942-5167
Meet: 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: Colonial Lanes on S. Industrial
Day: 2nd Tue. Time: 7:30PM
Dues: \$15/yr
CPU: Atari 8-bit, ST/Mega/TT, Mac and Portfolio
BBS: Molin's Den (313) 451-0524
Misc: Monthly 8-bit and ST raffle, free ticket for
members, SX212 modem for loan.

MINNESOTA

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 PD library copying.

MISSOURI

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

MDC-RCC

2610 Woodsage Dr.
Florissant, MO 63033
Al Owen (314) 837-2971
Meet: St. Louis Co. Public Library, Prairie
Commons, 915 Utz Lane, Hazelwood.
Day: 4th Wed. Time: 5:30PM
Dues: \$10/yr
CPU: Atari 8-bit and ST/Mega/TT
Misc: MDC-RCC has a total of 300-400
members, with 10 SIGs, Atari being one.

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: Check 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

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 at
meetings. Send SASE (business size) for
current ST or 8-bit disk catalog.

NEW MEXICO

AACE

1021 Sagebrush Trail SE
Albuquerque, NM 87123
Richard Houser (505) 299-3977
Meet: Gas Co. of New Mexico. 4625 Edith Blvd.
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 Jun. and Dec.

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 Pierro (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, Westgate Plaza, Albany.
Day: ST: Last Wed., 8-bit: 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: Smithtown Library, Nesconset branch.
Day: 1st Sat.
Dues: \$20/yr
CPU: Atari 8-bit, ST/Mega/TT, Portfolio & Lynx
BBS: New Nest (516) 234-4943, Star Scan
(516) 399-4252

OHAUG

3376 Ocean Harbor Dr.
Oceanside, NY 11572

Meet: Alex Pignato (516) 678-6081
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 consortium.

WNYAUG

PO Box 59
Buffalo, NY 14216
Meet: Mike Husband (716) 825-8486
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
Meet: Dave & Brenda Micka (419) 729-1891
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.
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: Access to AIM ST & 8-bit disk files on the
BBS, AtariUser free to members at A&B.
Back issues of AtariUser 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
Wendell Helfrick (513) 325-3764
Meet: Historic "Old Schoolhouse" next to the
public library on S. Dixie Dr., about three
blocks south of Route 40 in Vandalia, OH.
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

1310 N. 2nd St.
Silverton, OR 97381
Steve Barnes (503) 873-4590
Day: 4th Tue. Time: 7PM
Dues: \$15 with AIM, \$10 without
CPU: ST/Mega/TT
BBS: Salem Public Lib. (503) 588-6130, Page
(503) 363-0171, 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.)
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
Meet: NW Service Center (basement), NW 18th
and Everett St., Portland, OR.
Day: 1st Mon. Time: 7PM
Dues: \$25/yr
CPU: Atari 8-bit and ST/Mega/TT
BBS: ACE of America (503) 285-4417
Misc: Swap meets in March, June, Sept. and
Dec. Official Carina II support BBS.

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 8-bit
Box 312, LaSalle Univ.
Philadelphia, PA 19141
Meet: Drexel University, Room M11B,
Matherson Blvd., 32nd and Market St.
Day: 3rd Sat.
Dues: \$25/year, additional \$2 for new members.
CPU: Atari 8-bit
BBS: (215) 942-9600 to 9604 (03/4=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.
Day: 1st Tue. Time: 6:30-9:30PM
Dues: \$18; 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 Kuniarsky (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 & Lynx
Misc: Newsletter, C classes, library access.

ACCEPT

245 Longhorn Court
El Paso, TX 79907-5215
Steve Bruck (915) 858-1117
Dues: \$20
CPU: Atari 8-bit, ST/Mega/TT, Mac 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 W. Loop S.
 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. Hosts the annual Atari Safari show.

