

THE ST QUARTERLY

U.S.A. \$14.95 CANADA \$19.95

Disk Inside

**BONUS:
ARCADE
GAME!**



Winter 1987

Volume 2, Number 2

STARTTM

The #1 Guide to the Atari ST

**ATARI BREAKS
THE MEG
BARRIER WITH
4 MEGABYTES!**

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**LASER PRINTER
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LIGHTS, CAMERA, ST!
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GEM**
Free on Your START Disk!

REVIEWS
*Dac-Easy Accounting
STAccounts 1.1
Superbase Personal
1st Word Plus
Plus 4 Games!*



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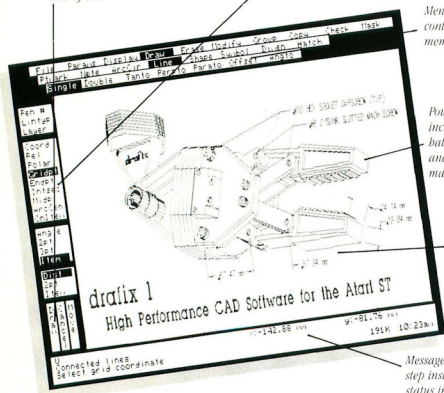
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WordPerfect for the Atari ST	New Release
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DataPerfect for the IBM PC/Compatibles	Release: 11/87
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If you've tried your hand at developing applications on the Atari ST, you know the problem. Programming tools aren't only hard to come by, they're hard to use. One might even say primitive. But now for some enlightening news: you can have all the power, portability and versatility of the C language from a leader in professional C programming tools, Mark Williams.

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Mark Williams C 46.0
Megamax 78.5

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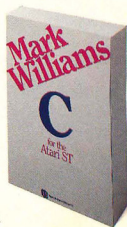
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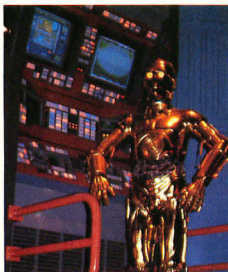
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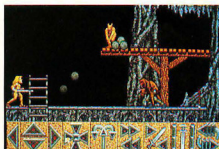




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**DISK BONUS:
ARCADE GAME**

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EDITORIAL

As I'm writing this, Atari just announced prices on Atari's new Mega Computers. A monochrome Mega 2 is \$1699; a monochrome Mega 4 is \$2399. For color systems, add \$200 to these prices.

Surprised? Apparently some other people were, too. In September there was a flurry of agitation on CompuServe over (rumored) Mega prices. Some accused Atari of abandoning its "Power Without The Price" motto when word got out that the Megs might cost over \$2000.

What were these people expecting? That Atari would lower the prices of the STs to those of the XEs, and then release Megs at slightly more than the old ST prices? Some seemed to believe Atari owed them a 1040 price for a four-megabyte computer. They'd been waiting for months to buy a shiny new Mega and toss out their 520s and 1040s. Apparently they believed the release of the Mega somehow invalidated their original purchase; suddenly, mysteriously transforming all existing STs into large grey VIC-20s.

That's wrong, of course. Your existing ST sustained you this long, and it's still a fine computer. If you do have a specific use for a Mega, it may seem expensive, but instead of reeling over its price, compare how much it would cost you to buy a comparable system—a four-megabyte Macintosh, Mac II or IBM PS/2. Then count your blessings. As memory chip prices fall, so will the prices of the Megs.

For New Owners

As our letter from Neil Rouse indicates (see "More Hand Holding" in the Dialog Box section of START), not all of our readers are techno-whizzes who can debug assembly language source code in their sleep. Many of our readers chose the ST as their first computer system. This issue we begin "Getting Started," a new owners column for the neophyte ST owner. If you've just bought your ST and need some help, turn to page 21 and let START Senior Editor Frank Hayes explain to you all about the GEM Desktop.

START in '88

The START Atari ST Buyer's Guide has been on newsstands and in subscribers' hands for the last month or so. It contains listings and short reviews of over 200 ST products, both hardware and software. We think you'll find it invaluable in picking out the finest products for your ST.

If you don't have a copy, then you've already missed the first of START's Special Issues. That's right—next year we'll be publishing more than four issues of START. But if you subscribe now, you'll get the regular four issues of START, with disk and our special issues covering specific themes—graphics, music, home and business productivity, and of course, next year's Buyer's Guide.

Yes, there's more START to come, and we'll continue to maintain the high standards of quality that have made START the #1 guide to the Atari ST. ■

Jon A. Bell
Editor
START, The ST Quarterly

THESE ARE THE GAMES THAT DREAMS ARE MADE OF



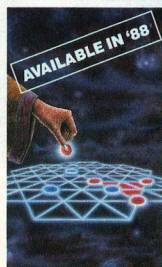
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Vegas Craps



Club Backgammon



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Available for the Atari ST in color and mono for \$34.95 (shipping not included).

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**JUSTIFYING
QUESTIONABLE PRACTICES**

In regard to your very self-serving article "How Not to Run a Computer Store," ostensibly by "Frank Kofsky" in the Summer 1987 *START*:

If a customer comes in the store with some oddball computer and wants to buy a printer I would do the same thing as the salesman in the article. If the printer does not work with his oddball computer he will bring it back and expect a refund. The printer will in general not be in "as new" condition because he damaged the packing material at the least and damaged the printer itself or threw away the box it came in at the worst. Even if the printer worked with his hardware it might not work with who knows what kind of program that I may know nothing about. I am not willing to take that risk. Let him find a computer store that does sell his brand of computer.

Thanks to rags like yours that exist primarily as a vehicle to provide an advertising outlet for fly-by-night mail order outfits, the street price of printers and computers has been forced down to the point where a computer store is unable to provide the service this particular type of customer needs.

Of course you can't get your money back on a software package that has been copied and the manual Xeroxed. Try stopping payment on a check in my store and I will easily win in small claims court. For those of you that are legally inclined, a check is called "another level of contract" and as such it is legally binding.

If you do force me to take you to small-claims court you will never buy another thing in my store again nor will you get support on what you bought with that "stopped payment" check the judge forced you to pay me, nor anything else you ever bought in my store.

The problem of sales people who don't know about the products they sell can be partially attributed to the magazines for not doing a good job of reviewing, testing, benchmarking and criticizing software packages. Computer stores are victimized by junk software just like anyone else. Unfortunately the Atari ST has more than its share of junk software.

This article was primarily an attempt on your part to justify your existence as primarily a mail-order software house and secondarily to justify the questionable practice of carrying mail-order computer hardware advertising.

I don't think Frank Kofsky exists. I think this article was written by someone on your staff. If he does exist I would not want a Communist like him teaching my children history.

Computers are not the same as hi-fi sets. Even Atari Corp. now realizes this and has taken steps to stop the practice. I can see how the loss of this advertising revenue has upset you.

Few customers in their right minds will buy any product without having seen and felt it in a store. Therefore mail order outfits are parasites. Any manufacturers will eventually go broke selling strictly mail order.

You guys ought to be ashamed of yourself. Come to think about it you probably are and this article is an attempt to ease your conscience. Nevertheless my customers will never see your magazine nor any of your products in my store.

Paul Lamar
Lamar Micro
Redondo Beach, CA

GLAD TO BE OF SERVICE

As a retail merchant, I can certainly agree with the majority of Mr. Kofsky's comments about the need of service and knowledgeable staff on the part of retail merchants, if they wish to be suc-

cessful. But several of Mr. Kofsky's comments were at best way off base, if not completely ludicrous.

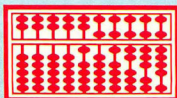
Mr. Kofsky's largest error was in his completely ridiculous belief that if he purchased a product that did not function as he anticipated, he should be allowed to return it for a refund. When a customer requests a program and purchases it, it is his responsibility to know what he wants of a product before he buys it. We will not refund a customer or let him exchange merchandise because it wouldn't do what he thought it would.

We will allow a customer to boot up a program in our store and look at it and the documentation. If we can answer any questions the customer has, we are glad to do so, but we carry about 200 programs in stock, and don't know the answer to all the questions he might ask. There are thousands of programs available for the ST. It would be impossible for any clerk, in any type of store, to be familiar with more than a few programs.

We will also allow a customer to return a program if he has asked if it will work on an XXX printer, and if it won't can be returned. But we will *not* allow a customer to return a program that will not print in living color on a black printer ribbon because the customer thought it should.

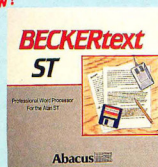
Mr. Kofsky says toward the end of his article, "Perhaps if enough computer purchasers take advantage of these facts to avoid being stuck with hardware and software they can't use, computer store owners will wise up and begin insisting that their employees know what they're selling." Very few retailers would misrepresent their products to make a sale. But, in fairness, we can't know everything about all the programs we sell. That's why we have open packages on our shelves, so that you can look at the documentation, and plug in the disk ▶

ST Software



At Abacus, we do software right.

New!



Software done right means that the **BeckerText** word-processor is easy to use but doesn't sacrifice power. You can see what your document will look like as you type. Type styles (bold, italics, subscript, superscript and underline) are displayed on the screen.

Use the online dictionary to check your spelling as you type. Create an automatic table of contents or index of your document. Perform row or column calculations. Works with most popular printers. Print out sideways on Epson printers. Want to add pictures to your text? Just show **BeckerText** where you want it and it will be merged in when printed. Supports multiple headers and footers. If you are looking for the right wordprocessor, look to **BeckerText**. Not copy-protected. \$99.95



"an A-1 program if I ever saw one", **ST Applications**. You can start right away using **DataRetrieve**, the data base manager. Use one of the predefined data bases or take a few minutes to set up your own. Just enter the names of the fields and then position them on

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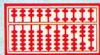
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The Atari ST for Beginners†	200pp	\$16.95
Tricks & Tips	260pp	\$19.95

Optional program diskettes Available for our **ST** book titles. The diskettes contain most of the programs found in the text of the book and saves you the time and trouble of typing them in. Each diskette: \$14.95 † Optional disk not available for these titles.

Abacus



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and look at the program.

If Mr. Kofsky needs the handholding that he implies in his article, I would suggest that he purchase his merchandise from a dealer that can answer his questions. Sure it may cost more there, but you have to pay for the services you desire. If you want to save money and buy a printer from mail order, or from an unknowledgeable clerk, do so—but don't expect a great deal of sympathy or help from me if you won't buy from me.

In conclusion, let me say this: Dear Customer, when you come into our store to look at software, feel free to ask us questions. If we don't know the answer, we will open the package and try to find it. We will be glad to let you boot up the program and take a look. We will be glad to let you take the program home, try it on the XXX printer, the XXX modem, or the XXX monitor to make sure it will work, and refund your money if it doesn't if you bring it back tomorrow.

On the other hand, we will not refund your money if you bring it back in two weeks because it won't XXX instead of YYY. It is your responsibility to know the product and if it meets your needs. We can't know your needs, and shouldn't be expected to pamper unreasonable customers.

Leo H. Kordsmeier Jr.
Baker Valu-Rite Drugs
Little Rock, AR

Mr. Kofsky replies:

"The letter of Paul Lamar does not deserve to be dignified with a detailed response. I'm sure, however, the students whom I teach in my classes on critical-thinking will enjoy it when I assign it as an exercise, inasmuch as it exhibits virtually every illogical fallacy known to mankind. To this I will merely add that there is no reason to be intimidated by the bluff and bluster about small claims court. I have been to small claims court many times and have never yet lost a case. Based on that ex-

perience, it is inconceivable to me that any judge in the country would rule against a customer who returns an undamaged piece of software in a reasonable amount of time with a clear explanation of how the software failed to perform as advertised.

"Leo Kordsmeier's letter at least observes the rules of civilized discourse, but it is by no means immune to fallacious logic. In particular, its author first attributes to me a contention I did not advance, rebuts this contention, then claims he has refuted my entire argument—the classic straw-man ploy, in other words. Even though my article was edited, I believe the position I took therein was sufficiently clear and simple for all to understand: a customer has a right to a refund when an article he has purchased either 1.) fails to perform properly (i.e., is defective), or 2.) fails to live up to the claims made for it (in advertising, on the package, by a salesperson, etc.). Mr. Kordsmeier evidently considers this a completely ridiculous belief but he provides no reason why. The burden of proof is on him.

"Two further comments of a general nature are in order. Every software merchant I have spoken to goes through the same ritual, and Mr. Kordsmeier is no exception. The standard lament runs something like this: 'We sell so many programs, we can't possibly know what each one does.' To begin with, the conclusion does not follow from the premise. Few if any software stores carry more items than a well-stocked camera store. Palmer's in Berkeley, California stocks cameras, lenses and accessories and say nothing of telescopes, binoculars and the like. Yet I can walk into Palmer's and get an informed answer to a question about any item in stock from virtually any clerk. If camera stores can manage this, why can't software stores do likewise?

"The main point, however, is this: Software merchants strive to have it both ways. Thus they argue that the customer obtains better service at a local store—yet simultaneously they contend there are so many products that their sales people can't be

knowledgeable about them all. How can an uninformed sales staff provide good service? To ask the question is to answer it. Local software merchants also seek to have the cake they eat by being quick to protect themselves against the patrons—refusing them refunds, for instance. At the same time they remain obstinately unwilling to recognize that their patrons need at least as much protection against defective merchandise, and storeowners won't stand behind the products they sell. In critical-thinking classes, we term this 'the fallacy of provincialism.' If self-protection makes good sense for the merchant, likewise for the customer. I continue to advocate paying by check and/or credit card.

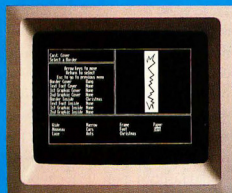
"Finally, it may help to understand what is actually involved here by viewing the matter in historical perspective. The conflict between local merchants on the one hand and large mail-order houses on the other is anything but a new phenomenon in U.S. history. On the contrary, this conflict has been raging for at least a century, over railroad rates, so-called 'fair-trade laws,' appointments to and policies pursued by the Federal Trade Commission and countless other issues as well. With the great increase in mail-order shopping during the last decade, competition has grown that much more intense. Local merchants are feeling the squeeze, but are relatively impotent to do anything about it. And, of course, we all know what tends to happen when the real Joe cannot be defeated: The losing side searches for a scapegoat upon which to pin the blame. Need one say more?"

MORE EDUCATION

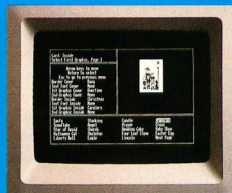
I have just looked over the Fall issue of START and am quite pleased. Although I cannot run the programs that require a color monitor, I found the usefulness and quality of the function plotter by Delmar Searles to be outstanding! In fact, I haven't run any other monochrome compatible program in the magazine yet because of my fascination ▶

A greeting card in 5 minutes? Easy.

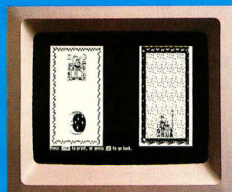
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with this useful and fun program. By the way, a useful addition to this program would be the option of printing out the equation along with the graph. The pairing of the equation and resulting graph would make the hardcopy even more useful for educational purposes.

Perhaps with more (higher) educational programs such as 3-D Grapher, the ST will have a stronger foothold in the university market. If ST developers want to penetrate this market, they can look at the level of mathematical, scientific and statistical software that has made the Macintosh the darling of college students.

I also enjoyed Frank Kofsky's article on the woes of purchasing a computer. Computer retailers like the Federated Group (recently acquired by Atari Corp.) should see the writing on the wall and take heed. If Atari is going to gain wider acceptance, it must be distributed at the retail level by competent salesmen.

The general flavor of the Fall issue is better than the preceding STARTs. The review section was very good. I especially enjoyed the Clipboard section. Overall, the issue was very good.

Barry M. Barnhill
Laguna Beach, CA

MORE HAND HOLDING

I am another one of the thousands who do need "hand holding tutorials on how to open the Desktop."

We cannot all be as clever as Steve Rehner who just wants to know what makes our ST tick. Indeed, it took me several hours just to "nut" out how to get COLORPR.ST in the Spring 1987 issue running. I am aware I am not incredibly bright but there are thousands more like me out here and in the future there are likely to be hundreds of thousands. Please give a thought to us less

gifted readers and let's have a little hand holding.

Neil Rouse
Auckland, New Zealand

MORE LANGUAGES

I would certainly love programs in BASIC but I would also love a section that would teach me to make the transition from BASIC to C and to assembler in such a manner that even I, dumb as I am, would understand. I'd like a section that would have a small program, like getting the area of a triangle or outputting a message, written in BASIC, C, Pascal and assembler.

Such a program in different languages would not take much disk space and it would be interesting to that set of ST owners that are newcomers to computers and programs (we seem to be a large percentage).

You are doing beautifully except for the quarterly status. I *do* exist in a vacuum, surrounded by Commodores, IBMs, Apples, etc. For all I know, my ST

is the only one for many, many miles around, and my only source of information is magazines.

Vicente O. Zanatta Tress.
Cordoba, Mexico

MORE START

I read every issue of START from cover to cover as soon as I receive it. The problem I am writing to you to express concern about is the infrequency of publication. As START is a quarterly magazine, I wait 2½ months between reading issues for the next issue to arrive. As I know that the only way for you to justify a more frequent printing is to hear from your subscribers, here's my plea. Please go monthly!

R. Hunley
Pontiac, MI

BLACK AND WHITE IN COLOR

The idea of releasing START without a disk was brilliant. I was able to thumb through the Summer 1987 issue prior to purchase. This provided my first look at START.

The review of Timeworks' business software caught my eye first—nice job. Secondly, being a sometime stargazer, "The aSTronomer" was truly delightful. I may still order the disk for this program alone. The next item of positive attraction was your review of Publishing Partner. My daughter's recent responsibility for an Explorers newsletter was perfect timing for this information.

Unfortunately, I was completely turned off by your response to Thorarinn Jonsson about running color programs on a monochrome system. The idea of someone purchasing a second monitor to run the diversity of available programs is nonsense. Everyone who owns a Macintosh or Amiga, given appropriate memory, can run any

A L E R T B O X

In the Fall 1987 issue of START, The ST Quarterly, the phone number for VIP Technologies was incorrectly listed at the end of a review of VIP Professional. The phone number listed is for VIP Enterprises, which does not market the VIP program.

For any questions about VIP Professional, direct all calls or correspondence to ISD Marketing Inc., PO Box 3070, Markham Industrial Park, Markham, Ontario, Canada L3R 6G4 (416) 479-1880.

program written for that particular machine.

I chose the monochrome ST because of resolution. Although I do a lot of word processing, I would like to access programs such as DEGAS and CAD-3D in high resolution. It can be done. It should be done. Not everyone wants to draw pretty color pictures. Some of us have serious graphics applications for our computers. Professional programmers and the magazines that publish subsequent enhancements to their work must support all modes of screen resolution.

One last suggestion. Please consider printing a list of all available ST software and indicating color, monochrome and/or memory capacity required. No other magazine has done it yet.

Thomas P. Becker
Kenosha, WI

ROMS ACROSS THE WATER

As you probably know, STs from different countries have different sets of ROMs, to configure the system to French, German, etc. I thought the programs on these ROMs were the same everywhere (at least for the pointers and addresses of subroutines). But recently I had a problem when I was trying to use your Icon Editor: It couldn't find the string DESKTOPRSC, as it should. This makes me think that programs specifically designed to work with TOS in ROM may not work on my machine (AZERTY keyboard with ROMs). For example, your Summer 1987 review of Publishing Partner says that this program needs TOS in ROM; will it work for us, in Belgium, France or Germany? It shouldn't be difficult for the software firm to say whether or not it is possible to use the program with another set of ROMs. Could you print that information, together with the price and other information? In any case, thank you for

this wonderful magazine!

Philippe Mathieu
Belgium

THE ST IN FRANCE

I just received the Spring 1987 START, and it's a great value. I'd like to share some information with you about the ST in France.

Although they still don't have the leadership they have in Germany, ST computers are now widespread in France. Their price and 16-bit technology have accelerated the disappearance of a lot of 8-bit computers (including Ataris). The principal rivals are IBM PC clones, Amstrad CPC6128 and, to a lesser extent, Apple II avatars. The Amiga is not very widespread because of its higher price and its keyboard, which is of the QWERTY type and not the AZERTY one. (A word about this problem: ST computers here have an AZERTY keyboard. This facilitated their introduction in the French market, although it caused difficulties with some software coming from the USA and UK. Developers should think about that. On the other hand, Atari's 8-bit computers were never modified; this diminished their sales here.)

We can get a fairly high variety of third-party hardware, like floppy disk drives from Cumana (3½ and 5¼ inches), video digitizers (Print-Teknik) or the Freeboot, which lets you choose what side of what drive will be the one to boot from.

For uploading or downloading programs, we can connect a Minitel to the ST. This is a telecommunications terminal that's extremely popular here: There are more than 3.5 million in use (in a population of about 55 million people) and it is used for personal and professional uses. The reason for its popularity is the great variety of online services of all kinds, and because it is freely

distributed—but the online time is definitely not free! Nevertheless, it runs at 300, 1200 or 4800 baud, and its use with an ST is a good way to avoid the purchase of a modem.

As for software, we can get most of the games and the majority of applications and programming languages produced in the USA or UK. Their amount of success depends not only on their intrinsic quality but also on their degree of user friendliness for people who are not necessarily good English readers.

We can also get some translated programs from Germany and we have more and more French developers who work on the ST. For example Memsoft (or Mindsoft) sells vertical applications for professional use. Another company, Ere Informatique, sells games such as the excellent Macadam Bumper, which gives you the opportunity to choose the language to use (French, English, German or Spanish). Good marketing practice, isn't it?

By the way, GFA BASIC is believed to be the best BASIC available in Europe. It is quicker than GW-BASIC on the IBM PC AT, except for text display and floppy disk operations, and is becoming the standard.

Jean-Charles Boutonnet
Paris, France

ALERT BOX

Spectrum 512, the 512-color paint program, works on all Atari ST computers (including the Megs) sold after 1985. STs manufactured before then can still run Spectrum 512 with a \$30 MMU chip upgrade from authorized Atari service centers.

Infocom: Atari No More?

Edited by Frank Hayes
 START Senior Editor

Plundered Hearts, Infocom's new gothic-romance interactive adventure, will be the last Infocom game for Atari 8-bit computers—and from now on, Infocom ST games will be arriving less frequently, too.

Brian Moriarty, the author of *Trinity* and *Wishbringer*, gave us the bad news: From now on, the company will be concentrating its efforts on programs for the IBM, Macintosh and Commodore 64.

Why? In a word, sales. "They just weren't selling," says Moriarty. "Sales for computer games are growing, but they're growing in funny ways. Arcade-style games are practically dead. Contemplative games—like chess—are doing well, and so are flight simulators. Right now, we're trying to figure out exactly what people will buy."

In the meantime, Infocom will only be developing games for the ST that have special appeal for ST users—or those that use the ST's special features. One of them should be arriving soon: a sequel to the ever-popular Zork trilogy called **Beyond Zork**. Infocom is at 125 Cambridge Park Drive, Cambridge, MA 02140; phone (617) 492-6000.

WORD PERFECT: ATARI FOREVER

At press time, **WordPerfect for the Atari ST** was just weeks away from release—and according to Jeffrey R. Wilson, WordPerfect's manager for Atari de-

velopment, "It has all the features of version 4.1 on the IBM except sorting. We've got everything—thesaurus, speller, table of contents, columns—and we're 100 percent file compatible with the IBM version."

If you buy them before the name change, you may have some collector's items.

What's the ST WordPerfect got that the IBM version hasn't? Plenty. "The major thing is GEM support," says Wilson. "You can use up to four windows. You can edit your mouse—in fact, you can totally customize your environment while you're in WordPerfect."

Wilson knows the program well—he was one-third of the programming team that created the ST version. "Even though it's based on the IBM version, it wasn't a program port in the usual sense," he says. "The program was totally rewritten. It's 100 percent assembly language, so we can take advantage of features that programs written in high-level languages can't. And it's totally optimized for the 68000 processor." The

result? "The performance is very good. It's very fast—overall, I'd say it's three to five times the speed of the IBM version."

What's the best thing about WordPerfect for the ST? "The functionality," says Wilson. "It's got everything under the sun in it, but you can still sit down and use it immediately."

WordPerfect for the Atari ST will have a suggested retail price of \$395, available from most Atari software dealers, or from WordPerfect Corporation, 288 W. Center St., Orem, UT 84057; phone (801) 225-5000.

DESIGNER DESKTOPS

If you're tired of a plain green background on your ST's Desktop, how about something a little fancier? You can put anything you want behind your icons with a new program called **Easel/ST**.