HASTE

4930 Shadowdale
 Houston, TX 77041
 Phillip Stojankik (713) 896-9131
 Megabyte Plus, 5181 FM1960W
 Day: Last Sat. Time: 10:30AM
 Dues: \$20/yr
 CPU: ST/Mega/TT and Portfolio
 BBS: HASTE (713) 921-0550
 Misc: Participates in the 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: Newsletter, discounts, new user classes.

UTAH

LACE

1194 N. 250 W.
 Layton, UT 84041
 Marshall Walker (801) 547-9902
 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
 Meet: Varies
 CPU: Atari 8-bit and ST/Mega/TT

FACCS

PO Box 487
 Harrington, WA 99134-0487
 Tim Osborne (509) 624-1917
 Meet: Eager Beaver Computers, next to the Garland Theatre, Spokane, WA.
 Day: 2nd Thu. Time: 7PM
 Dues: \$20/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 98668-1515
 Gary Lentz (206) 573-8224
 Meet: Clark County Fire District #5, Station 3 at 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

MAAUG

PO Box 56191
 Madison, WI 53705
 Rich Noble (608) 249-4029
 Meet: Madison Public Library (Main Branch), 201 W. Mifflin St., Madison, WI.

Day: 2nd Tue. Time: 7PM
 Dues: \$18/yr (+ \$5 one time fee)
 CPU: Atari 8-bit and ST/Mega/TT
 BBS: MAAUG (608) 244-6742

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: Hosts GEN-Con Computer Gaming area.

CANADA—ONTARIO

KAUG

153 Oxley Dr.
 Chatham, Ontario N7L 4R3 CANADA
 Channel One Computers (519) 351-0760
 Meet: North Maple Village Mall on Highway #40, just north of Chatham.
 Day: 4th Tue., Sept-May
 Dues: \$20/yr
 CPU: Atari 8-bit and ST/Mega/TT
 BBS: KAUG BBS (519) 351-3901

NCAUG

15 Blueridge Court
 Nepean, Ontario K2J 2J3 CANADA
 Hardy Zeltins (613) 825-4196
 CPU: Atari 8-bit, ST/Mega/TT, Macintosh

TASTE

185 Varsity Row
 Thunder Bay, Ontario P7B 5P2 CANADA
 Dues: \$25/yr
 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.
 Day: 3rd Thu. Sept-June, exc. Dec. (2nd Thu.)
 Time: 7:30PM
 Dues: \$25
 CPU: Atari 8-bit and ST/Mega/TT

CANADA—QUEBEC

ASTMUM

PO Box 966, Station B
 Montreal, PQ H3B 3K5 CANADA
 Kest Carter-Morgan (514) 272-6631
 CPU: ST/Mega/TT, MIDI Specialists
 Misc: Emergency repair, laser printing & graphics services, computer & MIDI equipment discounts, Audio Recording & Music Tech course discounts & more!

MACAM

PO Box 5418
 St. Laurent, PQ H4L 4Z9 CANADA
 Terry Cowen (514) 696-3773
 Meet: Monkland Recreational Centre, 4410 West Hill, N.D.G., Montreal, Quebec.
 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 BH13 3EF ENGLAND
 Day: 1st Fri. Time: 7:30PM
 CPU: Atari 8-bit and ST/Mega/TT
 Misc: 8:16 Newsletter

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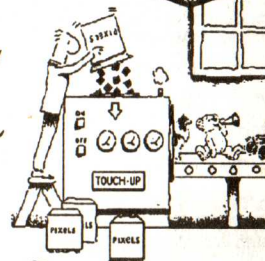
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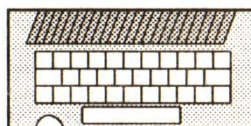
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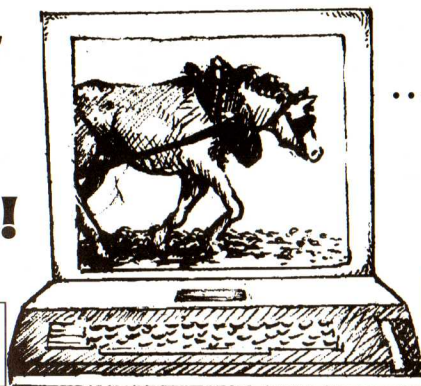
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Included with the upgrade is a utility program capable of reading IBM and/or ST disks, so you can import text or binary files to your 8-bit (text conversion routines are included). Minimal soldering is required; but we provide free installation for any of our products! Only \$99.95 plus \$8 S/H/I. If you already have a 3.5" drive, you may obtain the single drive upgrade without the Sony drive for \$59.95 plus \$5 S/H/I.