The idea is simple. Once you've installed Easel on your boot disk, it automatically creates a customized Desktop from any DEGAS or NEOchrome picture you choose. The new Desktop appears with all the usual icons, windows and menus—but with a picture in the background. The picture disappears while a program is running, of course, but it automatically returns as soon as you return to the Desktop.

Any DEGAS or NEO picture will work with Easel, as long as it's in the right resolution—high-res for monochrome systems, low- or medium-res for color monitors. You can even put a different picture on your boot disk for each resolution—Easel will load the correct one, and changes between them if you switch resolutions.

Easel's creator, Bob Breum, says this isn't just a silly gimmick. "Dealers can use Easel/ST to display promotional messages," he says, "or place detailed ▶

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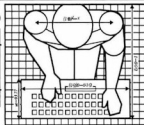
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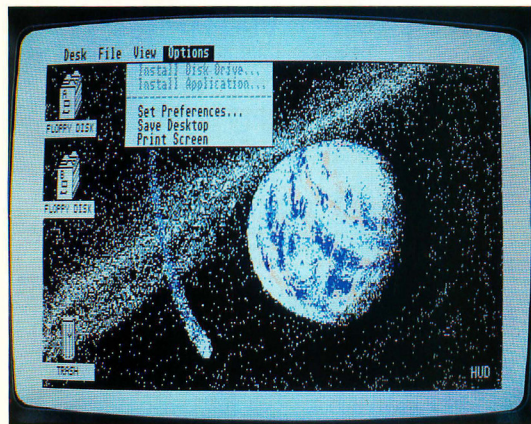
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operating instructions right on the GEM Desktop, where they can't be lost or overlooked." But most people, he admits, will just use it to personalize their Desktops with computerized paintings.

Digitized pictures will work with Easel, too, as long as they're DEGAS or NEO compatible. Instead of a traditional photograph of your loved ones on your desk, you could put a digitized version on your Desktop. That could really add a touch of warmth to your ST—but it's still a little eerie looking at a computer that looks back at you.



Easel ST

Easel/ST is \$19.95 from Computer Penetrations, P.O. Box 151, Lake Monroe, FL 32747; phone (305) 322-3222.

DOORWAY TO THE WORLD

"We're not an information provider, like CompuServe," says Phil Sih. "We're more like a builder of online communities." And that's as close to a simple explanation as you're likely to get of **Portal**, an online service that just lowered its prices dramatically. Portal used to cost \$4 an hour; now it's only \$10 per month.

According to Sih—he's one of Portal's

founders—the idea is to make telecommunications affordable. "We can't really be compared to CompuServe," he says. "They do lots of things we don't do—they hire spouses, they edit message bases, they have Grolier's encyclopedia. We don't do any of those things, so it costs much less. That makes it economical for people who couldn't afford to use an online service regularly before."

What Portal *does* do is computer communications. There are bulletin boards, conferences, meetings, public-domain program and information

Public Data Networks of over 70 foreign countries. Portal's signup package is \$15, and includes an 80-page guidebook.

To sign up for Portal, use your modem to call (408) 725-0561 or 725-0569—or, on Telenet, type CONNECT PORTAL. Portal Communications is at 19720 Auburn Drive, Cupertino, CA 95014; for customer service, phone (408) 973-9111.

MICRO WHO?

MicroProse Software, creators of *Silent Service* and other simulations for the ST, won't be MicroProse Software for much longer: The company has agreed to change its name because they were threatened with a lawsuit by MicroPro, which sells the non-ST word-processing program WordStar.

"We have until June 16, 1988, to start using a new name," says Mike Harrison of MicroProse. "Then we can use a line on our packages that says 'formerly MicroProse Software' until June of 1991."

By the end of the year, MicroProse will have whittled a list of more than 200 names down to a single name. After that, all the company's flying and submarine simulations will reappear with new packages bearing the new name.

Among the last MicroProse simulations for the ST under the old company name are **F-15 Strike Eagle**, a supersonic jet fighter, and **Gunship**, the AH-64 assault helicopter. Both are \$39.95 for the ST, and if you buy them before the name change, you may have some collector's items: the last ST simulations from MicroProse: MicroProse is at 120 Lakefront Drive, Hunt Valley, MD 21030; phone (301) 667-1151.

ON THE MENU

Broderbund is joining the competition for ST drawing and animation with **Art Director** and **Film Director**, a pair of programs that sell together for \$79.95. Art Director lets you draw, edit and manipulate pictures; Film Director lets you turn those pictures into animated ▶

libraries, surveys, and advertisements. A major feature is electronic mail—Portal users can send and receive messages through 60 different computer networks, including Arpanet (the Defense Department's conferencing system), Bit-Net (which connects many major universities) and Usenet (an international network spanning four continents, 30 countries, and tens of thousands of users).

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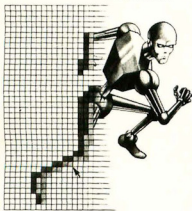
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START
THE ST QUARTERLY

cartoons. But that's not all: Both programs will be compatible with another Broderbund art program for the ST, one that nobody at Broderbund would talk to us about—yet. Broderbund is at 17 Paul Drive, San Rafael, CA 94903; phone (415) 492-3200. . . . There are two new drawing programs that break the 16-color limit for the ST. **Spectrum 512** lets you use 512 different colors in each picture. It's \$69.95 from Antic Software, 544 Second St., San Francisco, CA 94107; phone (800) 234-7001. . . . **GFA Artist** gives you up to 1,021 different colors in a picture. You can also do animation, but not with that many colors; it's from MichTron, 576 S. Telegraph, Pontiac, MI 48053; phone (313) 334-5700. . . .

Desktop publishing is coming on strong, too—there's a whole new generation of ST programs that may be out when you read this. MichTron will soon be releasing **GFA Publisher**, a desktop

publishing program with a high-powered drawing program built in. . . . And the **Timeworks Desktop Publisher** will be out soon from Timeworks, 444 Lake Cook Road, Deerfield, IL 60015; phone (800) 323-9755. . . . Meanwhile, there's a new version of **Fleet Street Publisher** that provides full support for laser printers compatible with Post-

available for **Publishing Partner**. The two font disks contain typefaces named Devoll, Spokane, Thames, West Side, Roman Boldface and Elegance. The forms disk has pre-designed forms for accounting, job applications, memos, invoices, orders, bills, quotes, and shipping and receiving. They're available from Soft Logik at their new address: 11137 S. Towne Square, Saint Louis, MO 63123; phone (314) 894-8608. . . .

MichTron's Airball will soon be joined by the **Airball Construction Set**. It lets you build your own rooms for the game. Also due out from MichTron: **Goldrunner II** and **Tanglewood**. . . . Broderbund's new motorcycle racing game, **Superbike Challenge**, is \$19.95, and it comes with a chance to win a 650cc Suzuki motorbike. You don't have to buy the game to enter, but you *do* have to enter before January 31, 1988. Details are at your favorite computer store or software dealer. ■

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CIRCLE 052 ON READER SERVICE CARD

How To Set Up Your ST Desktop

by Frank Hayes **START Senior Editor**

Point and click. That's the essence of the ST—an easy-to-learn system where a mouse, menus and icons replace typed commands. You can sit down for the first time with an ST and be working within minutes.

But it's easy to take that point-and-click convenience for granted. Just because the ST is ready to use doesn't mean you can't get better at using it. You don't have to be a computer genius to get more from your ST. That's what this column for new ST owners is all about.

Let's start by looking at how you can get more out of one of the most important features of your ST: the Desktop.



A: Moving a disk icon

SLIP IT A DISK

Turn off your ST, take all the disks out of your disk drives, then turn the ST back on. The light on Drive A (your first disk drive) will go on, and you may hear a quiet whir as it spins, waiting for a disk. No, don't put a disk in—keep waiting. Eventually you'll see the familiar Desktop appear on your screen.

Now try the same thing, but this time with a disk in Drive A. The Desktop appears much faster, doesn't it?

Moral of the story: If you want to get to the Desktop faster, be sure to slip your ST a disk before you turn it on.

ICON SEE FOR MILES AND MILES. . .

Once you've booted up, it's easy to spot the three basic kinds of items on the Desktop. There are *disk drive icons*—each one is a little picture of a disk. There's a *trash can icon*—not surprisingly, a small picture of a trash can. And there are *windows* that show you what's on a disk. If there weren't any windows open when you booted your ST, open one now—double-click on a disk drive icon and a window will open, showing you what's on the disk in that drive.

Icons and windows are easy to move around on the Desktop. To move a disk or trash can icon, just *drag* it—point to it with the mouse, hold down the left mouse button, and move it around the Desktop. Its outline follows the mouse until you release the button.

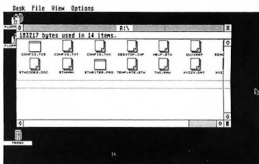
You can move a window, too—just drag it around the Desktop by the grey title bar across its top. The window won't actually move, but you'll see a window outline following the mouse around the screen. When you release the mouse button, the window will move to the new position. Try it and you'll discover that, unlike icons, win-

dows can even sit partway off the screen.

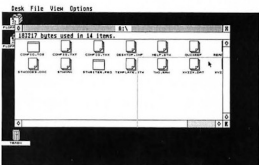
You can also change the shape and size of a window by dragging it around by the *sizing box* in the lower right-hand corner. The window won't move, but that corner will—so you can make the window as tall and thin or short and wide as you like by dragging the corner around. Of course, you can also close the window by clicking in the *close box* in the upper left-hand corner.

I LIKE ICONS

. . . Or maybe I prefer to see the names and sizes of files on each disk instead of



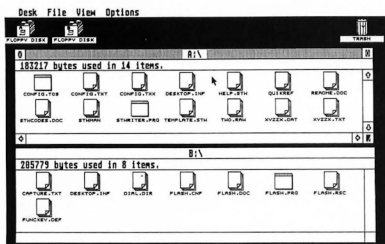
B: Changing the size and shape of a window by dragging the sizing box in the lower right-hand corner



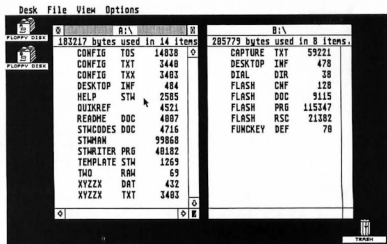
C: Moving a window by dragging by its title bar

icons inside the window. You can look through the windows in either way, and it's easy enough to switch back and forth between them. Just use the mouse to point at View at the top of the screen, and when the View menu drops down, you can click on either Show as Icons or Show as Text.

Show as Icons will, of course, show ▶



D: One possible Desktop layout: side-by-side disk drives and full-width windows



E: Another Desktop layout: stacked disk drives and vertical windows

you the familiar ST file icons in each window. Show as Text gives you a line of text for each file instead, telling you how big the file is and when it was most recently revised.

You can also choose what order you want to see the files in. You can click on Sort by Name, which will alphabetize the files by filename; Sort by Date, which will put the oldest files first and the newest last; Sort by Size, which puts the largest files first and the smallest last; and Sort by Type, which collects all the program files together, all the text files together, and so on.

You can experiment with different combinations of Showing and Sorting until you can see the windows in the way that's clearest for you.

DESK SET

The ST automatically boots up with the disk icons in the upper left corner, and the trash can icon in the lower right, and no windows open. But you can set up your Desktop any way you like—with as many windows, in as many sizes and shapes, as you want, anywhere on the Desktop you like.

For example, some people prefer their disk and trash can icons across the top of the screen rather than down the left side. That's easy enough to do: Just drag the icons to the top of the screen and put them in position. Now open a window for each disk drive, and make each window the size and shape

you like. If it's more convenient to have the windows overlapping, so you can see more of each, just drag one on top of the other until they overlap.

Once you've got the Desktop the way you want it, point the mouse at the Options menu at the top of the screen. On the menu that drops down, point at Save Desktop and click. Drive A will

Remember,
you can set up your Desktop any way you like.

whir again as the ST saves the new Desktop arrangement on your disk. (To save the new Desktop, you'll have to use a disk with the write-protect switch set to allow saving on the disk. If your ST gives you a message telling you that it can't write on the disk, take the disk out of the drive and set the write-protect switch, then try again.)

Now turn off your ST—yes, again—and turn it back on. Once again the disk drive will whir, but this time the Desktop will appear just the way you like it.

THE WELL-MADE DESK

Now that you can set up your Desktop any way you like, how should you ar-

range it? It depends on what's easiest and most convenient for you.

If you have two disk drives side by side, you may want to put the disk icons side by side. If the drives are stacked one on top of the other on your desk, it makes sense to stack the icons on your Desktop in the same way. That way, your Desktop matches your desk—and you're less likely to put a disk in the wrong drive when you open a window.

It's probably safest to keep your trash can icon as far from your disk icons as possible. That way, there's less chance that you'll accidentally drop something into the trash when you meant to drop it into a disk. Putting the trash can on the opposite side of the screen—or even in the corner farthest from your disk icons—can help avoid problems.

You can have up to four windows on your Desktop. If you like icons, you'll probably want to make them as wide as possible, so you can see all the icons spread across your screen. If you've clicked on Show as Text, you may prefer tall, narrow windows that just show you the name and size of each file.

Experiment with your Desktop. See what works best for you. And when you try new arrangements, remember to click on Save Desktop so your new desk will appear each time you boot up your ST. ■

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THE MEGA 4

*Atari unleashes
four megabytes of power*

by Jon A. Bell and Patrick Bass

We caught our first glimpse of Atari's newest computer at the January 1987 Consumer Electronics Show in Las Vegas. There, sitting on a glossy black countertop, flanked by a prototype Atari Laser Printer and surrounded by an honor guard of Atari officials, was a Mega 4.

The Mega computers are the newest incarnations of Atari's two-year-old ST line. Atari listened to the criticisms many owners had with the original 520 ST and the later 1040 ST, and incorporated their ideas and suggestions into the design of the new Megs.

Since they first appeared in January, the Megs have been the focus of a storm of speculation and rumor-mongering. Anxious members of the Atari community have worried about just how much was new in the Mega. Would it run current software? What about the blitter chip everyone had

They're here—Atari's new Mega personal computers! Join us as we take you on an in-depth journey into the heart of the Mega. We'll reveal the inside story and clear up some misconceptions surrounding this long-awaited machine.

heard about? And increased resolution? Would there be card slots? Most of all, would the Mega make a 520 or 1040 worthless?

Some things are still the same. The Megs still use the Motorola 68000 processor; GEM is still the operating system, and the Megs still run the entire range of ST software. You can still connect almost anything to a Mega—be it a mouse, modem, printer, joystick, hard disk or MIDI synthesizer. The Megs still offer Atari's crisp, clear color or monochrome graphics in the same low, medium and high resolutions.

But there *are* changes—some subtle, some dramatic. A Mega has a detached keyboard with a better feel. It's got a

lower profile, and there's the quiet but noticeable whir of a fan inside. Most significantly, a Mega has two or four megabytes of memory inside (far more than an ordinary 520 or 1040 ST), a battery-backed clock and a blitter—a custom-designed chip that can greatly speed up some graphics and text operations.

How new is this long-awaited addition to the ST line? Let's find out by taking a close look at the Mega—from the outside in.

FIRST LOOK

As you can see from the photo, the Mega is no longer a one-piece computer. The computer itself is now a slim flat



Atari's new Mega 4.

box, and the keyboard connects to it with a coiled cable. It looks something like a sleek, trim version of an IBM PC, in the same dove-grey plastic as the earlier STs.

The computer is less than three inches high and about 13 inches square—just the right size to support an Atari monitor. There's a double row of cooling vents on top, and the Mega's in-

ternal 3 1/2 inch double-sided disk drive opens conveniently to the front of the box.

(Also on the front of the box is a label that may change soon. Our review version is labeled *MEGA ST4*, but according to Neil Harris, Atari's director of public relations, in the future Atari will simply call these computers *Megas*, not *Mega STs*.)

As on the 520 and 1040 ST, there's a cartridge port on the left side of the Mega. The keyboard's coiled cable connects right next to the cartridge port (which may make some cartridges unusable with the Mega, particularly the L-shaped cartridges favored by Navarone Industries).

There's also a small compartment near the cooling vents for a pair of AA ▶



FIGURE 1. The back of the Mega. From left to right: the reset button, exhaust port for the internal fan, On/Off switch (top), modem port (below), power jack (top), printer port (below), expansion board cable access (top), MIDI Out, MIDI In, monitor port, floppy disk port, hard disk port.

batteries for the Mega's internal clock. Because it's battery-backed, the Mega's clock will remember the time even when the computer's power is off. AA batteries won't last as long as the rechargeable batteries used in some clocks. On the other hand, they're inexpensive and easily available—you'll never have trouble getting new batteries for your Mega.

THE BACK PANEL

On the back panel of the Mega, you'll find the ten connectors familiar to every ST owner—ports for almost every purpose, as you can see from *Figure 1*:

- The Reset button. Its positioning lets you reach around the right side of the Mega to do a warm boot.
- The On/Off switch.
- The Modem port. This is a standard RS-232C serial port, with a male DB-25 connector.
- The Power jack.
- The Printer port. It's an IBM-standard parallel printer port, with a female DB-25 connector.
- The MIDI Out port. This lets you connect the Mega to a MIDI synthesizer or other musical instrument.
- The MIDI In port.

- The Monitor port. A Mega uses an Atari SM124 monochrome or SCI224 color monitor (but not a composite video monitor).
- The Floppy Disk port. You can con-

There are
some changes in the
Mega—some subtle,
some dramatic.

nect an external drive B, either single or double sided.

- The Hard Disk port. Actually, it's for an Atari hard disk or any other Atari DMA port device—including the Atari Laser Printer

There are also two new items on the back of the Mega. One is the exhaust vent for the onboard fan. Why a fan on the Mega, when the 520 and 1040 got along fine without one? Perhaps be-

cause the Mega has ample space inside for additional hardware that could produce additional heat—including special expansion circuit boards.

And just above the MIDI In and MIDI Out connectors is a removable plastic plate, with a removable metal plate right behind it. That's where the cable from an expansion board can leave the Mega to connect to the outside world. As you'll see in *Figure 4*, the opening is directly in line with a connector on the Mega's main circuit board.

THE KEYBOARD

The Mega's detached keyboard is approximately 20 inches wide and 7½ inches deep. Since the keyboard itself has a minimum of electronic hardware, there's no need for the diagonal cooling vents of the 520 and 1040, and they've been eliminated on the Mega. The key arrangement, including the function keys and keypad, is unchanged from earlier STs.

On the underside of the keyboard (see *Figure 2*) you'll find the mouse and joystick ports. The connectors are in recessed areas similar to the one on a 1040. Centered at the back is Port 0—the mouse port. A grooved slot runs

from the port to the right side of the keyboard; if you're right handed, you can run the mouse's cord under the keyboard. The back of the port area is open, so if you're left-handed you can loop the mouse cord out to the left side.

Off to one side is another recessed area for Port 1, the joystick port. Since it sits so close to the left side of the keyboard, it's easy to run the joystick's cord out the back of the keyboard to either the left or right side.

The Mega's keyboard sports another useful new feature: legs. The legs are a pair of 2½-inch wide plastic tabs, hinged at the back, on each side of the keyboard. You can rotate these down and out, locking them into place. This raises the back of the keyboard and changes the typing angle. The difference in angle is small, but if you're accustomed to an inclined keyboard, the change can be important.

When the legs are extended and the keyboard raised, it's a little awkward to reach over the keyboard to put a disk in the Mega's internal disk drive. In fact, if the keyboard sits too close to the computer it's hard to use the disk drive even without the legs extended. If you prefer sitting close to your monitor, one solution is to raise the computer by putting it on a platform—or by stacking it on top of Atari's new 20-megabyte hard drive, the SH205, which has a case the same size as the Mega.

KEYBOARD FEEL

Probably the most criticized aspect of the original STs was the feel of their keyboards. Both the 520 and 1040 ST have keyboards with a very soft, "mushy" feel. The reason? Instead of springs, these keyboards use small rubber cups under the keys. The result is a spongy feel, with virtually no tactile feedback.

Many ST owners clamored for a crisper feel, and for the Mega Atari listened to the criticism and changed the keyboard hardware. Gone are the mushy rubber cups; they've been replaced by the traditional springs of a

standard computer keyboard.

The difference in keyboard feel is dramatic. The keyboard is firmer, and gives a solid feel. Though it's not the "Electric-style" keyboard that some typists prefer, it was still voted a welcome improvement by every member of the START staff who tried it.

Keyboard feel is highly subjective, of course. Some people like firm keyboards, some prefer soft, and some don't care. Most people can grow accustomed to any keyboard they *have* to type on. But the consensus on the Mega keyboard was clear: Use it for a week

basically an ST. It's *completely* compatible with existing software produced for the original 520 and 1040 ST computers.

The only exceptions are programs that don't follow Atari's software development guidelines. These mostly fall into two categories: programs that make "illegal" program calls to the TOS operating system, and programs that use special disk copy-protection schemes. Because there's a new set of ROMs in the Mega, some parts of TOS have changed, and programmers who improperly accessed ROM routines

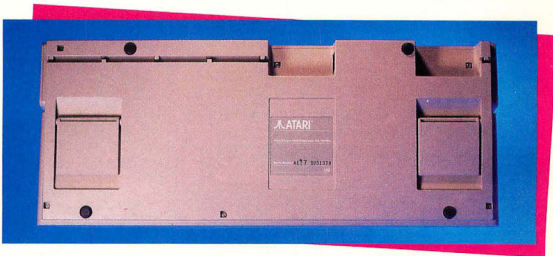


FIGURE 2. The underside of the Mega keyboard. At the top center and right are the mouse and joystick ports. Below, at the sides, are the keyboard feet.

and you'll never want to go back to your original ST keyboard.

Unfortunately, Atari has no plans to offer an improved keyboard as an upgrade to 520 and 1040 owners. It's also not practical to acquire a Mega keyboard and install it in your 520 or 1040; the Mega's keyboard connector is different from the 520's, and the new keyboard simply won't fit in a 1040.

JUST THE FACTS, MA'AM

So much for the outside of the Mega. Inside—well, like all computers, the Mega really has two insides.

The first inside is from the programmer's point of view—and here, there's nothing but good news. While the Mega has been completely redesigned, it's still

directly may find that their software will no longer work—or won't work correctly. However all hardware addresses have remained the same.

Some copy-protection systems depend on disk drives that can read more than 80 tracks. Atari has discouraged using those extra tracks, and programs that use that style of copy protection (most commonly games) may not work on some Atari disk drives, including the Mega's.

We tested the Mega 4 with a wide range of commercial software. Though some software couldn't take advantage of the full four megabytes of memory, we had no significant problem with any major software package. ▶

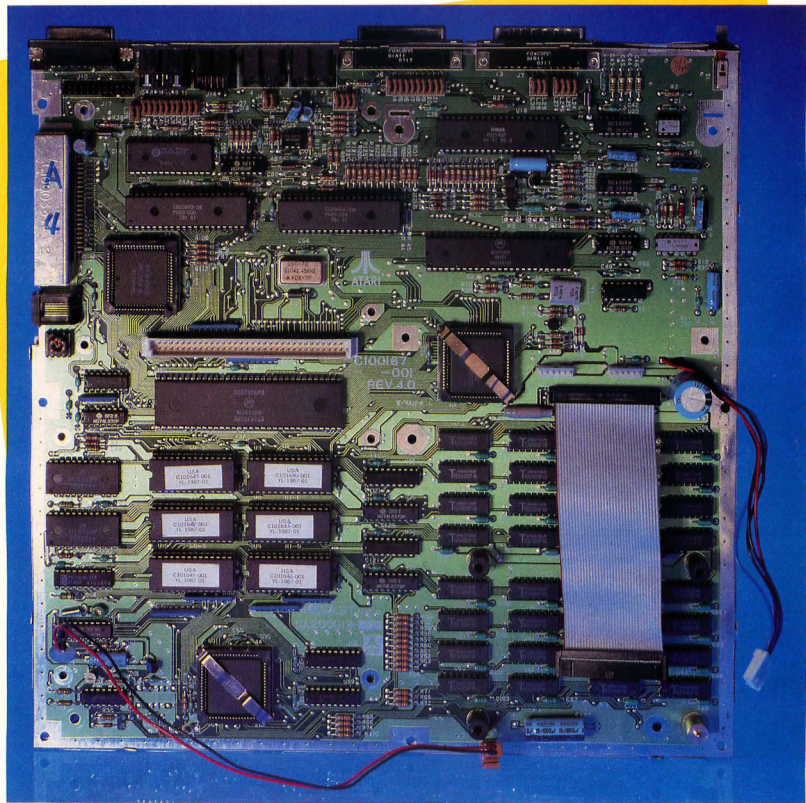


FIGURE 3. The Mega 4 motherboard.

UNDER THE HOOD

The other inside of the Mega is what's physically inside the computer. Shortly after we received our Mega, the START staff put on our coversalls and lifted the hood on this machine.

Warning: The following examination of the Mega's internal hardware is presented

for your information only. We do not recommend that you open up your Mega. Unless you want to risk voiding the warranty on your computer, just read—please don't practice. START Magazine cannot be responsible for any damage you might do to your computer if you open it.

We began our dissection by disconnecting all the cables from our Mega.

Nine screws hold the top and bottom shell together; when they're removed and the battery wire is disconnected, the top shell lifts off. Next we removed the metal radio-frequency shielding (required by the FCC for any electronic device that might interfere with radio or television reception), and the Mega's internal disk drive (which is held in place

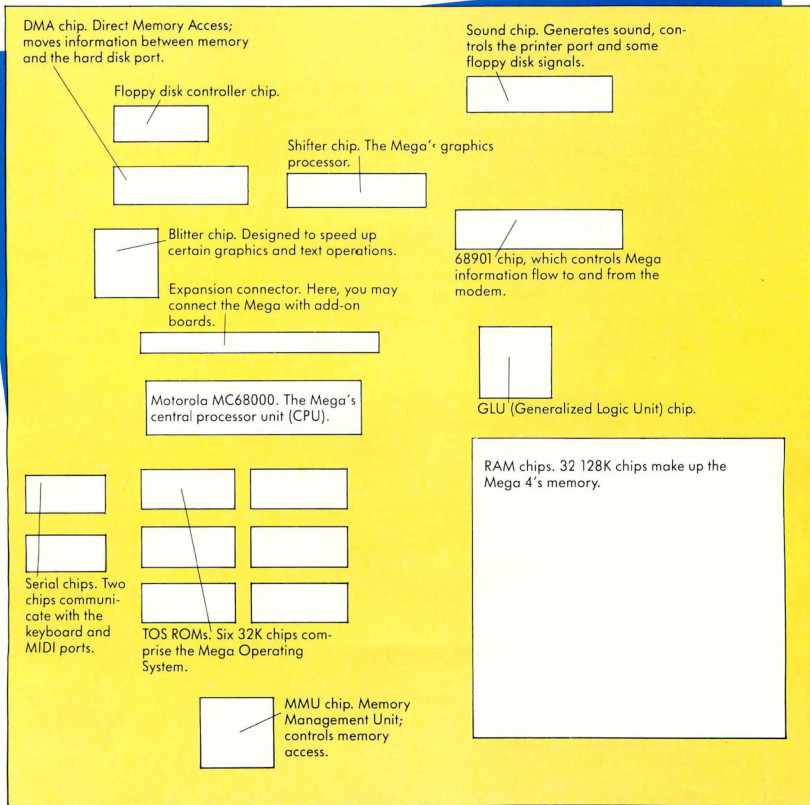


FIGURE 4. Mega 4 chip identification chart.

by three more screws and two connecting cables).

We also removed the two screws from the front feet of the power supply, disconnected the cord where it plugs into the motherboard and lifted the power supply out. The power switch and fan come with the power supply board.

That gave us a clear view of the Mega's main circuit board—the motherboard in Figure 3. The Mega motherboard measures 12×12½ inches, with 67 integrated circuits—32 RAM chips and 35 other ICs. Most of the components are soldered, though some are socketed. The board on our Mega was identified as a Revision 4 board. We'll

travel around it, starting at the right front, using the Mega chip identification chart in Figure 4, as our guide.

REMEMBER ME ONLY WITH THINE CHIPS

Taking up almost the entire right-hand front of the motherboard are the 32 memory chips that make up the Mega ▶

MEGA 4...

4's four megabytes of RAM. Each chip holds one million bits of memory. With eight bits to a byte, that means each column of eight chips holds one megabyte, and four columns make four megabytes. The next chip of any distinction is the square one at front left center. This is the Memory Management Unit (MMU), which controls memory access and what type of memory can live where. To its left is the section of the motherboard where the real-time clock is located, discernable because the wires from the battery compartment are connected here.

Directly behind the MMU is a bank of six rectangular ROMs—that's TOS, the standard 192K operating system the

Mega powers up with. They contain everything that's not in a program, from system-level operating routines to graphics routines that support the blitter chip.

To the left of the ROMs are two chips almost as large. These are two identical serial communications chips, one for communicating with the computer in the keyboard, and the other for communicating with the MIDI port.

THE BRAINS OF THIS OUTFIT

Directly behind the ROMs is the largest chip on the motherboard. This is the "brain" of the Mega, the Motorola MC68000. This is the nerve center, directing the swarm of signals inside the

Mega into a usable order, and its 64 pins connect to virtually every function in the Mega.

Directly behind the 68000 is one of the more interesting things to appear on the Mega—an expansion connector. With this connector, it's possible to plug in cards or other enhancements that Atari or other developers may create for the Mega. Coprocessors, increased resolution graphics, and special interface boards are among the possibilities.

Notice that the expansion connector is right in line with the slide-out opening on the back of the Mega—it's designed to easily run an expansion cable to the outside world.

Behind and to the left of the expansion

The New TOS ROMS

by Alex Leavens

In order for the Mega to take advantage of the new blitter chip, Atari needed to make an extensive overhaul to the operating system. Thus, we now have a new version of TOS-in-ROM. For you programmers out there, here's a list of things that were changed or fixed. Note: Atari has no plans at present to release TOS upgrades for existing STs.

First, there's support for the blitter itself. One of the nicest features of the new ROMS is that they maintain all the old software calls and formats transparently. Thus, if a program is written properly, it will run correctly on either a blitter or non-blitter machine. The only difference will be a very noticeable speedup in graphics operations, including the desktop draw functions. However, this transparency can also have a side effect on badly-written programs: It can make them not work

and off. For example, suppose I'm a programmer and I've figured out how long it takes a non-blitter machine to perform some graphic operation. I might tie how long it takes the machine to do that to how my program works. For example, I might figure out that it takes a 30th of a second to draw some enemy spaceships on the screen. Based on that, I tune my game so that it's neither too easy nor too hard to play. However, on a blitter-equipped machine, it might take only 120th of a second to draw the same enemy ships—one-quarter the time. Since I tied my game time to the screen-drawing time, my game will now be four times as fast as it used to be—and probably unplayable as well.

Now, most programmers *don't* do this—they're smart enough to know that system timing isn't a fixed number, but can change, and so they base their timing on other things. However, there are always a few programs that ignore the rules and do things this way. To get around this, Atari has put a switch on the desktop menu that allows you to turn the blitter on

and off. If you can't get a program to run on your new Mega, try turning the blitter off.

Other changes to the ROMS include:

- The RS232 handler was completely rewritten, and several bugs were fixed. RTS/CTS handshaking works in the new ROMS, as do baud rates 50 and 75 (although it's pretty unlikely that anybody ever uses such a slow baud rate).
- Since the Megs include a battery-backed clock, the new ROMS automatically use it via the XBIOS calls **gettime** and **settime**. In addition, the GEMDOS clock is reset from the realtime clock at the end of every program.
- System startup time has been greatly reduced, thanks to a much faster memory clearing.
- The desktop has many new functions. One is a control which allows an end user to activate or deactivate the blitter chip (in case there's some software that really won't run with it).
- The Save Desktop and Print Screen selections now request

sion connector is the square Blitter (Block-Bit Operator). The blitter is designed for quickly moving large chunks of information from one section of memory to another. It was specifically created to speed up movement of screen images—although it can work with any memory. With the blitter, everything from video games to GEM-based text windows move faster. The blitter chip will eventually be offered as an upgrade for 520 and 1040 ST computers. In the meantime, Alex Leavens takes a look at the blitter in the sidebar accompanying this article.

Directly behind the blitter chip is the DMA (Direct Memory Access) chip. The DMA chip operates much like the blit-

**The Mega's
clock will remember
the time even when
the power is off.**

ter, but the DMA chip moves information between memory and the Hard Disk port as quickly as possible. How quickly? Atari claims up to a megabyte per second.

A COLORFUL, SHIFTY CHARACTER

To the right of the DMA chip is the video Shifter chip, the Mega's graphics processor, which creates low, medium and high resolution graphics. The Shifter creates the 640×400 monochrome signal for the SM124 monitor, as well as 640×200 4-color or 320×200 16-color graphics on the SC1224 RGB monitor. There's no composite video signal available on the Mega's motherboard.

In back of the DMA chip is the floppy disk controller—it's functionally identical to a Western Digital WD-1772. This controller gets instructions from the 68000, then tells the internal and ▶

confirmation, and garbage characters are no longer saved to the DESKTOP.INF file when you save the desktop.

- The eighth bit is no longer stripped from characters during a PRINT or SHOW (thus allowing the European characters to be properly displayed). In addition, PRINT and SHOW use larger buffers, thus requiring fewer disk accesses. Single drive copies also use a larger buffer, necessitating fewer disk swaps.
- The AES now sends repeat clicks if the mouse button is held down in the arrow or page controls of a window, which allows for smooth scrolling of a window without major headaches.
- The "underscore" bug in the AES has been fixed (which means that if you name your path ABC_D, you won't crash the system).
- APPL_TPLAY and APPL_TRECORD now work.
- The limit of 30 characters on a line in an alert box is now rigidly enforced.
- The mouse redraw mode can

now be set to XOR. The system will return after a single click if this is the mode requested.

- The DMA bus can now have more than one device attached at powerup time, without any special software.
- The floppy disk read/write code checks for more errors than it used to. In earlier versions of the ROMs, the system would not report a CRC error under certain circumstances; this has been fixed. However, this fix may cause problems with some copy-protection schemes. To improve disk speed, the format of floppy disks has been skewed from track to track. The XBIOS supports this by using a -1 for the skew value, and placing a pointer to a one-word-per-sector skew table in the previously unused longword.
- The VDI now draws arcs with small angles correctly.
- Character output routines in the BIOS have been speeded up considerably.
- Blitter support is automatic in the line-A and VDI calls. The ex-

tended inquire function now reports a larger performance factor than before, allowing applications to check for the presence of a blitter. The blitter routines are not re-entrant; line-A and VDI should not be called from within an interrupt.

- Slightly more RAM is used by the system. Programs that were close to the edge on a 520 ST may no longer fit if the 520 is fitted with a set of the new ROMs.
- Finally, most undocumented system variables have been moved. Atari has consistently warned against relying on these variables, and programs that depend on them will probably not work correctly.

Note: If you discover any other differences in the new TOS ROMs, please let us know about them here at START, and we'll spread the word to the rest of the Atari programming community. Our address is START, 544 Second St., San Francisco, CA 94107; on CompuServe, send us Email at 76703,1052. ■

What's A Blitter?

By Alex Leavens

With all this talk of the blitter in Atari's new Megs, maybe it's a good idea to sit down and look at what a blitter is.

First, let's look at where the word comes from. Blitter comes from the abbreviation *Bit-BLT*, which stands for Bit-Block Transfer—a fancy way of saying "Move Memory." In essence, a blitter is simply a hardware device designed specifically to move chunks of memory (usually fairly large chunks) very, very quickly. In reality, blitters tend to do quite a bit more.

The most common reason for wanting to move large chunks of memory around very quickly is graphics. The more quickly we can

move memory around, the faster and cleaner our displays will be. Thus, blitters tend to be built around the even more specialized task of moving *graphics* memory. To this end, they often have built-in functions that are related *only* to graphics.

For example, one of the most common things a blitter can do is draw lines. As a general purpose memory function, this may not be particularly useful—there aren't very many occasions when one wants to draw a line through a series of bytes located somewhere in a program's dataspace. As a graphic screen function, however, it's enormously handy. Instead of forcing the CPU to calculate how to draw the line, we can have the blitter do it, while the CPU is off doing something else—which can speed things up considerably.

In addition to simple features like drawing lines, blitters almost always support much more sophisticated functions—such as the ability to take two pieces of memory, combine

them "on the fly" in any one of several different ways, and then save the result into a third section of memory. With the new Atari blitter, basically all the graphic functions that *used* to be done in software (by the 68000), such as line draw, fill, and polygon fill, are now done by the blitter at a much higher speed. The difference onscreen is very noticeable, and quite dramatic.

By designing the blitter as a specialized graphics processor, Atari has offered Mega users significantly better performance for graphics. But remember, that's *all* the blitter does. It's not a miracle device—it won't magically enhance your screen resolution or give you more colors or speed up number crunching or automatically correct your grammar. It is simply a device for moving large chunks of memory around, very quickly.

But after you've used a blitter-equipped Mega, I think you'll agree—it does *that* very well indeed. ■

external disk drives what to do.

Just to the right and a little in front of the Shifter is the rectangular 68901, a sort of traffic-cop chip that handles a multitude of special signals in the Mega. It can generate, enable or disable interrupts; contains countdown and event timers and bus converters; and controls all information flow into and out of the modem port.

THE GLUE FACTORY

Directly in front of the 68901 is the square GLU chip. GLU stands for "generalized logic unit," but the acronym is appropriate—this chip contains much of the logic hardware needed to electrically "glue" the other chips together and provide the proper timing and sequence information.

And here's our last chip stop:

Directly behind the 68901 is the Mega's sound chip, functionally identical to the General Instruments AY-3-8910. No, it's not a high-powered synthesizer chip, as some newer computers have. However, it is a proven, rock-solid performer that can reproduce sound from 30 cycles per second up to beyond the range of hearing. Besides, it also contains a pair of onboard parallel I/O ports, which are used in the Mega for controlling the printer port and certain floppy disk signals.

ANY PORT IN A STORM

Around the perimeter of the motherboard are the Mega's connectors and ports. We've seen them from the outside, but they look a little different from in here.

Starting in the left front of the

motherboard, we find two wires leading from the board itself off into space. This is the power supply cord from the battery compartment to the clock section of the motherboard. Farther up the left side is the keyboard connector. This is a six-connection, crimp-plug-type connector where the coiled keyboard cable plugs in. It resembles a modular telephone plug, but please don't plug it into a telephone jack!

Next up the left side we find the cartridge connector. This 40-pin card connector brings out many address-bus signals—most notably missing is the signal to write to memory.

Working our way around the back of the Mega, we find the Hard Disk port. This port is also available on a connector on the motherboard itself, for an internal laser printer interface or (conceiv-

ably) an internal hard disk drive. The DMA interface is similar (but not identical) to the SCSI interface, and will support up to eight physical devices at once.

Next to the Hard Disk port is the connector for an external floppy disk drive. Next along is the connector for an Atari monitor. Actually, with the proper cables any good analog RGB monitor should be able to display pictures from the Mega. The new "multisync" monitors will even accept and reproduce the Mega's monochrome signals, but not as well as Atari's SMI24 monochrome monitor.

To its right we find the two MIDI (Musical Instrument Digital Interface) ports, MIDI in and MIDI out. With the space saved by using the I/O ports on the sound chip, Atari included a MIDI interface with the STs; thus, the Mega can directly communicate with electronic musical instruments that also support MIDI. These ports communicate at about 32,000 baud, and may also be used for other functions, such as local area networks.

Next to the MIDI ports is the printer port, a standard Centronics parallel port. It's a true I/O port, so it's possible to get information from this port (with handshaking) as well as send it out.

Finally, the modem port is a standard RS-232C serial communications port. Though it's specifically designed for use with a modem to communicate over telephone lines, it may also be used for computer-to-computer data interchange or communication with any standard serial device, such as a serial printer or speech synthesizer.

And that concludes our guided tour of the inside of the Mega.

THE FUTURE OF THE MEGA

The Mega 2 has two megabytes of memory, and the Mega 4 contains four megabytes. (Contrary to early reports, there are no plans for a one-megabyte Mega.) But no matter how much memory you have in your personal computer, you'll

always find a way to fill it up. With the amount of high-powered business and graphics software being released for the ST, Atari's decision to offer multi-megabyte computers is welcome news indeed.

One reason Atari decided to create the Megas has to do with both business and graphics—the forthcoming low-cost Atari laser printer, the SLM 804. Laser printers have traditionally been expensive because they've had to be computers themselves, with a CPU and megabytes of memory inside to create each printed page. Atari's solution: Let the computer and laser printer share the CPU and memory. The plan is to sell a computer-laser printer combination at a lower price than other laser printers cost alone. Jack Tramiel and his business warriors hope to make as much a splash in desktop publishing as the ST has already made in the world of electronic music.

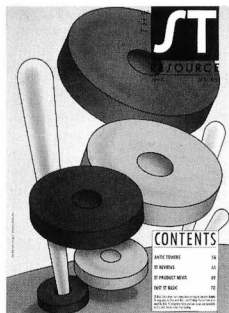
The Megas are clearly intended to help Atari shoehorn itself into the business world. With their vastly increased memory and serious, businesslike appearance, the Megas may help Atari shake its image as a company that manufactures game machines, and establish a place in corporate America.

So—how new is the Mega—and how old? It's certainly old enough that the design is well-tested—technologically, the Mega is rock-solid, based on years of experience with hundreds of thousands of computers and perhaps millions of users.

But the Mega is also as new as Atari's commitment to business products like the laser printer. Like the STs before it, the Mega is a lean, mean hot-rod of a computer, with plenty of memory, a dynamic display and more power for a lower price than any other computer.

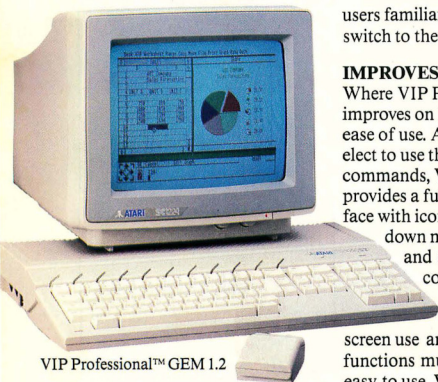
No other computer even comes close.

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If you want even more information, programs and reviews for your Atari ST, check out every monthly issue of **Antic Magazine**. Inside you'll find **The ST Resource**, a special section featuring news, product announcements, hardware and software reviews, and type-in programs especially for the ST owner. Every month it's the fastest way to keep up with what's going on in the ST world! To subscribe to **Antic**—or for a special subscription offer on both **Antic** and **Start**, **The #1 Guide to the Atari ST**—see the subscription card in this issue!

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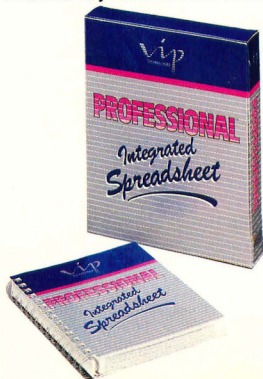
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DISK INSTRUCTIONS

Every issue of START, The ST Quarterly, comes with a START disk. It's packed with useful programs and utilities—START disks have included everything from tax templates for your spreadsheet to word processors and drawing programs. If you're a subscriber, you'll find your START disk in a special envelope bound directly into your copy (or if you've bought the \$14.95 disk version from the newsstand).

If you purchased the \$4 non-disk version of START you can still obtain the disk by sending us the bound-in order card or mailing \$10.95 for postage and handling to: START DISK #7, 544 Second Street, San Francisco, CA 94107. (When ordering, *always* make sure to specify the disk you want.)

Note: If you want *same day* service, call (415) 957-0886 and ask for the Disk Desk. Give us your MasterCard or Visa number, and we'll send out your START disk that very same day!

All programs on the START disk are for your own *private* use, and are not public domain. Please *don't* copy your disk for your friends, accept a copy from someone, or upload these programs on a bulletin board system. That makes it more difficult for us to afford to bring you quality ST programs and incisive technical material. Software piracy hurts everyone.

GETTING STARTED

Use scissors to open your disk envelope along the outside vertical edge, then put the disk in drive A and double-click on the disk icon to see its contents. Refer to your ST owner's manual if you're uncertain about using the Desktop.

Important: Before you do anything else, *back up* your START disk—it's not copy-protected. Format a fresh disk as single-sided, and copy your entire START disk to it. Finished? Now place your original START disk in a safe place and begin using the new copy.

The START disk for this issue contains four files, three of them ARC files. The ARC (short for ARChive) system was originally developed for MS-DOS computers, and was implemented on the ST by Harvey Johnson of Palm Bay, Florida. With ARC you can compress many different files together into a single file, reducing the total size by 40 percent or more—and then expand the file back into its original parts. We chose ARC because it's efficient and bulletproof—the same reasons it's CompuServe's preferred compressor/librarian. You can download a complete set of ARC utilities from CompuServe's ATARI16 forum and many other online services and bulletin boards. It's also available for \$12 (plus \$3 postage and handling) from The Catalog, which is bound into the middle of this issue of START.

You'll find the program ARCXTTP on your START disk—it's a compact version of ARC that can only decompress ARC files. Using it is simple. Suppose there's a file on the START

disk marked FOO.ARC. To un-ARC it, first copy FOO.ARC and ARCXTTP to a freshly formatted disk. Double-click on ARCXTTP, then type in the name of the file you want to decompress, FOO.ARC, and press the Return key. ARC will un-ARC the files inside FOO.ARC and place them on the disk. That's all there is to it!

ON THE DISK

ARCX.TTP The un-ARCing utility. Double-click on this to uncompress a file.

STARTKEY.ARC STARTKey is START's super macros program, allowing you to redefine any key on your ST keyboard. Inside STARTKEY.ARC you'll find the following files: the runnable programs (STARTKEY.ACC, SKCOMPIL.TTP and SKAUTO.PRG), the resource file (STARTKEY.RSC) and the source files (STARTKEY.C, SKCOMPIL.C, SK.H, KEYS.H and SKAUTO.PAS). You'll also find sample macro files (ACCENTS.MAX, DVORAK.MAX, HEBREW.MAX, MACROS.MAX, MATH.MAX and SAMPLE.MAX) and associated text files (ACCENTS.TXT, DVORAK.TXT, HEBREW.TXT, MACROS.TXT, MATH.TXT and SAMPLE.TXT). Finally, there's a file describing the keycodes (KEYCODES), sample MONTHS.TXT file (described in the text), and the menu spotting program (SPOTMENU.PRG).

STWRITE2.ARC Here is the latest and greatest version of ST Writer; the Atari freeware word processor—now GEM-based! Inside STWRITE2.ARC you'll find the following files: the runnable programs (STWRITER.PRG and CONFIG.TOS), the resource file (STWVZENG.RSC), and associated files (CONFIG.TXT, HELPTXT, STWCODES.TXT, TEMPLATE.TXT, XYZX.TXT). The disk also contains the manual for ST Writer version 2 (file STWMAN.ARC). Remember, you'll need to load it into ST Writer before you can read it!

DISK BONUS: A SUPER ARCADE GAME!

LASERBAS.ARC In our last issue, we presented Brickyard, a GFA BASIC version of the arcade classic Break-out. Now, Patrick Bass presents another adaptation of another arcade wonder—LaserBase, his assembly language interpretation of Atari's famous Missile Command. Inside LASERBAS.ARC you'll find the following files: the program itself (LASER.PRG), the source code (LASER.S), and three DEGAS pictures comprising the title screen, background and foreground (TITLE.P11, BACKGRND.P11 and FOREGRND.P11, respectively). A program take-apart is included as a text file (BREAKDWN.TXT). You'll also find a file called READ.ME outside the archive file—it tells you everything you'll need to know to save the world! ■

THREE COMPUTERS IN ONE

MACINTOSH AND PC EMULATION ON THE ST

By Michael J. Biancalana

As an ST owner, do you sometimes feel as if you're missing the DOS boat? Is Hypercard, the revolutionary new program from Apple, giving you a Mac attack? Does it feel as if 90 percent of all the top-selling business, productivity and creativity software is only available for the Mac or IBM PC?

Until now, your only options were less than desirable. You could wait until the software you want is ported over to the ST—except that you might need to live two lifetimes before they get all the bugs worked out. Another alternative would be to purchase an ST clone of the software you want to use. Unfortunately, you might find that your new dBaseII clone acts more like dBase 1½. Then there's the unthinkable: selling your ST and buying a Mac or IBM. . .

But now you don't even have to think about that, because now you can have the best of all possible worlds. Enter two products: Magic Sac+, a hardware/software combination that allows you to run most popular Macintosh software on your Atari ST; and pc-ditto, software that turns your ST into an IBM compatible.

MAGIC SAC+

The Magic Sac+ is an amazing little product. It virtually turns your ST into a Macintosh. Because of Apple's stringent programming guidelines and their basic philosophy that Macintosh software not be machine dependent, most Mac software runs like a charm on the Magic Sac. In some cases, programs run faster than normal.