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THE FLOPPY BOARD \$109/149

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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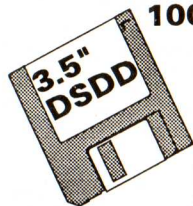
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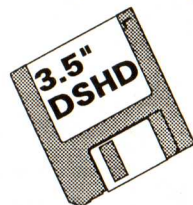
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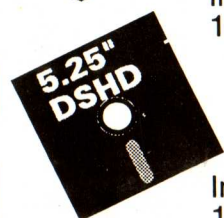
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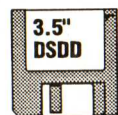


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10 Pak/white box . . . \$2.30

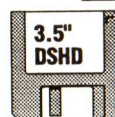
19 ¢ ea. **20** ¢ ea.

Bulk lots of 500 Bulk lots of 50
10 Pak/white box . . . \$2.50



Please refer to color chart.

BULK LOTS OF 50 EACH		FLEX BRAND 10 PAK-BOXED	
Blue	Colors	Blue	Colors
54 ¢ ea.	64 ¢ ea.	59 ¢ ea.	75 ¢ ea.



Please refer to color chart.

BULK LOTS OF 50 EACH		FLEX BRAND 10 PAK-BOXED	
Black	Colors	Black	Colors
87 ¢ ea.	1.02 ea.	95 ¢ ea.	1.09 ea.



Please refer to color chart.

BULK LOTS OF 50 EACH		FLEX BRAND 10 PAK-BOXED	
Black	Colors	Black	Colors
48 ¢ ea.	54 ¢ ea.	54 ¢ ea.	64 ¢ ea.



Please refer to color chart.

BULK LOTS OF 50 EACH		FLEX BRAND 10 PAK-BOXED	
Black	Colors	Black	Colors
30 ¢ ea.	38 ¢ ea.	36 ¢ ea.	41 ¢ ea.

DISKETTES	3.5" CASES		5.25" Cases / Mailers		
	100 cap w/lock	9.00	120 cap w/lock	9.00	
	40 capacity	7.00	50 capacity	5.50	
	10 capacity	1.65	15 capacity	4.90	
	5 capacity	1.65	10 cap smoke	1.65	
			10 cap SRW	1.65	
			5 capacity	1.65	
			4 cap clamshell	.40	
			4 cap mailer	.40	
			2 cap mailer	.40	

ODDS 'N ENDS

Software Duplication
Fallout disks

3.5"DD - 22¢ ea.
3.5"HD - 40¢ ea.
5.25"DD - 13¢ ea.
5.25"HD - 25¢ ea.

12 Piece PC Tool Kit
Zippered Case

\$7.95

5.25"/10 Pak SRW Disk Case

Reg. \$1.65
now **75¢ ea.**

Beige Color

PREMIUM COLOR CHART

	Royal Red	Green	White	Fog White	Grey	Yellow	Orange	Burgandy	Lt. Blue	Dk. Blue	Black
3.5" DSDD	X		X		X	X	X	X			X
3.5" DSHD	X	X	X	X		X	X	X			
5.25" DSDD	X	X	X	X		X	X	X	X	X	X
5.25" DSHD	X	X	X	X		X	X	X	X	X	X

NAME BRANDS

3M - DYSAN - VERBATIM - MAXELL
SONY - BASF - NASHUA - SYNCOM

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