Magic Sac comes packaged in a brown paper bag, and consists of a grey cartridge that plugs into the cartridge port of your ST; an ST boot disk; a Macintosh-formatted disk containing file transfer software; and a transfer cable.

But getting the Magic Sac to run is an interesting affair. First, you have to obtain two Apple Macintosh 64K boot ROMS: part numbers 342-0220-A and 342-0221-A, or 342-0220-B and 342-0221-B. These are proprietary chips belonging to Apple Computer, Inc. You must use only original chips; copies, including EPROMS, will not work. If you're lucky, you can obtain the chips from a certified Apple Service Dealer, or any computer store that stocks the Magic Sac. If not, you can still obtain a set of ROMS, through mail order, from B & C Computervisions, 3283 Kifer Road, Santa Clara CA 95051. (408) 749-1003. At worst, you can simply cannibalize a Macintosh!

Once you have the ROMS you need to install them in the Magic Sac. It's simple—just pop open the cartridge, snap the ROMS into the sockets and put the cartridge back together.

TRANSFERRING SOFTWARE

Unfortunately, the Mac and the ST use incompatible disk drives. Although they both use 3½-inch drives, neither machine is able to directly read the other's disks. You must transfer the software from Mac disk format to Magic disk format. That means you'll need to borrow or acquire an accessory that doesn't come in the Magic Sac sack: a real Macintosh.

First, you format your ST disks using the MacFormat program on the Magic Sac disk. You then transfer your software from your Mac to your ST, using the software and connecting cable that comes in the Magic Sac package. (If you plan to remove the ROMS from the Mac to use in the Magic Sac, it's a good idea to transfer all your software to Magic Sac format first—you'll have a heck of a time trying to get the transfer

software up and running on a Mac that's missing the boot ROMs!) Incidentally, the provided transfer cable's Mac connector is designed for the original Mac, and will not work with the Macintosh SE or the Mac Plus.

(One solution to the data-transfer hassle is Data Pacific's soon-to-be-released Translator, which enables Atari drives to directly read Mac disks. The Translator will plug into your ST through both MIDI ports and the ST floppy connector; it will work with either single- or double-sided drives, and will read, write or format your disks exactly as a Mac would. At press time, the Translator was still being tested; the planned price is \$279.95.)

Once the software is transferred, Magic Sac is ready to run it. I tested a number of popular Mac programs that "followed the rules" — that is, made no illegal operating system calls — and found that many of them supported the extended display capabilities of the ST's 640×400 monochrome screen. That was true of the Mac Desktop, Microsoft Word, Ready-Set-Go! and others. On the other hand, many programs, particularly software from Apple and Mac public domain software, would only use a standard 512×342 display area.

Fully configured, the Magic Sac allows the owner of a 520 ST to simulate a 128K or 256K Mac. Although 128K is the original Mac configuration, it really isn't enough memory to

**Do you
sometimes feel
as if you're missing
the DOS boat?**

optimize program performance, as Apple quickly realized — too much time is spent playing musical disks. Also, many existing applications won't even run on a 128K Mac.

ST users with a megabyte of RAM will want to configure their Magic Sac machines as a 832K Mac, or a 512K Mac with the remainder of memory used as a RAMdisk.

Technically, anything that runs on a Mac should run on Magic Sac. The most notable exceptions to this rule are communications and, unfortunately, MIDI programs. That's because often, to achieve certain timing intensive requirements, a programmer will sometimes say "#\$%& it!" and talk directly to machine-specific hardware such as the Mac's serial chip. Naturally, when Mac software goes looking for a specific chip on the ST, it's nowhere to be found. (Even Apple Com-

puter believes some of it rules were made to be broken — maybe that's why MacWrite version 4.5 won't work on the Mac II.)

THE DISPLAY

No, an RGB monitor plus Magic Sac doesn't equal a color Macintosh. Only medium resolution works with Magic Sac, and a color monitor is not going to get you a color Mac. (When I tried, I got a wonderful avocado-green desktop, lots of artifacting, sluggish cursor movement and color MacPaint — trouble was, all the colors were dithered green and red dots. The best picture I could do was a green olive with pimento.) For best results Data Pacific recommends setting the ST's default colors to White, Grey, Grey and Black using the ST's Control Panel.

If you're really serious about using Magic Sac, get a monochrome monitor. An ST with a monochrome monitor provides a 17 percent larger screen display than the Mac's.

PERIPHERALS

The Mac has two serial ports: one for communications and one designated for a printer. The ST, on the other hand, has a serial communications port and a parallel printer port. Since most Mac software assumes an Imagewriter printer, you have to install a custom driver to support any other printer you may be using.

USING MAC SOFTWARE

If you're a fervent ST user, running Mac software may take some getting used to. STs, Macs and Amigas each do things a little differently, which is what makes each model unique — and what keeps the companies from suing each other's pants off.

The mouse works fine, although you may need to adjust to the Mac's single-button mouse and the trick of holding down the mouse button while pulling down menus.

The keyboard on the Mac contains two keys not on the ST, the Option and Command keys. Magic Sac uses the ST's Control and Alternate keys respectively to simulate these Mac keys. For example, Alternate-Q will typically quit the current application.

Also, the ways disks are ejected differ between the Mac and the ST; the Mac ejects its own disks automatically. The ST doesn't, so Magic Sac flashes an A or B at the top right corner of the screen when it's time to manually eject a disk.

When using Magic Sac, the ST's drive A plays the role of the Mac's internal drive, and drive B corresponds to an external Mac drive. Single drive ST owners will get to play "disk jockey" until eventually, like most Mac owners, they find that swapping some cash for a second drive is much more efficient than swapping disks all day. The latest version of the Magic Sac software supports a hard disk — which is even more ▶

expensive, but solves the disk-swapping problem permanently.

PC-DITTO

ST disks have always been IBM compatible, and now your whole ST can be, too. Through the wonder of software, pc-ditto from Avant-Garde Systems taps the power and speed of the ST's 68000 processor to emulate an IBM PC—and it'll only cost you \$89.95.

GETTING STARTED

All you need to get started is the pc-ditto boot disk, an Atari ST, a color monitor and a copy of PC-DOS or MS-DOS 1.0 or higher. Avant-Garde recommends using version 2.0 or higher because of program availability and the ability to use high capacity 3½-inch drives.

To use the current version of pc-ditto, you absolutely must have a color monitor; I tried booting it several times with a monochrome monitor without success. Avant-Garde plans to put monochrome capability in a forthcoming release.

To use pc-ditto, simply boot up your ST and bring up the GEM desktop the way you normally would, then insert the pc-ditto disk, open the folder named STPROGRAMS and click on PC_DITTO.PRG. Pc-ditto displays a copyright screen and prompts you to insert a PC-DOS or MS-DOS disk.

After DOS initializes, enter the time and date and you'll see the standard DOS A> prompt. You now sit before an ST that's also IBM compatible.

GETTING SOFTWARE

Because the IBM PC and ST computers utilize the same disk format, you should have no trouble reading 3½-inch MS-DOS formatted disks on your ST using pc-ditto. With the wealth of DOS software available on 5¼-inch disks, as an option you may want to consider adding a 5¼-inch drive to your system. Avant-Garde recommends the IB Drive, a double-sided drive that costs \$269.95.

Included on the pc-ditto disk is a file containing a list of "certified" software that's been tested on the ST. I checked out Lotus 1-2-3, the Norton Utilities, and Qwikeys, and they all worked normally, although they seemed to run slower than usual. Pc-ditto has a Norton rating of 0.3—pretty slow for a PC clone, though most software is still usable. It's so slow because the ST's 68000 processor has to use software to emulate all the hardware in an IBM.

The list of certified software is long and gets bigger all the time; however, a couple of restrictions regarding software still do apply. As with most PC clones, programs written in BASICA (IBM BASIC) will not run under pc-ditto. Also, software which has been configured for some other IBM compatibles may not run properly. For best results, make sure the software you are using is configured for an IBM PC.

FEATURES

Pc-ditto makes the most of the ST's resources; it uses up to 703K on a 1040 or one-meg 520, and maps the ST's I/O ports to their IBM counterparts. For example, the parallel port is recognized as LPT1, the standard printer location, and the serial port simulates COM1, the IBM's communications port. Fortunately, the ST's keyboard can match that of most PCs and PC clones—including ten function keys and Control and Alternate keys. The pc-ditto package includes a handy template to help you locate keys marked differently.

Pc-ditto also supports 80-column IBM monochrome video as well as the color graphics modes for text and low, medium, and high resolution graphics by imitating the monochrome and color graphics adapters. And hackers will be pleased to know that in addition to support for all DOS and BIOS interrupts pc-ditto also allows direct read/write access to video memory and control of all special chips including the serial and parallel chips.

Of course, you may have to work for a while to adjust to MS-DOS. Gone are those familiar GEM roadmarks—no icons, no pull down menus, no file folders, not even a trash can. You'll probably need a good book on MS-DOS just to copy a file—and don't forget to watch out for syntax errors when you're typing commands! Pc-ditto doesn't support the ST's mouse, either. It will run MS-DOS software that uses a mouse, but only through alternate keyboard commands.

CONCLUSION

Overall, I like these two products. Magic Sac+ still gives me an eerie feeling when the "Welcome to Macintosh" title screen appears on my ST. The only major problems with this product involve the availability of the ROMs and additional expenses acquiring them. Be on the lookout for new versions—and new products—from Data Pacific.

And what more can I say about pc-ditto—you just can't beat the price anywhere for IBM compatibility. In fact, the only thing that really bugged me about pc-ditto was that they used all lower-case letters in their name. I kept wanting to capitalize it. ■

PRODUCTS MENTIONED

Magic Sac+. Data Pacific, Inc., 609 East Speer Blvd., Denver, CO 80203. (303) 733-8158. \$149.95

CIRCLE 201 ON READER SERVICE CARD

The Translator. Data Pacific, Inc., 609 East Speer Blvd., Denver, CO 80203. (303) 773-8158. \$279.95

CIRCLE 202 ON READER SERVICE CARD

pc-ditto. Avant Garde Systems, 381 Pablo Drive, Jacksonville, FL 32225. \$89.95

CIRCLE 203 ON READER SERVICE CARD

IB Drive. IB Computers, 1519 SW. Marlow Avenue, Portland, OR 97225. (503) 297-8425. \$269.95

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MANAGING A SMALL BUSINESS

Two programs to help you do it

by Stephen Roquemore

The ST is rapidly becoming a serious business computer, with new business software arriving every week. Two accounting packages for the ST make it even more attractive as a system for small and medium-size businesses. STAccounts from Ditek International and Dac-Easy Accounting from Dac Software significantly improve the choices available for those looking for top-drawer business software on the ST.

STACCOUNTS

STAccounts is an accounting system that handles general ledger, accounts payable and receivable, and complete inventory processing. It runs on any ST, with any combination of single- or double-sided drives. The program comes on a copy-protected disk, with a spiral-bound manual.

There's nothing generic about an accounting system. Every business is at least a little different from all other businesses, and every accounting package works differently, too. Thus, a good manual is critical for accounting software. Fortunately, the STAccounts manual is very well-written, in an easy-to-read style.

There's a "Read Me First" section that gives introductory information about the hardware, printer support, and other

beginning topics. It also discusses entering your data into the program, to simplify converting to STAccounts from your present accounting system. There are also items about backup disks, blank disk needs for data storage, the more important key commands and program disk replacement policy. This section, along with the Installation Tips section, will save you a lot of grief later on.

The rest of the manual is very professional and thorough. There are sections on using the manual, loading the program, using the report generator, and a separate tutorial for the report generator, accounts receivable, accounts payable, inventory control, general ledger, and period and year end processing. The Using the Manual section includes much useful information about disk care, data entry fields, GEM screens, and many other topics of importance. Once again, this is must reading. This is one of the best manuals I have seen for any software product; the only thing lacking is an index. The spiral binding is a nice touch—it means the manual lies flat on your desk.

USING STACCOUNTS

After a thorough reading of the manual, you're ready to start building your system. The manual leads you through the process of creating data disks and configuring your system file sizes. Once

this is complete, your data disk is formatted and the information stored for later use. STAccounts uses its own disk format, and though it will work with one or two single- or double-sided disk drives, in any combination, it won't support a hard disk. Ditek says that hard disks will be supported in a future release. That's important, because STAccounts is heavily disk-based; the more disk space you have available, the more files, records, etc., you will be able to handle.

Next, you can begin to create accounts, starting with general ledger. The system comes with 11 predefined general ledger accounts; you can keep them or change them to suit your requirements, but once you have entered transactions, you cannot change them. You then create the accounts receivable and accounts payable accounts, and the inventory control data last.

All of your transactions for customers and suppliers should be entered through the accounts receivable or accounts payable menus; this will automatically take care of general ledger and inventory posting as required, based upon how you set up your accounts. Everything is done through GEM screens, making it very user-friendly.

The reporting capabilities are awesome. You can use any of the standard reports that STAccounts offers, or modify them to match your needs. The package supports Epson FX80 and standard ASCII printers, and a BASIC utility allows you to create your own printer driver. The only drawback is that there seems to be no way of printing a report on the screen; you have to route it to a printer, the modem port, or a disk file.

SUPPORT

The STAccounts package includes a warranty registration card, backup order ▶

Managing A Small Business...

card, and replacement order card. Don't just throw them away; according to the manual, Ditek will provide no assistance of any kind unless the warranty card is on file. A non-toll-free technical hotline phone number is given in the manual.

The program is copy-protected. Ditek charges extra for a backup disk, and I disagree with that policy; however, considering the power of this package and how easy it is to use, this is a small complaint.

STAccounts isn't a complete accounting package for all businesses. It does not support payroll functions, for example. Purchase orders are not directly supported, although STAccounts will generate a back order report based on information entered through the invoicing section. And there's no provision for handling forecasting.

All in all, this is an excellent accounting package for any small business. It does not handle certain functions, such as forecasting and payroll, but there is other software available to fill these gaps. This package is easy to use; just follow the manual and it's hard to go wrong. It was designed specifically for the ST, not ported from another computer, and it uses GEM very well—thus making a basically onerous task much easier to handle.

DAC-EASY

Dac-Easy Accounting made its name in the IBM PC world as the first low-priced accounting program, and the ST version has been ported from the IBM. It is a completely integrated package, handling general ledger, accounts receivable, accounts payable, purchase orders, billing, inventory, and forecasting and invoicing. Payroll can be handled separately, or it can be integrated with the accounting package with another Dac program, Dac-Easy Payroll.

The program comes on two double-sided disks, which are not copy-protected, and it can be used with a hard disk as well. The spiral-bound

manual is written for the MS-DOS version of the program, so references to DOS prompts and menus don't apply. For example, according to the manual, selecting 99 from the Main Menu returns you to DOS; on the ST you are returned to the GEM Desktop. It is thus somewhat difficult to follow unless you are already quite familiar with your desktop environment.

Other than this complaint, the manual is excellent, although there is no tutorial. The Dac-Easy manual is well-written and explains all the screens and their uses clearly.

There's
nothing generic
about accounting
software . . .
every package is
different.

FORM-FED ACCOUNTING

The first thing to do, as before, is to read the manual thoroughly. Chapter 2 is especially helpful for setting up a Chart of Accounts. The next step is sitting down with a set of forms and planning your system layout and reports.

The Dac-Easy manual includes a variety of forms, which you must copy and fill out in the process of planning your accounting system. These forms help you determine your file space requirements for all the files required in the system; they also cover product, vendor, accounts and customer file maintenance, and there's a financial statements design form. This last form is used to help you design all the reports you want from your system ex-

actly the way you want them to look.

When the forms are complete, you can run the main program, select the Utilities Menu from the Main Menu, then choose Define Files. You tell the program which drive will hold your data files, then enter the information on file sizes. After returning to the Utilities Menu you choose another option to select your printer codes for condensed and normal printing.

At this point, a new company can begin using the program normally. Companies that already have an accounting system will have more things to do, but they're all laid out in the manual's Appendix.

All this may sound complex, and it is—but it isn't as bad as it sounds. The manual leads you through this process very well, showing you what the screen looks like and telling you what you have to do. Other than the references to MS-DOS, which tend to be confusing, it quickly becomes a straightforward process.

USING DAC-EASY

Chapters 3 and 4 of the manual walk you through the daily routines necessary for general ledger, accounts receivable, accounts payable, and inventory as well as the reporting function. Chapter 5 covers periodic processing, and Chapter 6 covers forecasting. These are all straightforward, with screen displays and instructions provided. Throughout the manual are little boxes with tips and warnings to help you along.

Dac Software also sells separately printed forms for use with this software, and many of the examples are illustrated using these forms. Many other illustrations of reports are provided to give you a good feel for the immense power of the reporting options. The possibilities here exceed even those of STAccounts.

Dac Easy even allows you to set up password protection to five levels deep, if you so desire. Each level of protection allows access further into the system,

until Level 5 allows access to everything. It's user-definable and changeable. You can set and change passwords at any time; when a user wants to use a particular function, the program asks for the password before giving the user access to the function.

ANNOYANCES

There *are* problems with Dac-Easy Accounting. It's not a GEM program, although it does use screens and menus, and it appears to be designed with a monochrome monitor in mind. When I booted up in default low-res on a color monitor and ran the program, I discov-

time you return to the Main Menu from a submenu by selecting 99 you must enter the date again; the program doesn't remember it from the first time.

In general, though, Dac-Easy Accounting is a thorough, competently done accounting package that will meet most users' needs. The manual definitely needs to be rewritten to reflect the ST environment rather than MS-DOS; it should also mention the capability of integration with DacEasy Payroll, which it does not. But aside from a few minor complaints, you couldn't go wrong with this one.

IN SUMMARY

Both STAccounts and Dac-Easy Accounting offer the accounting power business users need. Dac-Easy is more extensive, and with its hard disk support and an integrated payroll package available, it offers a complete solution for a growing company. Personally, though, I would give the nod to STAccounts, based upon its manual and its integrated use of GEM, including online Help screens, and because initial

startup is easier. But either package will serve a small business well in solving its accounting problems.

STAccounts, Version 1.1. Ditek International. Distributed by ISD Marketing Inc., 2651 John Street, Unit 3, Markham, Ontario L3R 2W5, Canada. (416) 479-1880. \$24995

CIRCLE 195 ON READER SERVICE CARD

Dac-Easy Accounting. Dac Software, Inc., 4801 Spring Valley Road, Bldg. 110-B, Dallas, TX 75244. \$6995

CIRCLE 196 ON READER SERVICE CARD

Stephen Roquemore services IBM mainframe computers

(Editor's note: As we went to press, ISD Marketing announced version 2.0 of STAccounts. Version 2.0 adds numerous features to the already-powerful STAccounts program, including check register and the ability to design your own checks, separate "bill to" and "ship to", purchase order numbers, and the ability to run it from a hard disk or RAMdisk. Version 2.0 will be available by the time you read this.)

The Dac-Easy manual explains all the workscreens clearly.

ered that the Main Menu was intended for medium resolution. The screens were black lettering on a gray background, with a blinking green underline cursor that was very difficult to see. All responses I entered were displayed in the same fluorescent green as the default Desktop, and I found it difficult to work with this combination of colors for very long. Of course, you can set new colors through the Control Panel, or adjust your monitor's brightness and contrast to suit your taste, but then you have to readjust for your other software.

Another mild annoyance is that all data entry must be done in upper case. If you enter something in lower case, the program rings an error bell. And every

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NOW, ST LASER POWER

Up and printing: we'll show you how

by Frank Hayes *START* Senior Editor

A laser printer? With an Atari ST? No, it's not a joke. ST users can get affordable, high-quality laser printing—and it's available now. Frank Hayes, *START*'s Senior Editor, takes a look at some common misconceptions about the ST and laser printers, puncturing some myths and highlighting the realities of life with a laser printer and your ST.

You can't use a laser printer with an Atari ST.

That's the myth. We've all heard it before: Using a laser printer takes buckets of money and computer hardware and software that's specially



C. Itoh Jet-Setter

designed for it. It takes a Macintosh, or at the very least an IBM PC with special circuit boards, cables and programs. Trying to do that with an ST is crazy—isn't it?

For one thing, everyone knows that laser printers are spectacularly expensive. Why would I want a printer that costs five times what I paid for my computer? For another, the special software and hardware just isn't available on the ST. There's simply no way to use

a laser printer with an ordinary, unmodified ST—you'd have to be a programming genius and an electronics whiz to get them working together.

So much for the myths. The reality is that laser printers and STs work together just fine. In fact, an ST may be the best computer to use with the newest generation of laser printers—like the ST, they're fast and powerful, with high-resolution graphics—and a surprisingly low price. ▶

TONY CARLSON

LASER POWER...

LASER PRINTERS: THE NEW GENERATION

Up until about a year ago, laser printers were spectacularly expensive. Take the Apple LaserWriter, for example; it was one of the first laser printers, and it's still one of the most powerful—and one of the most expensive. The LaserWriter is really a high-powered computer masquerading as a printer—it comes equipped with a 16-bit CPU, a huge chunk of internal memory, and a computer language called PostScript. PostScript lets a computer send complex graphics commands to the LaserWriter, which then automatically converts them to pictures on paper. But all that power comes at a high price—the LaserWriter, which was designed to work with a Macintosh computer, actually costs *more* than a Mac—and far more than a complete ST system.

Then Hewlett-Packard introduced its LaserJet printer. The LaserJet had less memory than the LaserWriter, and a much simpler language for graphics—less powerful, but also less expensive. The LaserJet graphics codes are similar to the graphics codes for dot-matrix printers, and they became a standard for many other laser printers—and most of them are even less expensive than the LaserJet.

In fact, there are now nearly a dozen laser printers with list prices of \$2,500 or less. You don't have \$2,500? The actual retail prices are frequently *under* \$1,500. These laser printers connect to almost any computer, and they offer the same very high resolution printing as the Apple LaserWriter and the Hewlett-Packard LaserJet. No, these aren't "off-brand" printers from companies you've never heard of. They're made by Epson, Okidata and C. Itoh, some of the biggest names in the printer business. They're the people who made dot-matrix printers affordable for personal computers—and now they're doing the same for laser printers.

Yes, it's true, a \$1,500 printer is

expensive—it's about the price of a color 1040 ST system with a hard disk. But a laser printer no longer costs more than the rest of your ST system—and for many ST users, laser power is worth the price.

JOINING THE JET SET

To see just what the new generation of laser printers can do with an ST, we set up the Jet-Setter from C. Itoh. The Jet-Setter is pretty typical of these new printers: It can print up to five pages per minute, with a graphics resolution of 300 dots per inch, on regular paper. It's designed for ordinary computer users, for use with most computers, and it has a list price of only \$1,695.

Setting up the Jet-Setter was not much more complicated than setting up a dot-matrix printer. It's bigger, of course (as you can see from the photo), and it's heavier, too—about 66 pounds. That means if you've been using a small printer on one corner of your desk, a laser printer's arrival means some rearranging is required.

The Jet-Setter comes with a User's Manual that walks you through the whole process of setting up the printer—starting with figuring out where to put it. As with most printers, there are a few parts to install; the messiest is probably adding toner, and that's no worse than changing the ribbon on a dot-matrix printer. (If you buy a laser printer from a dealer, the dealer can probably do that installation work for you—and all you'll have to do is take it home and plug it in.)

Once the toner and drum are installed and the power cord is connected, the Jet-Setter is ready to plug into your ST. That's right, there's no special connection required—an ordinary printer cable will connect your ST to this printer, and it works the same for most of the new laser printers.

Then it's just a matter of putting paper in the Jet-Setter's paper tray—20-pound copier paper works best (you

can get it at any stationery store)—and turning the printer on. After a few seconds to warm up, it's ready to print.

THE BEST PRINTER EVER, ALMOST

Yes, the Jet-Setter is ready to print, but your ST's software may not be ready for all the advantages a laser printer has to offer. And there are some things you may expect from a printer that a laser printer can't do.

For many jobs, the Jet-Setter is ready to go. Suppose you're a programmer, and you only need a printer for program listings. The Jet-Setter works just like any other printer—except that it's faster and quieter, and the print looks much better. But many programs need to use more of a printer's capabilities than just printing program listings—and that's where things become more complex.

Take word processing, for example. Like all printers, the Jet-Setter can print out text from a word processing program such as ST Writer or 1st Word. But unlike many dot-matrix printers, the Jet-Setter only comes with three type fonts: regular, bold, and compressed. There're no italics, no superscripts or subscripts, no double-wide printing. (You can get additional fonts in cartridges that just plug into the Jet-Setter, but they're not part of the basic printer.)

Suppose you'd like to use the Jet-Setter with ST Writer. That makes sense—after all, one of the big advantages to a laser printer is the high quality of the print. It's just about the best print you can get, short of professional typesetting, which makes it perfect for business letters, memos, reports and presentations.

But to use a printer's special capabilities, ST Writer requires a special file called a printer driver. It's different for each kind of printer, and unless someone has already created an ST Writer printer driver for your printer, you have to look in the back of your printer man-

ual and put the control codes in yourself.

The Jet-Setter is no exception. Creating a printer driver doesn't take long—it's just a matter of typing the codes into a printer driver file and running a short program. But most dot-matrix printers let you print in bold, italics, and bold italics, and that's what ST Writer expects. Since the Jet-Setter doesn't have italics or bold italics, you may have to use ST Writer differently with this printer.

(If you have a technical bent—or know someone who does—you may want to try creating your own fonts and downloading them to the Jet-Setter. It's not difficult for an experienced hacker, but it's more complicated than most people would want to try.)

A GRAPHIC EXAMPLE

Or say you'd like to use your laser printer with a graphics program, or even just for screen dumps from the Desktop. A laser printer should be perfect for that—with sharp, high-resolution printing, it's sure to create the sharpest graphics you can get from an ST, right?

Some of the new laser printers emulate Epson graphics. If that's the case, you're in luck—the ST is designed to work with Epson printers, so you can do a normal screen dump from the Desktop, and any Epson printer driver for a program such as DEGAS will work fine. But the Jet-Setter requires an extra cartridge to work like an Epson—normally, it emulates a Hewlett-Packard LaserJet printer.

Unfortunately, most ST programs don't have a LaserJet printer driver, which makes using the Jet-Setter with a program like DEGAS very difficult. Fortunately, ST software publishers are very responsive to what their customers want, and as more ST owners get laser printers, more printer drivers will become available.

There's another problem, though. The Jet-Setter comes with only 512K of

RAM. That's a lot of memory, but it's not enough to keep track of a full page of graphics at 300 dots per inch. As a result, screen dumps have to be printed small, and full-page graphics simply aren't possible without additional memory—and, like font cartridges and Epson emulation, that's available for the Jet-Setter, but it costs extra.

THE POWER AND THE PRICE

Clearly, life with a laser printer isn't all peaches and cream. Is it worth the problems?

That depends on you, of course, and which of a printer's features you value most. Laser printers excel in three areas: print quality, speed, and noise level. The print quality is the best you'll find from any computer printer, of course—and for desktop publishing or presentation graphics, a laser printer is often essential.

A laser printer's speed is pretty

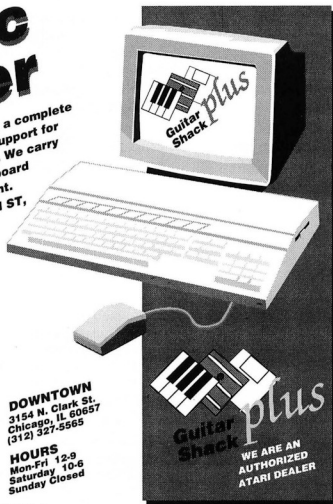
astonishing, too—churning out a page every twelve seconds, the Jet-Setter can run at 400 characters per second or more, and it's not even one of the faster laser printers available! That can make a big difference for a programmer who's working on a big project, and needs a printer that's fast and reliable for long printouts—even hundreds of pages long.

Finally, there's noise—with most laser printers, there just isn't any. Instead of the screech of a dot-matrix printer or the clackety-clack of a daisy wheel, all you hear most of the time is the quiet whir of a fan.

Is it worth the price? If you really value print quality, speed, and quiet—or even if you just use your printer a lot—a laser printer may well be worth the time, trouble, and cost.

Jet-Setter. C. Itoh Digital Products, Inc., 1011 Francisco Street, Torrance, CA 90502. (213) 327-5393. \$1695.

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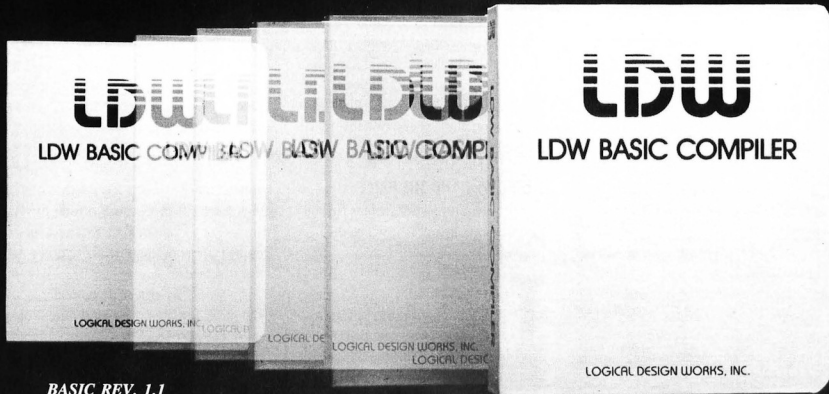
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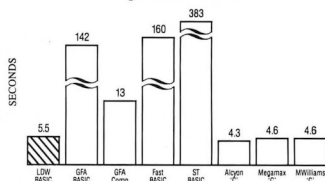
- Create and use your own windows, menus, dialog boxes, buttons, edit fields and check boxes.
- Use desk accessories while running your BASIC program.
- Design your own mouse pointer shapes and icons.
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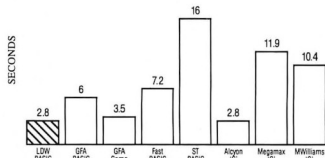
LDW BASIC Rev. 2.0 is a stand-alone development tool, but it can also compile any program written using the old ST BASIC interpreter or the new ST BASIC interpreter. It is also functionally compatible with BASICs for the Macintosh.

For more information or to obtain a listing of benchmarks contact Logical Design Works, Inc., (408) 435-1445
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How Not To Shop At A Computer Store

Or, the trials and tribulations of a computer store owner

BY RICK GIAMPIETRO

Last issue, Frank Kofsky complained about some of the abuses and poor service he encountered in the course of buying his ST system. Now, here's the other side of the story. . .

After reading Frank Kofsky's perspectives on computer stores and their employees, I was steamed. Oh, was I steamed! After all, Mr. Kofsky was poking fun at me and my associates. But after my mind calmed a bit, I realized that he did make some well-deserved points—though not as many as he may have thought.

This set me to thinking about my store, and the way our employees interact with the public. It didn't take long before I figured out that, just as there are distinct types of computer stores—each with its own problems—there are also several distinct categories that many of our customers fit into.



How Not To Shop...

There's no such thing as a perfect customer, of course—and everyone has little quirks that may take some getting used to. But some customers can make a sales clerk's life nothing but misery. And those, naturally enough, are the people who make it harder to give everyone else the kind of service they want and deserve.

ARMED AND DANGEROUS

First, the worst: what I call the "armed and dangerous family."

Picture a pleasant weekend afternoon in a computer store. Salespeople are showing customers products, answering the questions they can and trying to find the answers when they can't. Customers are trying out hardware and software, doing their best to make sure what they buy will work with what they own. Sounds idyllic, doesn't it?

But that's all about to change. In walks what appears to be a typical computer-using family—Mom, Dad, and their two darling children—bearing what appears to be an Epson printer. Wrong and wrong, it turns out: The children are anything but darling, and the printer turns out to be not an Epson but one of those off-brand trans-Pacific bargains you've had nightmares about.

While the kids (hereafter known as Thing 1 and Thing 2) spread out to flip every switch in the store, Mom and Dad explain their simple problem. They don't really know what they're doing, and they'd like you to help them get their printer up and running.

Well, you think, they didn't buy the printer here. But maybe if I put in a few minutes of work helping set up this printer, they'll come back to buy other hardware or software. Besides, it should be a pretty simple matter of showing Mom and Dad how to hook a parallel cable from the ST to the printer, and then installing a standard Epson driver on their various pieces of software. While Thing 1 begins playing hide-and-seek under another customer's skirt and Thing 2 begins chewing on the drapes, you set to work.

Simple...right. Two hours later, Thing 2 is trying to feed Thing 1 into a laser printer, and Mom and Dad are beginning to get peeved that you still haven't got things working with this mail-order budget printer. Your boss is ready to feed you through a paper shredder and mail Thing 1 and Thing 2 to Hong Kong. It's turned out that the printer isn't Epson compatible, the kids aren't compatible with anything resembling civilization, and the parents don't understand why you can't play the role of technical wizard and babysitter at the same time.

By the time they storm out, the store is nearly a shambles, Mom and Dad are no closer to having a working printer, and you're hanging onto your job by your fingernails. Chances are good that this family will never come back to your store again—and thank heaven for that!

The worst thing about this entire scenario is that absolutely no one has gained *anything*. Mom and Dad haven't got their printer working. Your store hasn't made a penny, either from sales or service. Everyone's time has been wasted, everyone's nerves have been frayed, and you're lucky if these are the only customers you've lost on this weekend afternoon.

Whoops, there's *one* guy who's made out like a bandit: the fellow who runs the mail-order business that originally sold Mom and Dad this bargain. He not only turned a profit, but also has no worries about supporting a useless printer. Clearly, *he* understands that you have to make a profit to stay in business—and, just as clearly, he doesn't care anything about his customers. All he wants is his profit—the problems, he leaves with his customers, to find whatever help they can.

Profits are essential for a regular computer store to stay in business, as well—and we have to face the customers, too.

**My
favorite customers—
the ones who don't
even know what kind of
computer they own!**

HELPING THE HELPLESS

Of all the kinds of customers that wander into the store, my favorites are the computer illiterates. They never stop amazing me. I'm not referring here to people who are a little unaware of what their computers can do. I'm talking about the kind of customer who, besides not knowing much about computers, lacks such vital information as *which computer he owns!*

One customer sticks in my mind. He knew all about his computer, sort of. He was certain he knew all the crucial facts: specifically, that the "television thing" said Atari SC1224 on the front—that's pronounced "Ataree South Carolina one, two, two, four."

He spent 15 minutes reciting what I'm sure he thought were critical details about his computer—where the keys were, all about the red lights on the computer and the monitor, and so on. It would have been genuinely funny except that after a while, he became irate that, given such a wealth of detailed information, I couldn't figure out how much memory his ST had.

Hard as it is for some people to believe, there are *lots* of

ways a computer can be configured. Very often, it's impossible for computer store staff to help you if you don't know the technical information about your computer—or, at the very least, the model numbers. If I know you've got a 520 ST with one SF 514 disk drive, I've got a basis for telling you how much memory you've got and what software will work. Without that kind of information, it's practically impossible.

I really *do* like helping computer illiterates, though. Even occasional troubles with people like the Atari man don't outweigh the fact that these people can be greatly entertaining—and most have a genuine enthusiasm for getting a better understanding of their computer. Sometimes they're funny, but mostly they really appreciate the information and helpful tips we can give them.

**Some
customers can
make a sales clerk's life
nothing but misery.**

They're good folks—and, when they've learned a little more, they'll be good customers, too.

TECHIE TO THE RESCUE

Although the computer illiterate can be difficult to work with, no one is quite as bothersome as a Techie. This type of customer will talk your ear off, trying to impress you along with any unsuspecting computer illiterate who happens to be in the area.

The Techie speaks Technese. He will try to wow you with random clumps of jargon and computer mumbo-jumbo. He'll casually throw out terms like "BIOS" and "TOS error" and "AES." He'll spend every available moment telling you all manner of information you'd rather not know anyway, as if the idea of anyone just using a computer to do something practical is more than he can bear.

If they just burned up time speaking this foreign language, Techies would be a minor nuisance. Unfortunately, Techies tend to do the one thing that causes them to cross from mere annoyance into the realm of sales hazard: Suddenly, without warning, they may decide to Help You Do Your Job.

It's every computer salesperson's greatest fear: I've got an interested customer whose needs will be well-served by an ST, but just as I'm coming to the close of my sales pitch, a

Techie steps in to drop a few helpful technical details about the machine the customer is about to buy. Out of nowhere he appears, nattering innocently about the essentialness of owning a hard drive. Within seconds this escalates from a one-sided conversation into a full discourse on disk problems with TOS and the limits of the ST's error handling.

By the time the Techie is gone, so is the sale. "Gee," says the customer, "I think I'll wait until the new version of TOS is released," and staggers off, head spinning.

Not all technically knowledgeable ST owners are Techies, of course. And even the most incoherent Technesiacs have at least one good feature: They always have up-to-the-minute information on the status of GDOS, the blitter chip, the new Megas and of course the Atari laser printer.

BUT SERIOUSLY. . .

Then there's the biggest problem of all: the customer who has opened a software package and wants to return it for a refund.

Yes, it's a problem—for the customer *and* for the store. Most computer stores adhere to a strict rule: If you break the shrinkwrap, it can't be returned. The reason is the painfully simple fact that it is incredibly easy to copy any piece of software. Once the shrinkwrap is broken, there's no way of knowing whether the customer is really just returning the package, and keeping the really valuable part—a copy of the program.

What happens to a computer store that doesn't have such a policy? The computer store I work for is a perfect example. We once had a return policy that made K-Mart look strict. We would take back almost anything—with or without a receipt, shrinkwrapped or not.

The customers loved it. We were popular—very popular. Word spread about our liberal return policies, and pretty soon there were *lots* of people buying software from us.

Unfortunately, lots of those people brought back the software, too. We had people returning programs constantly—programs that people said wouldn't load properly, programs they said didn't do what they needed, programs they said they just didn't like. (It's funny, but the programs that wouldn't load properly on those customers' computers worked fine when we checked the disks at the store. And some of the customers who complained about missing features didn't seem to have read very far into the manual—because often enough the features were there.)

Pretty soon we had a backroom full of software packages from programs that people said they either didn't like or had trouble loading. Of course, no one wanted to buy software that wasn't shrinkwrapped—and of course, the software publishers wouldn't take back items that had been opened and weren't obviously defective.

It didn't take long to figure out that those crowds of customers were using us as a lending library—Ralph's Rent-A- ▶

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How Not To Shop...

Program," but without the rental charge. Sure, we were gaining customers—but we were losing money. The store got nothing but a pile of useless, and costly, software packages—and the bills for them. For all we knew, the customers ended up with disk files full of pirated software.

It is sad that everyone suffers because of the greed of some. But piracy is a problem with no easy solution. Until someone comes up with a better way, broken shrinkwrap will still mean no return.

DON'T BUY IN IGNORANCE

Frank Kofsky finally decided on Rule Number One for dealing with computer stores: Never pay cash. After all, checks can be stopped and credit-card charges can be cancelled if the product is returned. Unfortunately, that can be hazardous to the health of a computer store—even a store that genuinely tries to serve the needs of its customers.

Id like to propose an alternative Rule Number One: Never Buy in Ignorance.

Yes, sometimes computer software doesn't live up to your expectations—hardware, too. Occasionally that's the fault of a salesperson who misled you. But more often it's because the product does what it claims to do—it just doesn't do what you wish it could do.

Whose fault is that? It's not the fault of the local software store. Maybe it's the fault of the manufacturer, for not creating a perfect product. Or—more likely—maybe it's the fault of a customer with unrealistic expectations.

Be realistic when you walk into a computer store. Be a smart consumer—you're spending a lot of money on something you should be able to use a long time.

Do some research into the product you're considering buying. Check around town at several different computer stores. If all of them recommend a particular program, printer or modem, chances are good that it's going to be a winner.

All Atari ST magazines have reviews of the different software and hardware available for any application. Take the time to do some homework—it may save you some money and grief. Ask friends and user group members their opinions. Then ask the salesperson questions, and for a demonstration if possible. You can't get that from a mail-order house—it takes a real computer store.

And when you find a real computer store where you can get your questions answered, patronize it. You'll save more in time and frustration than a mail-order house will ever save you in money.

Rick Giampietro, former computer store employee, is now a student at Michigan State University, where he is majoring in English and Film.

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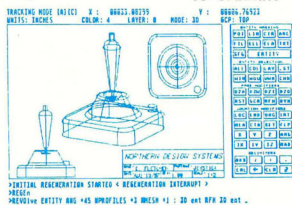
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Installing An Answer

The second choice under the "Options" menu choice is a real head-scratcher for some folks. Exactly what does it mean to "Install Application," anyway? Well, you may have noticed some programs like to have their own filename *extender* on the files they use or access. For example, a popular word processor, `1ST_WORD.PRG`, likes to find files with a ".DOC" extender, among others. When you wish to edit a ".DOC" file, you must first load and run `1ST_WORD.PRG`, and then load the desired text file.

If you install `1ST_WORD.PRG` as using the ".DOC" extender, all you need to do is double-click on your text ".DOC" file, and `1ST_WORD.PRG` will automatically load first, and then load the document you double-clicked on.

Do this by first clicking on `1ST_WORD.PRG` once, causing it to turn black. Choose "Install Application" from the "Options" menu choice. In the dialog box which pops up, type in the letters ".DOC" on the "Document Type" line. Select whether your application is a GEM program, a TOS program, or a TOS program which needs a parameter line, and tap `[RETURN]`.

To save your choices, click on "Save Desktop."

Clicking On Objects One Level Down

If you can see an object in an inactive window, you may still operate on that object (dragging it to the trash can, or copying it, for example) by first pointing at it with the mouse, holding down the right-hand mouse button, and then clicking/holding the left button to complete the action.

Write-Protecting Diskettes

One night you may find the disk your friend gave you won't allow you to write (save files) to it. Puzzled? Check the hole which is located on the lower-left front corner of a standard 3.5 inch disk. Can you see through it? Then you cannot write to that disk. To enable disk writing, slide the little plastic button back over the hole, closing it up.

Let's Standardize!

Whoa! Don't go running all around looking for special cables to hook your ST up to your new Atari laser printer or Hewlett Packard Plotter. The Atari ST was designed to accept standard IBM-style cables for everything, including the parallel port for the printer and the RS-232C port for driving plotters and their ilk. You should be able to find these cables at your local computer store.

Changing Line Spacing Inside A Document

You like ST Writer, but you want double-spacing until paragraph three, and then single-spacing for that paragraph, and then go back to double-spacing? Easy. The formatting commands, like the top line of almost any ST Writer document, can be placed anywhere inside the document. Proceed to where you wish single spacing to start, then hold down the `[CONTROL]` key, tap the "S" key and tap the "2" key, which is asking for two half-lines.

One ST Disk, Jelly Side Up

So what if you spilled cream cheese on the disk—wipe it off and keep going! What? Some of it got inside? Well, keep in mind that side one of a disk is on the *bottom*, and side two is on the top. If you have a single-sided drive, you may still be able to glean some information—in an emergency—from the disk. However, we *don't* recommend putting disks with foreign substances on them into your drive. Your best bet? Keep backups of *everything*, just in case you damage a disk.

The VT-52 Emulator And Downloading

Yes, that's right. The VT-52 emulator Atari included with your Atari ST is a terminal program, with one big difference: it doesn't upload or download. You may use the VT-52 emulator to log onto and read CompuServe messages and such, but you can't capture any of the information for your own use. Once it scrolls off the screen, it's gone. If you actually need to capture information, you need a program like Flash, a full-featured telecommunications program sold by Antic Software (see The Catalog, bound in the center of this issue).

Three Bit Printer?

So you try to print out the TV screen by holding down `[Alternate]` and tapping the Help key, but all you can get is the left three-quarters of the TV screen printed out? Never fear. What you may need to do is select the "Config Printer" option from the desk accessories which come with your ST, and change the "dots" option from "960" to "1280". Your printer may be expecting 1280 dots per line, whereas your ST is putting out 960, resulting in only the left three-quarters of your screen being printed. ■

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Calamus saves you money. Apart from the new dimensions of print-out quality reached, the price

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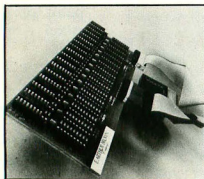
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START-87

DESIGNER KEYS

Getting the most from your keyboard

by John H. Jenkins

Hungry for a big macro? Then let John Jenkins show you how to redesign your ST keyboard with STARTKey, our super macros program. Call up special characters, words or phrases with the push of a button! You'll find the program on your START disk in the file STARTKEY.ARC.

 *File STARTKEY.ARC on your START disk*

The Atari ST is a wonderful computer, but it does have a few minor flaws.

One of them is its keyboard. There's no simple way to use foreign symbols from the ST's keyboard, and though word processing programs usually let you use these special keys, many programs don't. In addition, it would be nice to be able to store words, phrases, or whole paragraphs that could be called up with a single keystroke. Such sequences are called *keyboard macros*.

In fact, what would *really* be nice is allowing a whole series of keystrokes (control keys as well as words or phrases) to be called up with a single keystroke—or even selecting items off menus with keystrokes.

That's what STARTKey can do.

WHAT IT DOES

STARTKey allows you to redesign your keyboard in a special way. Any keystroke can be assigned a string of keystrokes—up to 63 regular keystrokes on the keyboard. In addition, you can

use a keystroke to select an item from the menu bar. Instead of reaching for the mouse and clicking on a menu item, you can do it with a keystroke.

If that sounds a little confusing, keep in mind that *keystroke* can mean two different (but closely related) things. For you, a keystroke is the physical act of pressing one or more keys at once. To a program running on the ST, a keystroke is a number that the ST reports to the program whenever a key is pressed.

The STARTKey program sits between the keyboard and the program, collecting the keystrokes you type and then passing them off to the program. When you type a keystroke that has been assigned a macro, STARTKey intercepts it and replaces it with the macro—up to 63 keystrokes long.

Get the idea? Once STARTKey goes to work, your keyboard can become much more powerful.

But that's not all. You can also assign a menu item to a keystroke. That's ▶

DESIGNER KEYS . . .

right—instead of moving the mouse up to the menu bar and clicking on an item from a menu, you can use a keystroke!

Let's get a sample of how STARTKey works. The program is on your START Disk in the archive file STARTKEY.ARC. Copy this file and the program ARCX.TTP to a fresh disk. Double-click on ARCX.TTP, and in the box that comes on screen, type the filename STARTKEY.ARC and press the Return key. The disk will spin for a minute or so, and when it's finished you'll find the STARTKey programs on the disk.

Next, press the Reset button on the back of your ST to reboot the computer. You have to reboot because STARTKey is a desk accessory program. Once the Desktop returns, you can verify that STARTKey is there by pointing at the Desk menu on the menu bar at the top of the screen—you'll see STARTKey on the menu.

Now run another program—for example, ST Writer Version 2.0, the mouse-based version of ST Writer that you'll also find on this issue's START Disk. (Check the ST Writer article in this issue for how to uncompress and use ST Writer 2.0.) Everything in the program will work as usual—until you hold down a Shift key and type one of the keys on the numeric keypad. All 18 shifted keypad keys have been assigned special descriptive keystroke macros—try them and see!

Now return to the Desktop, pull down the Desk menu and click on STARTKey. You'll see the dialog box in *Figure 1*. From here you can load a macro file into STARTKey, turn it on or off, and set special parameters for the macros you load.

To load a new macro file, click on Load (in the lower right corner), then choose a macro file from the file selector. There's a selection of macro files on your START Disk, including files designed for use with ST Writer and 1st Word—even one that gives you a ST or Dvorak keyboard.

You'll also find the file

MACROS.MAX—that's the sample file you tried out with ST Writer. STARTKey will always look for a file named MACROS.MAX and try to load it when you first boot up, so if you want to automatically boot a macro file, just rename your macro file to MACROS.MAX.

From the STARTKey dialog box you can turn the macro system on or off, and enable it to pass extended keycodes. Most programs just ignore extended keycodes, but if you find your macros aren't working properly, try turning on extended keycodes by click-

**Once
STARTKey goes
to work, your keyboard
is much more powerful.**

ing on the keycode button. Sending messages and specifying the delay are special functions that we'll look at later—but if your keyboard seems sluggish with STARTKey, try clicking on Send messages to turn that function off.

(If it's not convenient to pull down the STARTKey dialog box, you can also turn things on or off from the keyboard at any time. Holding down both Shift keys and pressing function key F1 turns STARTKey on; both Shift keys and F2 turns it off. Both Shift keys and F3 turns STARTKey on with extended keycodes.)

HOW TO MAKE YOUR OWN MACRO FILES

Of course, to get the most out of STARTKey, you'll probably want to create your own macro files—ones that are specifically designed for the way you use your ST. The first step in doing that is writing a macro text file.

A macro text file consists of a series

of macros. You can create it with any text editor or word processor that can create an ordinary ASCII file. It's important to create an ASCII file; otherwise, special characters in a non-ASCII file may make it impossible to compile.

To see how it works, let's create a macro that assigns the sentence "This is a macro." to the keystroke Control-T. Start out by using a text editor or word processor that can produce straight ASCII text files, such as 1ST Word, Word Writer or MicroEMACS. Now all you have to do is type in a macro definition for a Control-T "This is a macro." macro.

Here's one way to do it: Specify the keystrokes you want to create, one keystroke at a time. The macro looks like this:

```
c-t
s-t h i s space
i s space
a space
m a c r o .
m a c r o d
```

Here's what it means. The first thing in the macro is the keystroke you're assigning it to. In this case, we want to assign it to **Control-T**, so we use **c-t**. Any letters on the *left* side of the hyphen indicate a Control, Shift or Alternate key is held down; the letter or word on the *right* side of the hyphen indicates the key that's pressed. Thus, there are several possible combinations using the T key:

```
c-t means Control-T
a-t means Alternate-T
s-t means Shift-T
ca-t means Control-Alternate-T
cs-t means Control-Shift-T
as-t means Alternate-Shift-T
cas-t means Control-Alternate-Shift-T
```

and, of course, without a hyphen, there's no Control, Alternate, or Shift key held down.

The next four lines are the keystrokes we want the macro to generate.

In this case, we're specifying them character by character: **s-t** means Shift-T (an upper-case T), **space** means the space bar, and all the rest of the keys are just lower-case letters.

A few other keys besides the space bar have special names. The Ctr/Home key is just **home**; the four cursor keys have the names **up**, **down**, **left** and **right**; the keys on the numeric keypad are indicated with an **n** in front of their names, so **n6** is **6** on the keypad. All other keys, including the function keys, are specified by the letters or words printed on them.

The last line, **macend**, just indicates the end of the macro.

(There's no special reason for putting each word on its own line, by the way—it just makes it easier to read. But don't make a line too long, or it may not compile properly.)

That's how to do it one keystroke at a time. Since this is just regular text, there's an easier way to do it:

```
c-t
"This is a macro."
macend
```

Any text inside double-quote marks passes through as a string of keystrokes. (If you want a double-quote mark to be part of your macro, just use two double-quote marks in a row.)

Finally, there's an exceedingly complicated way of doing it: specifying the four-byte internal keystroke code for each keystroke you want to generate. Most programs don't require the four-byte code, but it's available if you need it and you're technically inclined. (There's a file containing all the keystroke codes in the **MACROS.ARC** file on this issue's **START** Disk.)

```
c-t
03140054 00230068 00170069
001F0073 00390020 00170069
001F0073 00390020 001E0061
00390020 0032006D 001E0061
002E0063 00130072 0018006F
0034002E macend
```

You can include comments in your macros if you like. Wherever a colon appears on a line, except within quotation marks, the entire line from that character on will be treated as a comment and ignored.

```
: This is a comment line.
```

You can use any of the three ways to define your macro (the second one is probably easiest). Once you've typed it in, be sure to save the macro text file in ASCII form. Just to keep track of it, let's call it **FIZZBANG.TXT**.

You can have as many macros as you

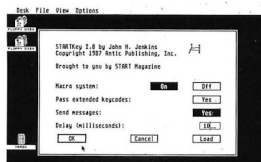


FIGURE 1: The **STARTKey** dialog box lets you turn **STARTKey**'s special features on and off or load a new macro file.

like in a macro text file. There is no particular limit built into the **STARTKey** system for the number of macros in a macro file, but there is a limit on the total number of keystrokes, since the final compiled version of the macro file cannot be larger than 22 K. That still gives you space for well over 1,000 one-keystroke macros—more than you're likely to need.

For more examples of macro text files, check out the **.TXT** files for the macro files that came on your **START** Disk.

COMPILING THE MACROS

Now comes the tricky part: using the **STARTKey** macro compiler program. It's called **SKCOMPIL.TTP**, and you'll find it among the files you uncompressed from **STARTKEY.ARC**.

Click on **SKCOMPIL.TTP** and you'll get a dialog box asking you for the name of the macro text file to compile. You'll want to type in the name of the macro text file you just created—**FIZZBANG.TXT**—but *don't press the Return key!* You also need to type in the name you want the compiled macro file to have—say, **FIZZBANG.MAX**. If you just type **FIZZBANG.TXT** and press the Return key, the compiler will compile the **FIZZBANG** macros and store them in a macro file called **MACROS.MAX**. (Remember, that's the default macro file that's always loaded when **STARTKey** boots up.)

To create a macro file with a different name, you must type **-o** in front of it. For example, to compile **FIZZBANG.TXT** into **FIZZBANG.MAX**, type:

```
FIZZBANG.TXT -o FIZZBANG.MAX
```

then press the Return key. **SKCOMPIL.TTP** will compile the macros in **FIZZBANG.TXT** and generate the macro file **FIZZBANG.MAX**. (Be sure to use the **.MAX** extender, so you'll know it's a macro file.) As your macro text file compiles, **SKCOMPIL** will display each macro line on the screen. If **SKCOMPIL** encounters a word it doesn't recognize, it stops at the point it gets confused, and you should be able to spot where the problem is.

When **SKCOMPIL** has successfully compiled **FIZZBANG.TXT** into **FIZZBANG.MAX**, it's ready to use with any **ST** program—and you're ready to compile more complex macros.

MENU MACROS

One of the most powerful features of **STARTKey** is that a macro can select a menu item. For example, if you load the original sample macro file **MACROS.MAX** and then run **ST Writer 2.0**, you'll find that holding down the **Alternate** key and typing a keypad key will automatically select menu items such as loading and saving files and ▶

DESIGNER KEYS...

transforming screen colors. You'll find the complete list of functions the keypad can select in *Figure 2*.

Using a menu macro is as easy as using a keyboard macro—just press a key. But creating a menu macro is more difficult. For example, the menu macro that uses the Alternate key and 0 key to transform ST Writer 2.0's screen colors looks like this in the original file SAMPLE.TXT:

```
a-n0
menu stwriter 6 2C
macend
```

The first line, of course, specifies that this macro is for the Alternate-0 key, and the final line indicates the end of the macro. In the middle line, "menu" indicates that this is a menu macro. "Stwriter" is the name of the program this macro works with—menu macros will only work with one program (keypad macros will work with any program). The two numbers indicate the menu number (6) and item number (2C) of the ST Writer 2.0 Colors menu item.

To help you find out what those numbers are for any application, START Technical Editor Patrick Bass wrote the MenuSpot program on your START Disk. Run MENUSPOT.PRG, then select the resource file for the program you want to write menu macros for. (The resource file usually has a .RSC extender. If there's no resource file for your program, you probably won't be able to write a menu macro for it.)

MenuSpot will print a complete list of the menu items, along with the menu and item number for each item. Then all you need to do is copy down the numbers you need, and type them into your macro source file. Remember to copy the numbers *exactly* as they appear—the numbers are in hexadecimal, which may use the digits 0 through 9 and the letters A through F.

Once you have the item numbers, you can compile your macro text file

the same as for keystroke macros. When your .MAX file is finished, you can load it and use it immediately with the program it's designed for.

By the way, a menu macro is a type of "message." Remember the "Send messages" line in the STARTKey dialog box? When the Yes button is highlighted, you can use menu macros. As I mentioned, that may make your ST seem a bit sluggish. If you still want to use messages, try setting a higher value for "Delay (milliseconds)." A value of 1 will probably make it intolerably sluggish; 10 (the default) should work fine, but even higher numbers will make it less sluggish still.

STARTKey

allows you to redesign
your ST keyboard.

NO MORE BLIND DATES

You can also include the current date in your keyboard macros. There are seven keywords you can use in keystroke macro text files that have to do with the date:

- day:** Put the number of the day of the month here
 - dayth:** Put the number of the day of the month here, and make it an ordinal number (for example, "1st" or "14th").
 - mon:** Put the abbreviated form for the month name here, without a period.
 - month:** Put the abbreviated form for the month name here, and follow it with a period if possible.
 - month:** Put the full name for the month here.
 - month#:** Put the number of the month here.
 - year:** Put the last two digits of the number of the year here.
- Thus, the macro:

```
c-d
month "day", 19" year
macend
```

would assign the current date in the form "December 28, 1987" to the key **Control-D**.

STARTKey uses the date the macro is compiled—not the date when **Control-D** is pressed—for these keywords. If your ST has a battery-backed clock installed, though, the ST can automatically recompile the macro file whenever you reboot. The program SKAUTO.PRG on your START Disk provides you with the ability to automatically execute SKCOMPIL.TTP when your ST is turned on—just put SKAUTO.PRG in an AUTO folder.

Next, create an ASCII text file called SKAUTO.DAT and put it in the root directory of the same disk. SKAUTO.DAT requires two lines: The first is a number, the date in the ST's internal clock the last time SKAUTO.PRG was executed. The second line is a command—the name SKCOMPIL.TTP (with the full path name where it can be found) followed by the parameters to pass it (name of file to compile and name of file to create). Make sure that your program to set the ST's time and date is in the AUTO folder ahead of SKAUTO.PRG.

Now, whenever you turn on your ST or press the Reset button, SKAUTO will run. First it checks SKAUTO.DAT to see when it last executed; if it's the same day, it stops. If the day has changed, SKAUTO executes SKCOMPIL.TTP with the correct parameters, so that the date information in the macro file will be complete and accurate.

Again, a sample SKAUTO.DAT file is included for you to examine.

SKCOMPIL contains the names of all the months and day/date information. If you want to use your own month names—for example, in a foreign language—you can put them in a special month file, and name it when it's time to compile. For example, if your month

file is called MONTHS.TXT, you could include it when compiling FIZZBANG.TXT by preceding MONTHS.TXT with "m". In other words, after you double-click on SKCOMPIL.TTP, you type:
 FIZZBANG.TXT -o FIZZBANG.MAX -m MONTHS.TXT
 which means "Compile the macro text file FIZZBANG.TXT into a compiled macro file named FIZZBANG.MAX, using month information from a file called MONTHS.TXT."

You'll also find a sample MONTHS.TXT file, on your START Disk.

File menu	Options menu
(Load	4 Insert
) Save	5 Type over
/ Save As . .	6 Lines
+ Receive	1 Mouse
- Format Disk	2 Deadkey
enter Print	3 Spec. Char.
. Delete	0 Colors
* Quit	
Edit menu	
7 Edit	
8 Create	
9 Global Format	

FIGURE 2

TECHIE TIME

If you're really technically inclined, you can also create a macro to send an arbitrary message to a program. In this case, the body of the macro consists of the name of the program to which the message is sent, and then four long-words in hexadecimal, which form the body of the message. (Tom Hudson's article in the Summer 1987 issue of START is indispensable here.) The four long words are exactly the eight words of the message, with two exceptions:

Word 1 (the bottom half of the first long word) is the GEM ID number for the program sending the message; obviously this must be supplied by START-Key at run time.

Word 3 (the bottom half of the second long word) is, for messages telling a

program to do something with a window, the handle of the window in question. Again, you don't know this until run-time, so if word 3 is "FFFF" (or -1), then when the message is sent, START-Key substitutes the handle of the front window.

Because STARTKey uses 0 as a flag to signal the end of a macro, none of the long-words in the message can be 0. Fortunately, the only time you'd really want a long-word to be 0 is if it's ignored and not part of the message, but only there to pad it out to sixteen bytes. Thus in the example, we set the last long-word to 1—since it'll be ignored anyway, it doesn't matter what it is.

Thus, in the message sent in the 1st Word sample file on your START Disk, we send a message of type \$1A, which is a WM_VSLID message telling a program to move the vertical scroll bar in a window; the sample macro tells the program named "1st Word" to move the vertical scroll bar to position 1000 (that is, to the bottom). Thus, pressing Control-B when START-Key is active and 1ST Word is running moves you down to the bottom of the document you're working on.

Obviously, message macros aren't lightweight material—they're even more complex than menu macros, and require substantial technical background. But if you've got the technical expertise to use them, they can be invaluable.

AT LAST

STARTKey is a powerful keyboard macro system—but it's not the ultimate macro system possible. It can't "record" macros, for example, and it can't include mouse movement and clicking in macros. If you'd like to expand START-Key's capabilities—or just see how it was created—you'll find the source code in the file STARTKEY.SRC on your START Disk. In particular, I hope that people will write their own macro compilers, since that is a relatively easy job and SKCOMPIL is so much geared to

the way I like it done. This way, you can more easily customize STARTKey to suit your own personal needs and desires.

I use STARTKey with virtually every program I run—I used it with ST Writer in writing this article—and I would feel lost without it. I cannot guarantee that it is 100 percent compatible with all programs, though, and I've encountered some problems myself. I have yet to find a program where it didn't work at all. The best news is that there are no problems in using it with either ST Writer or Thunder!

It works indifferently well with Zoomracks II and Power Writer, largely

**You can
build your own library
of useful macro files.**

because they both use many keyboard commands already, and because they seem to filter out ASCII characters with the high bit set and don't allow them to be used. STARTKey still works with these programs, but you have to choose your keyboard equivalents carefully.

One of my favorite features of STARTKey is that it allows "standardization" of programs such as editors. The programming languages I work with tend to be happiest with their own editors, but each one uses different commands. I've set up macro files for each of the editors I run across so that now Control-F invokes the Find command in them all, for example.

You can build your own library of useful macro files for the programs you use—and even share them through your favorite user group or computer bulletin board. With STARTKey, you really can harness the power of your ST's keyboard!



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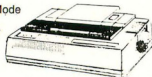
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HYPERCARD "WITHOUT THE HYPE"

The ST's Zoomracks came first

by Elizabeth Metzger Armstrong

When Apple's new Hypercard won the spotlight during last summer's Macworld Expo in Boston, Apple called it the next big breakthrough in software. Macintosh owners weren't the only ones to be curious about it, though. Three thousand miles away, in a small, second-floor office in the heart of California's Silicon Valley, Paul Heckel paused to wonder what all the hoopla was about.

Heckel had every reason to wonder. He's the founder and president of a five-year-old company called QuickView Systems, and a 20-year computer veteran and software designer. Among other accomplishments, he developed the Craig Language Translator, a handheld computer that could translate words and phrases for travelers, and wrote one of the definitive books on program design, *The Elements Of Friendly Software Design* (Warner Books, 1984).

Two years ago Quickview introduced Zoomracks I, a personal productivity program for the Atari ST and IBM AT and compatibles that pioneered the "cards and stacks" metaphor upon

which HyperCard is based. Both programs give users who have little or no computer experience a new class of productivity tool that Heckel calls *Case-base*, an acronym for "Card And Stack Environment Data Base." Both provide an "Erector set" with which users can snap together different applications from text, database, and (in HyperCard) graphics files.

In spite (or perhaps because) of

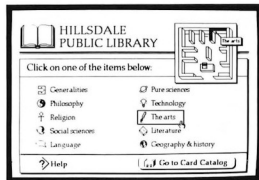


FIGURE 1: Hypercard on the Macintosh (Photo courtesy of Apple Computer, Inc.)

Zoomracks's undeserved backstage role, Heckel enthusiastically takes on the part of Zoomracks's most optimistic advocate and cheerleader, a process he whimsically describes as "like a voice crying out in the wilderness." Donning

a multitude of hats—company founder, president, software designer, marketing manager, creative director, publicist and customer support person—he spends most of his waking hours trying to get the word out about Zoomracks II, which has been on the market since November 1986.

BEHIND ZOOMRACKS

Over a cup of coffee, Heckel explained his design philosophy behind Zoomracks, a program that took three years to produce.

"What I was designing as much as anything else was a mental model I wanted to put into the mind of the user," says Heckel. "That's where the metaphor comes in. It's important to have a model of something that's familiar. Cards are familiar. Racks are familiar. This gives people a constant reference base.

"The metaphor has to be simple. A spreadsheet is a good example. It gives people a base that is independent of the program. In word processing, the scroll is the basic metaphor.

"In Zoomracks, you have the time ▶

HYPERCARD...

card rack, just like a time card rack at work. You can take a card out of the rack and zoom in on it to see what's on the card. The nice thing about Zoomracks is that you're treating everything in the program as cards on racks. When you really get down to it, it's very simple."

The image of an Erector set also gives users a powerful image with which they can snap together different applications, according to Heckel. "The cards and racks are the girders," he says. "The templates, macros and output forms serve as the program's nuts and bolts." Templates in Zoomracks specify how information is displayed on the screen, and macros let you save a series of key-strokes to perform repetitive functions.

Heckel cites VisiCalc as an example of a successful program that uses a "familiar mental model," one that, like Zoomracks and HyperCard, "replaced a bunch of different applications with a common mental model, the spreadsheet." He explains, "VisiCalc took off because once you understood it the program became a very useful tool for solving a wide variety of problems. The same with Zoomracks and HyperCard. People don't want to learn 27 different applications. They want to learn one. The real value of these programs is that they support a wide variety of applications."

With a background in electrical engineering and programming and an M.B.A., Heckel understands and consciously avoids both the marketing person's "let's get the product off the shelf as quickly as possible" approach and the programmer's "feature-itis" — the tendency to write more and more features into their programs.

"The essence of what we're doing is cards and racks," Heckel says. "My philosophy is to try to make the cards and racks as powerful as possible, not to crowd the program with a lot of useless features. What we're trying to do is to

make the program very simple, vanilla-flavored, so that anybody can look in it and see the reflection of his or her own needs. This is the main reason why you get such diversity with Zoomracks and HyperCard.

"The philosophy I took at one point was, 'I don't know where the card and stack metaphor is going to lead me, but

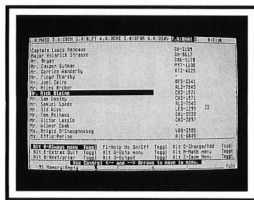


FIGURE 2: Zoomracks II on the Atari ST

wherever it does is where I'm going to go.' That's not a lot different from a novelist who doesn't know where his characters are going to take him, but he ends up following them in that direction. When there were design choices to make, the standard criteria I used was 'Which one enhances the rack metaphor?' not 'Which one will be better or more superficially useful?'"

KNOWING YOUR AUDIENCE

One of the basic premises in Heckel's book, *The Elements Of Friendly Software Design*, is knowing who your audience is. For Heckel, knowing his audience is a major part of his effort, not only to spread the word about Zoomracks, but Zoomracks, but to keep in touch with how his small but loyal band of Zoomracks enthusiasts are using his program. Last summer he took on the formidable task of surveying 91 Zoomracks users. The results were gratifying: a newspaper reporter uses Zoomracks to cover presidential campaigns and conventions; a hair dresser for running her business; a photographer and a psychologist for organizing their businesses; a fifth-grade student for taking social studies notes and reviewing for tests.

For a man whose ground-breaking program has gone unnoticed by much of the media until now,

Heckel shows no resentment toward Hypercard author Bill Atkinson, whose creativity and integrity he admires. "I know one of the reasons HyperCard and Zoomracks are so different is that he [Atkinson] did not just go and look at Zoomracks and get ideas from it. He developed his own ideas, his own creative endeavor, and his own way of doing things.

"The main differences between the two programs is that HyperCard is strong in graphics and fonts, while Zoomracks is better equipped to let you do all the things you'd do in a small office. That's because we have a multi-card mode, output format, and 250-line fieldscrolls." Multicard mode lets you see only the top line of each card in a stack, so you can quickly spot the card you need—and 250-line fieldscrolls offer a five-page capacity for each field of information.

What about the uproar over HyperCard? "Apple has a big advantage," Heckel explains. "They had 200 people in-house using the program. They started with five, and ended up with ten testers. So, although the basic group of four was small, there was a significant support structure for the product. Bill was able to make the product mature rapidly.

"Apple is making this a big thing. They're bundling HyperCard with every Macintosh, saying the program is the wave of the future. They know it's the kind of product its users will be enthusiastic about in six months, no matter what the reviewers say.

"But the real question is, why are they pushing this particular product? Because of the tremendous variety of things it does, because of the stackware opportunities, HyperCard becomes the opportunity for Apple to have a new standard and attract a new base of users. Apple is saying, 'It's a whole new ballgame.'"

While Apple predicts the next big breakthrough with HyperCard, Heckel heralds a new age of productivity software with Zoomracks. "I believe Zoomracks will really change the way people

"John Sculley was right when he said that HyperCard is going to change the way people use computers," Heckel says with a chuckle. "And I've got an idea for an ad which, if I can finance it, will go like this—Thank you, Apple, for HyperCard. But remember, we were there first."

**"Thank you,
Apple, for HyperCard. But
we were there first."**

use computers," he says. "From the users survey, I know that people are already using Zoomracks for at least five applications instead of one. Two years from now they'll be using ten.

Elizabeth Metzger Armstrong is a San Francisco freelance journalist, software reviewer and documentation writer.

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Zoomracks II. Quickview Systems, 146 Main Street, Suite 404, Los Altos, CA 94022, (415) 965-0327. \$149.95

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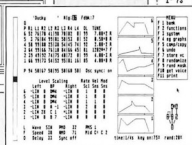
OPEN-MODE EDIT

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2 SnareDrum PLAY	144	E HiRage 2 PLAY	126	G CC Obor PLAY	222
3 HiHat PLAY	2222	F HiRage 2 NOTE	127	H CC Strap PLAY	2222
4 HiHatM NOTE	18	G HiRage 2 PLAY	128	I CClapDr PLAY	222
5 HiHatTm PLAY	127	H HiRage 4 NOTE	129		
6 Low Tom PLAY	18	I T 2nd Strap PLAY	128		
7 SnareDrum PLAY	128	J T3rd Strap NOTE	121		
8 Cymbal1 PLAY	22	K T3rd Strap NOTE	122		
9 Gong1 PLAY	22	L T3rd Strap PLAY	123		
10 Tambour NOTE	125	M S800Strg PLAY	124		
11 Tambour PLAY	2222	N S800Strg NOTE	125		
12 C Claves PLAY	222	O K3 voice PLAY	126		

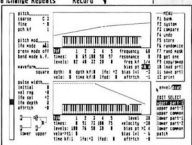
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1	1	2	6	11	DM	7	101	Transpose/Auto	Slide: PWS
1	1	3	6	11	DM	4	7	Insert Adjust	Repeat
1	1	4	6	11	DM	8	11	Copy	Delete Sequence
1	1	5	6	11	DM	8	11	Print	Exit
1	1	6	6	11	DM	8	11	CPY DRG SEQ PUN	
1	1	7	6	11	DM	8	11	Play Record	
1	1	8	6	11	DM	8	11	Print	
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ST WRITER MEETS ITS MOUSE

START upgrades the classic word processor

by Bruce D. Noonan, M.D.

Last issue, Dr. Noonan presented his newest version of the Atari freeware word processor, ST Writer 1.75. But just as we went to press, we got a message from him—the GEM-based version of ST Writer was finished! Here, then, is Bruce Noonan's story—going where no mouse cursor has gone before. You'll find the program on your START disk as file STWRITE2.ARC.

 File STWRITE2.ARC
on your START disk

The story thus far: When the ST first appeared, Atari decided to bundle a free word processor with it. It had to be done quickly, so in just two weeks, programmers Dan Oliver and John Feagans converted the 8-bit AtariWriter program to the ST, calling it ST Writer. However, ST Writer still had a few bugs, and Seattle ophthalmologist Bruce Noonan received permission from Atari to take the ST Writer source code and improve the program—which he's been doing ever since. You can

read more about Dr. Noonan's work in "ST Writer Secrets" and "ST Writer Returns!" in the Winter 1986 and Fall 1987 issues of START.

About a year ago I was speaking to John Feagans of Atari about the progress he was making with ST Writer.

John said that if he had had his druthers, ST Writer would have been GEM-based, and Atari never would have had to resort to using 1ST Word. We began to talk about converting ST Writer

to GEM, and agreed that if we could do it, we wouldn't want the program to slow down. We spoke of dialog boxes, windows, file selector boxes and access to desk accessories. But it was not to come to pass at that time, and I (and many other ST Writer users) had long been accustomed to using a non-mouse-based word processor.

Months passed, and I had nearly forgotten the conversation until one day I received a call from John. Barely concealing his exuberance, he described having a mouse cursor on the ST Writer screen!

OF MICE AND MEN

Apparently, John had linked a set of sample GEM object files with the ST Writer object files, done some work on a makeshift resource file, and created something of a GEM/TOS hybrid. I asked him to send me the code, and I began to try to make my own GEM version of ST Writer.

Well, after a year, here it is—ST



ST WRITER . . .

Writer version 2.0. You will notice that there are only very subtle differences between it and version 1.75—that is, until you click a mouse button! What's that—a *dialog box*? Click on OK, and you'll get a blank window with a menu bar at the top. The Desk, Files, Edit and Options menus contain all the selections from the old main menu, with a couple of additions.

For example, there are two Save choices: *Save* and *Save as . . .* You use *Save* for saving your file under the same name it was Loaded under, and *Save as . . .* when you want to save a file under a new name. Under Edit, you will notice the addition of Global Format. Clicking on this menu item will produce a dialog box allowing you to enter formatting data *prior to creating a file*. It will *not* change formatting data in an existing file, but only in a new file to be created using the Create selection. The last difference is under Options: You can switch out of GEM mode by clicking on Mouse, and you will be returned to the old familiar ST Writer menu.

When you're typing or editing text, there is no menu bar or menu items. However, at the bottom right of the command box are two arrows. If you are in GEM mode, clicking the mouse will hide the flashing "Alpha" cursor, and

the mouse cursor will appear. Clicking on the up or down arrows has the same effect as **Shift-up arrow** or **Shift-down arrow**—that is, scrolling the screen up or down.

Clicking the mouse on ESC is the same as pressing the Escape key, and returns you to the menu. You can also place the Alpha cursor anywhere in the text on the screen with the mouse by clicking to show the mouse cursor, moving it to the appropriate position and clicking again. At one point, we had both the mouse cursor and the alpha cursor on the screen at the same time. Unfortunately, if both cursors overlapped, the character under the alpha cursor sometimes got mangled, so I elected to allow only one cursor or the other to be on at a time.

DIAGNOSIS: RODENTOPHOBIA

ST Writer retains its speed by *not* using the conventional GEM approach to mouse and window management. The price of that speed: There is no text on the menu screen, and no menus on the edit screen. We wanted some way of allowing those who actually wanted to pet their mice to be able to choose to do so without changing the basic operation of ST Writer. By avoiding those GEM conventions, ST Writer does not

slow down as do other (truly) GEM-based word processors.

I have tested the Free Memory counter with the Atari's new Mega 4, and it works fine. I also checked the disk Formatting selection, and it does indeed use the twisted sector skewing just as with the format option from the desktop (but only with the new TOS ROMs). I am using version 2.0 in my office and have not found any problems.

I hoped to use ST Writer 2.0 in conjunction with Kuma's K-Switch on a Mega, so I could keep ST Writer in one part of memory and a spelling checker in another, write my file to a RAMdisk and spell-check it before printing or saving on floppy disk. Unfortunately, K-Switch does not switch from one half of memory to the other on the new Megs because of their new ROMs. Atari says Kuma did not follow its guidelines when writing K-Switch, and it's not the fault of the new ROMs.

Nevertheless, ST Writer *still* works in all resolutions—and don't forget the option in high-res monochrome of selecting 37 versus 25 lines of text.

After more than a year, I hope you'll agree that ST Writer 2.0 is well worth the wait—especially for its price! ■

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LIGHTS, CAMERA, ST!

*Hollywood discovers
your favorite computer*

By Mike Perry

Hollywood, California.

Lights, camera... Atari?!

The Atari ST is a sexy machine with a combination of power, versatility, and good looks, and it's winning a variety of supporting roles in the motion picture and television production industry. Tinseltown has always loved a maverick, and the ST is considered a chic alternative to "Big Blue" — if it's cooler to be seen in a fast convertible than a "sensible" station wagon, it follows that it's more glamorous to have an Atari ST on your desk than an unassuming PC clone. And in Hollywood, glamour is good business.

The film industry is first and foremost a business, and most of the companies are small. The major studios, like Paramount and Twentieth Century Fox, have become primarily *distributors* of films, rather than production companies, and rely on small film producers to supply them with a steady diet of movies.

Often, a mini-corporation will be established for the production of single motion picture. "The Computer Zombies" (not a real movie—yet!) may be produced by "The

It's Tinseltown's newest star—the Atari ST! The ST is being used for everything from scriptwriting to storyboarding; film scoring to special visual effects. Find out how your favorite computer is faring amongst the klieg lights, greasepaint and the roar of the crowd.

Computer Zombies Company", which is disbanded after production is completed and the picture is sold. "The Computer Zombies Co.", in turn, will subcontract most of the work out to dozens of small specialty companies—a lab, a music studio, an equipment rental house, a special effects company, and so on. In addition, many of the hundreds of people who work on a picture will in turn have their own companies, for tax purposes. All these small businesses, with from one to fifty employees, are interested in A.) saving money, B.) saving time, and C.) doing things that no one else in their price range can. It's here, in the trenches of the film business, that the actual work is done, and where I found the Atari ST gaining some acceptance.

INDUSTRIAL LIGHT AND MAGIC

Although not a Hollywood-based company, San Rafael's Industrial Light and Magic is, nevertheless, the Hollywood special effects company. Founded by George Lucas to create the visual effects for his *Star Wars* films, ILM has now become an "effects company for hire," producing mind-blowing visuals for the *Star Wars* Trilogy, *E.T.*, *Cocoon*, *Star Trek II, III, IV*, the opening two-hour pilot of *Star Trek: The Next Generation* and the host of other films. ILM was also responsible for Disneyland's "Star Tours", a thrill-a-minute ride based on the *Star Wars* films.

"Star Tours" is unlike any amusement park ride ever conceived. It's basically a live-action space flight simulator ▶



HOLLYWOOD

LIGHTS...

through the last five minutes of *Return Of The Jedi*, with powerhouse effects, both physical and visual. Essentially, "Star Tours" is a movie theatre in which the whole theatre tilts and rocks with the high-power action shown on the movie screen. It's so popular that there's often a wait of two hours or more to get in, and the waiting area is designed like a futuristic spaceport. The people waiting for the ride can watch "robots" working in the spaceport, who use many colorful computer screens to help them in their "work."

And it was for the "Star Tours" waiting area that ILM found a use for the Atari ST. Dave Carson (Supervisor of Visual Effects, *Star Trek: The Next Generation*, Effects Art Director, *The Witches Of Eastwick*) owns a 520 ST, upgraded to one megabyte, with two disk drives (single- and double-sided) and an RGB monitor. He described the "Star Tours" challenge:

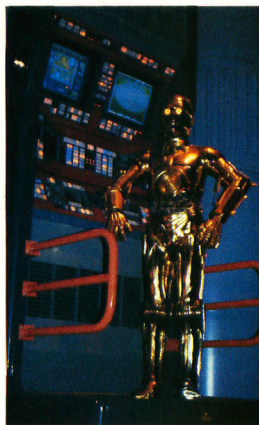
"Disney wanted to have a ten-minute sequence of generic diagnostic screens, that C-3PO [the droid from the *Star Wars* films, featured in the ride] was using in the futuristic spaceport. They gave us a small budget, the assumption being that we could get the screens from the old films. It turned out that we didn't have anything appropriate, so I suggested that I could do new screens on the ST. It seemed like that was the best way within the budget. We generated them on an ST, got hold of a Toys 'R Us model with the RF generator, tapped into the video signal before the image got modulated, and sent it directly to broadcast-quality videotape. The people at Disney took that tape and put it through video editing of their own, so some images are repeated and double-printed. The end product at the ride is coming off of videotape, although it was generated with an ST.

"About a third of the screens were done with NEOchrome, a third with N-Vision Innow Paintworks!, and a third

were programmed with [Antic Software's] C.O.L.R. Object Editor and some C-code."

STORYBOARDING

Storyboarding is used in Hollywood to see how a movie should look before the



Atari ST computer graphics are playing on video monitors in the "Star Tours" waiting area.

production company actually hires a crew and begins filming. A storyboard artist will draw cartoon-like panels, representing shots in the film, showing the composition of the scene, the location and arrows indicating movement. The director, producer, writer, and so on can get a good idea of what the film may look like from them. Many famous directors, from Alfred Hitchcock to Steven Spielberg, have used storyboards when directing. They are also commonly used by advertising agencies to plan shots for commercials.

Dave Carson said that he wants to try using CAD-3D 2.0 and his Atari ST for electronic storyboarding, so he can look at special effects before going to the expense of doing them on film. He's already used CAD-3D before (version

1.0) in doing wireframe graphics of the "Star Tours" shuttlecraft—designing it on computer before the full-size prop was actually constructed. One advantage his Atari ST storyboards have over traditional storyboards—they can move! "The other day, we had a client who needed a shot with a stadium," Carson noted. "I made up storyboards at work, first, but then that night, just out of curiosity I drew the stadium using CAD-3D and was able to look at it from a variety of angles and confirm that the shot was possible. If it turns out that it's possible to preview motions with the machine, I think the ST will turn out to be very handy."

NOTE FOR NOTE

Chris Many composes film music, and together with his partner Geoff Levin uses four STs in Chris's studio: Two 1040's and two 520's, unmodified, with the original disk drives. The team of Levin and Many has written more than 100 original scores in their studio, for commercials including Nike and Toyota, television shows including "Valerie" and "Easy Street", and two films to be released this year, "Heart" and "Wipeout!"

When I met Chris Many, he was up against a typically short deadline composing a score of a film for the aviation giant Northrop about the F-18 Hornet fighter plane. His composition studio is tiny, and packed with three racks of state-of-the-art synthesizers, a video playback machine and monitor, and the two 1040's he uses, leaving just enough room for two humans.

Many believes that the main advantages of the ST in the film business are the flexibility and speed it gives a composer when he or she is working against incredible deadlines. "One time," he said, "I wrote a whole score, and it was really good, and we wrote it for the movie before they got their distributor. Don't tell the name of the movie!" He laughed,

then added, "The score we had done was good, but it turned out that the director, and not the people on the crew with whom we'd been working, was the one calling the shots on the music, and we'd never talked to him! This director has very definite ideas of what he wanted, and where he wanted it, and the music we'd done wasn't acceptable to him. It wasn't that he thought it was bad, it just wasn't what he wanted to hear. So we had to re-write an entire score, from scratch, in about three days, and had to record it all in a week. With that kind of pressure, the ST can be invaluable."

The heart of Many's system is Hybrid Art's SMPTE Track software, which enables Many to "compose to picture." SMPTE stands for the Society of Motion Picture and Television Engineers, and SMPTE Time Code is to film and video what ASCII is to computers—a standard that an entire industry can adhere to. SMPTE Time Code is the standard system that editors, broadcasters, composers and other craftsmen use when working with videotape. Television in America runs at 30 frames (images) per second, and SMPTE Time Code provides a method to assign a unique code number to each frame in a program, which is recorded on the videotape with the picture and sound. This is a bit of a simplification, but the point is that the time code is a method to keep the different elements—sound and picture—in perfect synchronization with each other.

When "composing to picture" for a television show, movie, or commercial, Many just puts a tape of the program into his videotape deck, watches the picture on a television screen and plays his synthesizer. The ST reads the SMPTE time code from the videotape and records what he plays, making note of the exact relationship between the picture and the music. Then, to watch what he's played so far, he rewinds the tape, and the ST reads the time code again, playing back his composition in

exact frame-synchronization with the picture. He can then make adjustments as necessary, changing tempo, adding tracks and the like.

An example of where this capability became invaluable is the F-18 film Many is currently scoring. It incorporates a great deal of stunning air-to-air footage, much in the spirit of "Top Gun." In one sequence, the camera looks at the vast sky and then, out of the clouds, an F-18 rises dramatically and flies by. Many wanted to have a majestic musical theme and booming chord just when the F-18 came into view.

He put a tape of the film into the video tape deck, and played his theme on the synthesizer. Then, he re-wound the video and watched while the ST played back his composition in sync with the picture; he frowned when he realized he had played the chord a little too soon.



Film and television composer Chris Many in his recording studio.

Rather than re-playing everything, he was able to use the ST and SMPTE Track to make the chord come a little later. He played the tape again—this time, the music and airplane arrived together, and the effect was breathtaking.

The SMPTE Track system controls sixteen different instruments simultaneously. "For example, number 16 is drums," said Many, and when he played the keyboard a convincing

"rump pump pump" came out. "Channel 2 is bass," he said. He clicked the mouse and played a riff in sync with the drums he'd just played and the picture; one that would make Bill Wyman jealous. "And channel 13 is strings," he said with a smile. He clicked the mouse, played the track and took another day of work away from the Los Angeles string players of the American Federation of Musicians.

"I just happen to have assigned these sounds to each of those numbers, but they could be anything. I then have sixty tracks, and each track can be played over any channel. For example, if I wanted to play a duet with piano sounds, I would pick a track, let's say, track 1, pick the channel that the piano sound is on, and play the first part. Then I would pick another track, track 2, play the second part, and the computer can play them both back together. And all sixty tracks will be in exact sync with the picture."

Many then has two alternatives before recording the music: either record straight from the synthesizers, or write cue sheets out from the various tracks and record with real, human musicians. "I write the cue sheets out myself because there hasn't been a writing program out yet that I'm satisfied with. The cue sheets tend to be too literal; if I'm playing 64th notes and ▶

LIGHTS...

one comes out a little too long, there will be one 32nd note in the middle of all of the others and it won't make sense to the musician. We can use the synthesizer tracks as scratch tracks for the musicians to listen to, however."

I still hadn't learned what the second ST was used for. Many pointed to it and said, "That's running Hybrid Arts' Analog Digital Audio Processor (ADAP), a very high end sampler. Basically, I'm treating it like another instrument. We did sound for the electronic fireworks display at Siggraph with that. Some programmer had made computer-generated fireworks, and they wanted live, digital fireworks sounds to go along with the pictures.

"So we used the ADAP Sound Rack, and I sat down and sampled fireworks sounds, worked with the sequencer, and every time an explosion went off I jiggled it back and forth to hit exactly with the picture. As the video ran, our system read the time code, and it synchronized the explosions, so as you watched the fireworks, you could hear compact disc-quality fireworks sounds coming out live. We used three of these ADAP units: one for the main speakers, and two for the sides."

I WANT MY MTV

Gavin Doughtie directs music videos for Hollywood-based C.U. Productions and uses his ST for everything from writing proposals and scripts, to creating the video logo at the end of his demo reel.

"I think one of the most exciting developments for the ST is the animation scripting facility for CAD-3D 2.0. That program is fast becoming a professional computer graphics and animation tool. I definitely plan to incorporate CAD-3D graphics into a music video just as soon as I can, because the way to keep ahead in that field is to offer the most striking imagery possible for the budget. Until now, computer-generated video sequences were way too expensive and time-consuming for the average director

to contemplate. The logo I created represents just a fraction of the ST's full animation capabilities. There's nothing quite like it on any other microcomputer. When I show the logo to people, they ask me what professional animation house did it, and how much it cost, and they're flabbergasted to learn I created it all myself on a system costing well under \$1500, including software. That's how much they pay for one video effect!" Doughtie uses a one-megabyte 520 ST with RF modulator and a Practical Solutions' Monitor Master to output a composite signal for videotaping CAD-3D animations.

**ST's are
finding homes in studios
and on movie sets.**

SCREENWRITING

Gavin Doughtie is also a screenwriter, and uses the ST program Flash and an Avatex modem in his work. "Because of the constant revision process in screenwriting, writers here were among the first to switch to word-processors. Many of them acquired modems and now there's a whole on-line community of screenwriters in Hollywood. My writing partner and I exchange script files through a local bulletin board. That's great, because we keep different hours, use different word processors, have different schedules and can't stand the sight of each other!"

Crager Couger is another screenwriter who uses an ST, but he likes it because it was inexpensive, simple to use and came complete. "I've been using 1ST Word since I got the machine," he said, "and it does everything I need for screenwriting.

Some of my friends have spent three or four times as much for systems that might save me an hour of time when doing a screenplay. But you put in hundreds of hours on a screenplay anyway, and what's one more hour? I'm not a computer guy, I'm a writer, and only want to use a computer as a tool. The ST has served me pretty well since I got it, and as more writers I know are getting them, we can swap work disks around and use each others' printers."

POST PRODUCTION

In this fast-moving industry, the Atari ST's are finding homes in studios, post-production houses, business offices and on movie sets. Thanks to their low prices and versatility, the ST will continue to find a warm welcome, and the Mega ST's and beyond undoubtedly will find further uses in the City of Angels.

And maybe, if some future ST is as pretty as Kathleen Turner, or can shoot as well as Clint Eastwood, the Atari ST may even get its own star on Hollywood Boulevard! ■

PRODUCTS MENTIONED

ADAP Soundrack. Hybrid Arts, Inc., 11920 West Olympic Blvd., Los Angeles, CA 90064. (213) 826-3777. \$1995.95

CIRCLE 190 ON READER SERVICE CARD

CAD-3D 2.0 (contained in The Cyber Studio). The Catalog, Antic Software, 544 Second Street, San Francisco, CA 94107. (800) 234-7001. \$89.95

Monitor Master. Practical Solutions, 1930 E. Grant Road, Tucson, AZ 85719. (602) 884-9612. \$49.95

CIRCLE 191 ON READER SERVICE CARD

Paintworks. Audio Light, distributed by Activision, P.O. Box 7287, Mountain View, CA 94039. (415) 940-6044. \$39.95

CIRCLE 192 ON READER SERVICE CARD

SMPTÉ Track ST. Hybrid Arts, Inc., 11920 West Olympic Blvd., Los Angeles, CA 90064. (213) 826-3777. \$575.95

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Note: Those with only 512k of main memory can use Switch/Back with a Polydisk, just like those with one Meg.

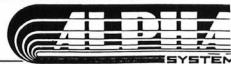
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Megabytes, Not Megabucks

An inexpensive upgrade for your hard disk

BY DAVE SMALL CONTRIBUTING EDITOR

You're in the ranks of the big boys now—you own a hard disk. You've got total memory superiority, and can store mondo amounts of massive files. But what if you actually need another hard disk? Can you satisfy your lust for megabytes without breaking your bank? Let START Contributing Editor Dave Small show you how.

So your hard disk is getting full.

It happens to all of us. One day you have 20 megabytes open, and it seems like the next, you have to delete something you'd like to save. And wasn't it only yesterday that 20 megabytes seemed like all the storage in the world. Sure would be nice to stretch that space, wouldn't it?

Well, how about another 20 megabytes for under \$300? No, I'm not kidding. If you're willing to open up your hard disk's case, you can double your disk storage easily with a few tools and a little bit of work. Interested? Read on.

Warning: Modifying your hard disk will void the hard disk's warranty. Before you begin work on this project, be sure you've read and understood all the instructions. There's always potential for trouble in any project, and neither START nor David Small can be responsible if something goes wrong. This article provides the basic knowledge on how to add a second hard drive mechanism to your current hard disk. The rest is up to you. ▶

Megabytes...

THE SYSTEM

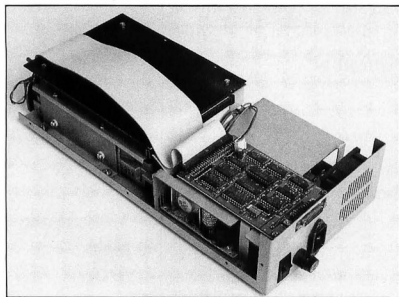
Before you start tearing into your hard disk, let's make sure we know what we're doing. We'll start by outlining the parts of hard disk system on the Atari ST.

ATARI ST → ACSI TO SCSI → SCSI TO HD → 2 → HD
 A B C D E F G

A: The Atari ST. It connects to the hard disk system by way of the hard disk port on the back, using a DB-19 connector. ("DB" means the kind of connector, and 19 indicates the number of pins in the connector. For more samples of DB-type connectors, look at your printer and modem ports, both of which are DB-25 connectors. The ones with pins are called male connectors; the ones with holes are female connectors.)

B: The hard disk cable. It connects the ST to the ACSI-SCSI converter, with a DB-19 connector on each end. The short cable that comes with the Atari hard disk is not very good; mine broke fairly quickly. This may be the first thing you replace in your hard disk system; with the cable as short as it is, it gets a lot of flexing and abuse, and the wires inside break easily. If it breaks, you can build your own cable with ribbon cable (available from Radio Shack) and DB-19 connectors (available from mail-order companies such as JDR Microdevices).

C: The ACSI to SCSI converter. The signals coming out of the hard disk port form the Atari Computer Systems Interface, or ACSI. This is a mix of hardware and software that only

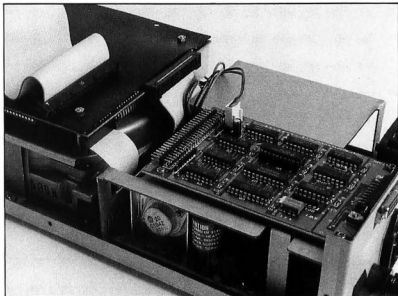


A: The original hard disk system with its cover removed. The circuit board that's clearly visible is the ACSI-to-SCSI converter.

Atari uses. The industry standard for talking to peripherals is the Small Computer Systems Interface, or SCSI (pronounced "scoozzy"). ACSI is similar to SCSI, but definitely not identical. Hence, you need a little translator board to convert ACSI signals to SCSI.

D: The converter to controller cable. This is almost always a ribbon cable with clamp-on 50-pin female pin connectors. It hooks the ACSI-SCSI card to the SCSI hard disk controller.

E: SCSI hard disk controller. It takes the 50-pin standard SCSI input, and hooks to the hard disk via two cables. This is



B: To get at the SCSI controller connections, you'll probably have to disconnect some cables. It may help to label what cable attaches to which connector.

a miniature computer, with a CPU all to itself, dedicated to running a hard disk. There are a number of different SCSI controllers; Atari uses an Adaptec 4000, and that's probably the one you'll see.

F: The two cables that connect the SCSI controller to the hard disk. One is a 34-line cable, with edge connectors on each end. The other is a 20-line cable, with a female pin connector on one end and an edge connector on the other.

G: The hard disk drive. This is the actual disk drive mechanism; it too has a built-in microprocessor. Typically Atari uses a Seagate 225 drive mechanism, but I've seen several different mechanisms in different drives, including mechanisms made by Microscience, Tulin, Miniscribe and Control Data.

Everything that isn't a cable requires power. They all need +5 volts (ACSI to SCSI), and two need +5 and +12 volts: the SCSI controller and hard disk. The hard disk and SCSI controller get theirs through a standard, polarized "floppy disk" power connector. The interface is nonstandard, but don't worry—it's already powered.

DIVING IN

Now, if you open up your Atari hard disk, you should see all this stuff wedged in there.

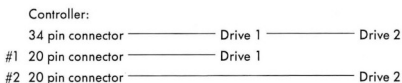
Note: A Supra hard disk may use a funny hard disk that has the SCSI controller and hard disk integrated into one piece, and which has the 50-pin connector directly hooked into the ACSI-SCSI

board Supra makes. If that's what you see when you open it up, close up your disk drive and forget the remainder of this article; you haven't got a place to hook in a second drive.

Now, looking more closely at the controller to disk drive connections, we have:



However, a little examination of the manuals reveals that the controller Atari uses, the Adaptec 4000, can run two drives. They hook in like this:



Basically, the 34-pin cable daisy-chains between both drives and the controllers. It has the usual signals to run a disk drive that you see on a floppy disk. However, none of the read-write data goes through this cable—it's sent on the 20-pin cable, which is specific to each drive.

WHAT YOU'LL NEED

Now, let's assume we want to add another drive mechanism to our Atari hard disk. It's got an Adaptec 4000 controller. What do we need?

1. A new 20-pin cable for the read/write data to the new drive.
2. Another 34-pin edge connector for the new drive, off the main cable. (Note: If the main cable is too short, you'll need to build a new main cable 34-pin edge connectors on either side.) You also have the option of running the 34-pin from the controller to an internal drive, then out the back to an external drive. Try not to make it over three or four feet long, okay?
3. A power supply. These use the same connectors as IBM-compatible floppy power supplies. If you have a hefty enough power supply for your first hard disk, you can power your second drive with a Y-connector, available from Jameco Electronics and other mail-order houses; this plugs into your power supply, and provides two plugs to plug in two hard disks. I've had no problems running two full-height hard disks off my standard Atari power supply; it seems quite able to handle them, but I can't guarantee this for your drive.
4. Software. You've got to have software that will look for the second "unit" of the first "device," to use SCSI-speak. The only source I know of for this at present is Supra; their driver software, beginning with revision 2.4-B (not 2.4 regular) has this built in. The most recent version, as START went to press,

was 2.72. By the way, this driver is up on CompuServe; you should get permission from Supra to use it with your hard disk, since they wrote it for use on their drives.

5. Some place to put all this, because it's going to be a mighty tight fit inside the Atari SH204 case. I can't guarantee it will fit: It depends on your drive's size and faceplate, and your own ingenuity. You may want to put everything in a separate box, like the IBM external hard disk cases now selling everywhere at a huge discount. They'll easily hold two half-height disk drives, power supply, and they even have a cooling fan.

Another possibility is to run the three cables (one power, one 34-pin, one 20-pin) out the back of the drive, near the ACSII connector, and hook up the new drive separately. This works fine, and you can then unplug the drive (with power off, of course) as a removable backup.

A removable backup? Yes, think about it. You can back up your whole drive to the external drive in about three minutes

Hard Disks For The ST

If you don't already own a hard disk, then you don't know what you're missing. Hook a hard disk to your ST and you'll be amazed at how fast programs scream off it and onto your screen. Disk files load and save much faster than with regular disks, and there's plenty of space for storing large files.

Here's a list of the top hard drives for the Atari ST.

Atari SH204 (20 megabytes, \$699.95.) Atari Corporation, 1196 Borregas Avenue, Sunnyvale, CA 94088. (408) 745-2367.

CIRCLE 197 ON READER SERVICE CARD

Astra System HD+ (20 megabytes, with a 3½-inch double-sided drive built in, \$995.) Astra Systems, 2500 S. Fairview, Unit L, Santa Ana, CA 92704. (714) 549-2141.

CIRCLE 198 ON READER SERVICE CARD

SupraDrive (20 megabytes, \$699; 30 megabytes, \$995; 60 megabytes, \$1995.) Supra Corporation, 1133 Commercial Way, Albany OR 97321. (503) 967-9075.

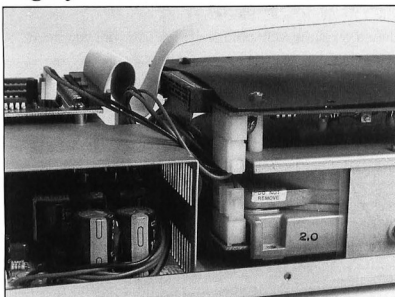
CIRCLE 199 ON READER SERVICE CARD

ICD ST Hard Drive System. (20 megabytes, \$699.95; 30 megabytes, \$945.95; dual 20 megabytes, \$1149.95; dual 30 megabytes, \$1349.95.) All drives include a fan and a real-time clock. ICD, 1220 Rock Street, Rockford, IL 61101. (815) 968-2228.

CIRCLE 200 ON READER SERVICE CARD

Megabytes...

MARY LAVERY PELOQUIN



C: The power supply connectors are IBM standard. You should be able to power two hard drives through an inexpensive Y-connector—but don't count on it!

(20 meg) or six minutes (my 40-megabyte drive). The cost is another drive mechanism, and the price of those is falling daily. Give it some thought; with backups available at great speed, you might find it a practical thing to do.

ASSEMBLY

Okay, if you've got all the parts, let's put it together. For simplicity, we'll call your original hard disk Drive A and the new disk Drive B.

Step 1. Back up Drive A, your current hard disk. No, don't assume everything is safe—spend the time it takes to back it up. That's the best insurance you can have against accidentally reformatting your hard drive.

Step 2. Assemble the new 20-line cable. The parts for the cables are easily available at Radio Shack. For this one, use a length of 20-line ribbon cable and two clamp-on connectors—a female pin connector on one end and an edge connector on the other.

Use a vise, or vise-grip pliers, to clamp the connectors on the cable. You should protect the connectors while clamping, lest they get chewed up; a good way is to put a scrap of sheet metal on either side, then gently tighten. Be sure your drive connector is completely perpendicular to the cable and that the pins dig through the cable squarely. This is very important to avoid shorts.

Step 3. Next, build a new 34-line cable or modify the old one. To modify the old one, just clamp a second 34-pin edge connector on the existing cable. Remember to leave enough room between connectors for the drives. If the original cable is too short, you'll need to build a new one from 34-line ribbon cable, with a 34-pin edge connector on each end and one in the middle.

Step 4. With all the power off, disconnect the cables from your first drive (Drive A). Reconnect the cables to your new

second drive (Drive B) and power up again. Now run your hard-disk formatting software, and format and partition it however you like; most likely, it's properly set up from the factory to do this. This will test the drive and your cabling. Now power down again, remove Drive B, and replace Drive A.

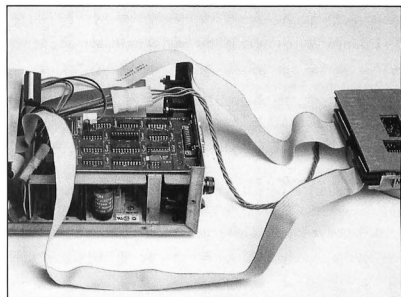
If you can't format Drive B, it may be set for self-test mode. If it is, when you power it up you'll hear it seeking back and forth. If that's the case, check the manual for your Drive B hard-disk mechanism. On Microscience drives, for example, you'll need to turn switch 10 off to turn off the self-test mode. Remember to turn the power off before changing any connections or switch settings.

Step 5. Drive B is set up to run as a single drive when you get it; we need to set it up as a second drive. To do this, you need to make sure the termination resistors are turned off or removed. How you do this depends on the style of drive.

On Microscience drives, switches 5-9 control the terminator, so turn them off for Drive B. On Shugart and Tulin drives, the terminator pack is a long, thin resistor with eight pins in a row, in a socket (and is about the only part in a socket); remove it on Drive B.

Step 6. Next, you need to set Drive B as drive #2. Again, it depends on the type of drive. On Microscience drives, it's a switch. On Tulin drives there's a 4-pin selection jumper. On Seagates there's a shunt/berg (Seagate). Whatever it takes, set Drive B as drive #2.

Step 7. Now you're all set to reconnect things. With power



D: The second hard drive connects through two cables and a power supply connector. Both cables attach to the SCSI controller.

off, attach all the cables and hook up the power—but don't turn it on!

Step 8. Double-check all your work. It's really easy to get a cable reversed, so check twice; remember that pin 2 marked on the controller board goes to pin 2 marked on the drive. (A convention is that the marked side of a ribbon cable is pins 1 and 2 side). The pin 1 side of a connector is generally labeled

MARY LAVERY PELOQUIN

on the circuit board—look for a “1” or “2” on one side, and “33” or “34” on the other.

Check the AC SI-SCSI cable, the three drive cables, and if

How about another 20 megabytes for under \$300?

you've soldered the power, triple-check that—12 volts on the wrong line will ruin both your day and drive.

One more reason to check twice: If you get the 34-pin cable reversed, you'll ground all the control inputs to the drive. This means you'll turn on the read/write line, telling the drive to start writing. This is a very efficient way to blow away whatever track the disk is currently on. Reformat time!

Step 9. Now, with the computer off, power up the drives. Both drives should spin and make clunking noises. Eventually they will settle down. A Microscience will have a solid red light, then flickering green, then solid green as the drive becomes ready. A Seagate or Tulin will just have a flickering red light for awhile, which will then go off.

If the Busy light stays on dimly, try powering on the Atari. Sometimes this resets the hard disk controller and wakes it up. If not, power off and check everything again.

Horribly gruesome warning: If you've changed the position of the Adaptec board and mounted it by its four mounting holes—the way any intelligent person would—you may *short it out and destroy it* by touching a trace with the mounting screw/nut head. For some reason, Adaptec ran traces within a hair's width of the mounting hole. You have to be very careful; use a rubber or plastic insulator under the screw/nut to insulate it. Check four or five times with a good strong light; the clearances are *extremely* tight.

Don't let all these warnings scare you; you can do this modification with no tears. Just take as much care as you would with any electronics project, and you'll be fine. If you have any doubts, find a friend who's experienced with electronics to lend you a hand and moral support.

BOOTING UP

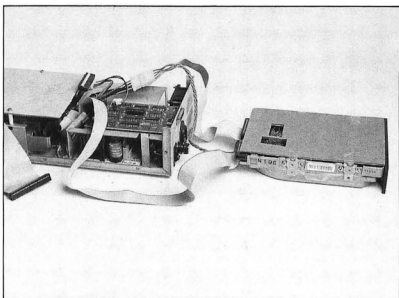
Now you're ready to use the second drive. Turn on your Atari, disable any automatic boot program, and run the Supra booter. You should see both hard disk drive lights blink on, then off—first Drive A, then Drive B. Now you should be able

to install up to four partitions for each drive—whatever you selected at partition time. You can end up with *eight* disk icons (drives C: through J:) if you wish. It gives you a nice feeling of power.

From here, the installation process (Save Desktop, etc.) remains the same. Treat your system as though you've got one huge drive and (up to) 8 partitions. All the basic considerations remain the same.

Okay, good—now you've got 40 megabytes online. But why stop at 40? You can *just as easily* plug in a 30-, 40- or 60-megabyte mechanism; the connections are *identical*. I replaced my Drive A with a half-height 40-megabyte Microscience mechanism inside my Atari hard drive's case. Then, when I found a full-height Miniscribe 40-megabyte mechanism, I added it outside the case. Bang—I had 80 megabytes online. I feel as if I'm running on a mainframe. Best of all, I took the original Atari 20-meg mechanism (a Seagate), and with some dedicated homebrewing hooked it up, using my own Adaptec, a spare Supra AC SI-SCSI and lots of cabling.

When I was developing the Magic Sac, Data Pacific's



E: The new two-drive system, ready for its case again. You may need a larger case to accommodate both hard drives.

Macintosh emulator for the ST, I crashed my hard disk frequently. I expect this only to get worse as I add hard disk support to the Magic Sac, and work out the various bugs involved. I use the second 40-megabyte drive as an extremely fast backup to the first 40 megabytes, and have a short program which grabs all 40 megabytes off the first drive and writes it to the second, with an optional restore. I then unplug the backup drive, and put it on a shelf. With the Atari's transfer rates, this doesn't take much time at all, and it's *much* faster than dumping to floppy, or even tape backup.

HARD DISK TIPS

Check out the ads in the back of magazines such as *Byte* for good prices on hard disks. You can use almost any IBM- ▶

Megabytes...

Hard Disk Troubleshooting

BY DAVE SMALL CONTRIBUTING EDITOR

Having done several of these hard-disk upgrades, I've made lots of mistakes. When a problem shows up on this project, the usual troubleshooting principles apply.

The first thing to do is check the modifications. If nothing is obviously wrong, remove everything you've done, and then add pieces one at a time until the problem shows up. Check all connections, then check them again. Don't take anything for granted—anyone can make a mistake, even you.

Here are a few more specific hints you might find useful, based on my experience.

Problem: Drives don't spin up; power supply sirs and clicks.

You've got the system shorted out. Check the Adaptec board mounting holes. Check your wiring. Chances are, the main power supply is grounded—probably a wire rubbing against the chassis somewhere. Or maybe your new drive is totally shorted out. That's easy to check—disconnect it and power back up.

Problem: Drives spin up briefly, spin down.

Your second drive is placing too much load on the power supply, and the supply is shutting itself off when it

gets too hot. Get a second supply for your second drive. *Problem: Both drives don't work when second one attached.*

Make sure you've done the drive selects and terminators correctly—99 percent of the time, that's the cause of this sort of problem. Never tug on a clamp-on connector's cable; you may make it go intermittent. You may have shorted out the cable doing the clamp-on, so try a new cable.

Problem: Both drives light up when I access the system.

You have both drives strapped as drive #1. Check drive select.

Warning: some Atari drives are strapped as drives #1 through #4. This means drive #1 will react to any command sent to drive #2, including a format command. (Sad experience speaking.) Check that Drive A is set only as drive #1! Don't assume Atari did... as I did.

Remember, you should always be able to unhook the three connections to the second drive, and run your first drive without any problems.

Problem: Both drives light up immediately when I power on.

You've got the 34 pin cable upside down.

Problem: I start my Atari up, it ignores the hard and floppy drives, and gives me a "0 bytes in 0 items" blank desktop.

You've probably got a bad Atari-to-drive cable. Or perhaps you've forgotten to power up the ACSII-to-SCSI board—did you hook that connector back on? Worst case: You may have a blown DMA chip, in which case you'll need a trip to your local Atari repair center. ■

compatible hard disk; the better the size and access time, the better for you (20 milliseconds is excellent, 80 milliseconds is fairly slow). You shouldn't pay over \$250 for a 20-megabyte mechanism, and prices are going nowhere but down. By the way, if you are so inclined, 10-megabyte mechanisms are under \$150, and five megabytes are under \$75. Computer Shopper and Micro Cornucopia magazines seem to have the best prices for these mechanisms.

If you buy an obscure brand of hard-disk mechanism, you may need a specific formatting program for it. Supra's formatter is the best I've seen; it lets you plug in specific parameters, which you can pretty much read off the spec sheet that comes with the drive. (Remember, you'll have to format this as the second drive.)

By the way, if all you're after is more storage, without the added cabling headaches, just get a half-height drive of whatever size you want (40 megabytes seems popular). Swap it for your Atari's Seagate 225, and you're off and running. Beyond 64 megabytes per drive, you'll have a problem; the present partition software lets you have no more than 4 partitions, and 16 megabytes per partition. So, right now, two 64 mega-

byte drives is the limit. That's 128 megabytes of disk storage. (Limit? Ha!)

Anyway, there you have it, the inside scoop on how to expand your ST's hard disks. It really isn't very hard, as hardware projects go: There's no soldering, only a little cable clamping and figuring a way to mount the mechanisms. Maybe you can even put that old 10-megabyte IBM drive sitting on the shelf at the office to work. I expect to see lots of multi-megabyte ST systems in the near future! ■

REFERENCE

- Byte. One Phoenix Mill Lane, Peterborough, NH 03458. (603) 924-9281. Subscriptions: \$22 per year for 12 issues, with additional issues in June and October.
- Computer Shopper. 407 South Washington Ave., Titusville, FL 32796. (305) 269-3211. Subscriptions: \$21 per year for 12 issues.
- Jameco Electronics. 1355 Shoreway Road, Belmont, CA 94002. (415) 592-8121; for orders call (415) 592-8097. Send \$1 for catalog.
- JDR Microdevices. 110 Knowles Drive, Los Gatos, CA 95030. (800) 538-500 or (408) 866-6200.

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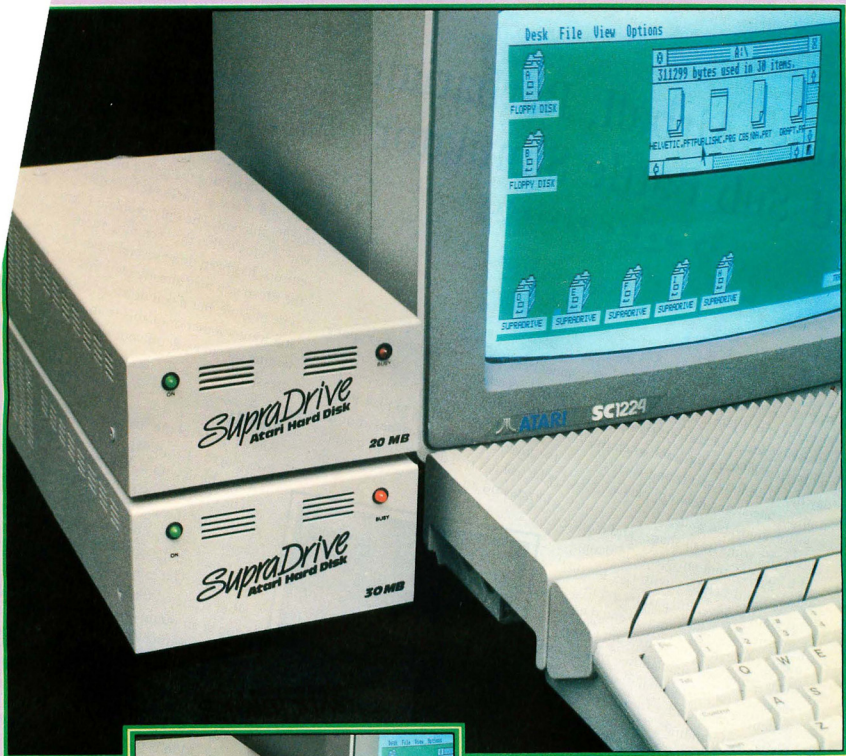
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Plutos, Airball, Barbarian and Sub Battle Simulator

by David Plotkin

I love my Atari ST for the fun it gives me. I also appreciate it for doing word processing and spreadsheets (tax time will be here all too soon) but when the day has been long and trying, there's nothing like sitting down to play a colorful, enjoyable game.

Games come in all shapes and sizes: from arcade shoot-em-ups to Infocom's all-text mind-benders; with role-playing and graphic adventures squeezed in-between. Also falling under "entertainment" (though some don't want to call them games) are simulations, which can allow you (at least partially) to experience real-life adventures: flying a plane, commanding a sub on a war patrol or playing mogul in the stock market.

The theme of this column is entertainment on the ST. I'll review games and simulations I like, and some I don't. I'll also talk about what I believe makes a game "good," trends in current games, and techniques of effective game design.

PLUTOS

Plutos is a scrolling shoot-em-up with a familiar theme: blast everything that you see. In Plutos, you control a small spacecraft with your joystick. The view is from overhead, and as you fly over the well-rendered scrolling landscape, you

must deal with ground-based weapons as well as enemy fighters that loop around you.

Plutos is very simple to play. Pressing the joystick button unleashes your missiles, which will destroy both ground targets and aircraft. However, a few of



Plutos

the ground installations cannot be damaged, and there are even some which will cost you a life if you run into them. In addition, you must keep an eye on your fuel; to refuel, you just blast a fuel tank (marked with an 'F').

The game is split into levels, each harder than the last, with more enemy aircraft and ground targets firing at you as you progress. By the third level, the air is thick with enemy missiles, and survival is a matter of avoiding missiles and blasting the enemies which are do-

ing the most firing. At the end of each level is a sentry, and you must shoot out its eyes with multiple hits or you will be sent back to the beginning of the level again. Blasting certain ground targets will provide you with an extra life.

The scrolling is very smooth and the graphics sharp. A lot of imagination went into designing the layout of each level, and many of the levels look distinctly different. The only problem I see with Plutos is that the "scrolling shoot-em-up" has been done several times on the ST, so you may already own this type of game. But if you don't (or you still want another one), this is an entertaining way to work off your aggressions.

AIRBALL

Airball is one of the strangest games I've ever played—the protagonist you control is a beachball with a slow leak!

The object of the game is to maneuver this ball through 150 rooms in a mansion, taking care to *not* puncture your skin on the obstacles lying about. As you go, you must pick up jewels and other scattered treasures. You can also stop at air pumps and reinflate your ball if you're getting too flat. If you can't find an air pump before all your pressure is gone (indicated by a line at the bottom of the screen), then you lose one of your five lives. You also lose a life if your skin is punctured or if you stay on the air pump too long and get over-inflated. Your final objective is to find a "spellbook." I assume if you're successful, then other items will be designated for you to find, but at the moment, I haven't survived long enough to find out.

The view in Airball is in three-quarter perspective, looking down from one corner of the room. You can control your Airball with the mouse, joystick or

keyboard keys, although all these ways are difficult. I had the most luck with the joystick turned *diagonally* so that the direction the ball rolls corresponds to the direction you push the joystick. I found the mouse and keyboard controls very difficult to use. You may choose your mode of control at the beginning of any game, and you can restart the

The protagonist of Airball is a beachball with a slow leak!

game by pressing F10 to abort and then the space bar to start again.

Control in Airball is crucial, because a mistake can bump you against a sharp object, with disastrous results. After you play a while, you get the feel of controlling the ball, but be prepared for some short games when you first get started. Besides controlling the direction, you can also control when to pick up an object and when to make the ball "hop" to climb stairs.

Airball's graphics are very good. Each room contains a wealth of detail, including jewels, kettles, statues, stairs, archways, cobblestone floors, spikes (look out for these) and green slime (also deadly). If you puncture yourself, then the deflating ball zips through the air in an amusing display. Airball also includes an excellent soundtrack.

You'll find it necessary to map your progress as you play, or you'll get hopelessly lost in the maze of rooms. Unfortunately, stopping to map each room can get tedious, so I just tend to play and try to remember where I am going as best I can. Airball is an original game that I recommend to those with steady nerves and a sense of adventure.

BARBARIAN

Barbarian is a graphically stunning action adventure. In it you guide Hegor, the hero, through many perils to rid the land of an evil force that's devastating fields and killing the villagers. Your final goal is to become King, but to claim the title, you must defeat the minions of the evil wizard Necron.

Both Barbarian's storyline and hero are reminiscent of the "Conan" movies, down to the flowing hair and well-muscled body of Hegor. As the game begins, Hegor is standing in a field, wielding his only possession: a sword. As with Airball (above) you can control Hegor's actions with the joystick, mouse or the keyboard. A line of icons stretches across the bottom of the screen, indicating stop, jump, run, attack, defend, flee and direction of movement. You may activate any of these actions by clicking on the icon with the mouse or pressing the appropriate keys. For example, the cursor arrow keys control direction, and you can use either [J] or [F5] to make Hegor jump. You may also pick up or drop objects as you go along.

Although the number of controls for Hegor's actions are limited, how Hegor responds to a particular control depends on the situation. For example, he will swing his sword differently against an axe-wielding opponent than a clawed ghoul. This makes for a wide range of motions from a small number of controls. Even so, it will take some time to learn to control Hegor effectively. Be prepared to die many times until you master the controls.

As you guide Hegor, he will encounter all manner of fantastic obstacles: armed opponents, falling rocks, demons, collapsing bridges and the like. Defeating each obstacle is a matter of

combining the correct response with a precise sense of timing. Hegor will also find objects which will help him with his quest.

The graphics, animation and sound in Barbarian are the most impressive I've ever seen in an ST game. The backgrounds and opponents are painstakingly detailed, and the motions of Hegor are incredibly realistic. He leaps through the air with fluid motion, and when he walks into a wall and bounces off, his eyes bug out momentarily. The sounds appear to have been digitized, even to the "boof" when he walks into a wall, and the blood-curdling yell when he swings his sword.

There are two problems with Barbarian: one minor, one very major. The minor one is that sometimes Hegor ap-

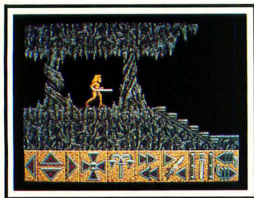


Airball

pears to walk in mid-air, or his body hangs in mid-air after he has died. The major problem is that there is *no way to save the game*. This is so important a feature that, as good as Barbarian is, I actually hesitate to recommend it. Frequently, when Hegor enters a new screen, he meets with an immediate peril, you don't have adequate time to respond to it and Hegor bites the dust. A good example of this is the rock that falls on him in the third screen. The next time he enters that screen, you ▶

know the rock is there, and after several tries you can figure out how to get past it. But since you can't save a game, you end up playing from the beginning over and over again.

Barbarian is a remarkable effort, with smooth animation, great sound and exquisite graphics. It's a little difficult to control, but you'll be able to master it



Barbarian

after some practice. You'll have to balance these good features against the lack of a Save Game option, which I personally found to be a problem.

SUB BATTLE SIMULATOR

Sub Battle Simulator (SBS) is a complex and stimulating recreation of commanding a submarine during World War II. You have your choice of commanding either an American Gato-class sub or one of three different types of German U-boats. Multiple levels and a "practice" mode aid in enjoying this software.

SBS manages to pack a lot of information into its screens. You have a choice of no less than seven views from the bridge, including periscope (with magnification), binoculars, lookout, radar, sonar, a map display and a unique view from outside your submarine, looking at everything in side view. The latter is especially useful when you're avoiding depth charges.

The map view allows several different levels of zoom, so that you can view the entire operating area in varying degrees of detail. The most detailed view, measuring seven miles on a side,

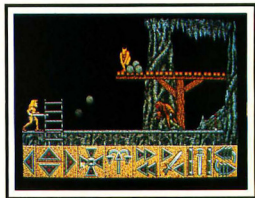
shows all enemy ships at once. Sonar is the only way to track enemy ship movements when underwater, and radar is necessary during poor weather conditions or at night. When using the main view through the periscope or binoculars, you can change the view angle by moving the mouse pointer to the area you want in the center of the view and clicking the button. This does not, however, alter your heading, which can be confusing. To make sure you're moving in the same direction that you're heading, you must press [J].

In addition to the main view, there are four gauges that not only show information about your sub (view angle, heading, speed and depth), but allow you to control the sub with the mouse pointer. For example, to change speed, simply click in the speed gauge with the pointer, and the sub will come to the new speed. This makes control pretty straightforward. Other buttons in the main window allow you to crash-dive, surface, charge your battery, switch from diesel power to battery, and fire your weapons. There is also an area where messages from the crew are relayed. Another feature you can control from this panel is "time compression," where you can speed up or slow down gameplay so you're not stuck for a long period, wandering around the ocean with nothing to shoot at. Just be sure that you go back to regular time before beginning an attack, or you may find yourself sunk before you know it!

Your sub is equipped with fore and aft torpedo tubes, antiaircraft guns and a deck gun for shelling ships. You can fire all these weapons from the main screen. The guns don't need to be aimed, but the torpedoes do. During an attack, your targeting computer will identify enemy shipping by the ship type, course and heading. Sinking enemy ships is relatively straightforward: line up the ship in the computer and fire a torpedo. Might be a good idea to try this maneuver from periscope depth, since there are planes dropping

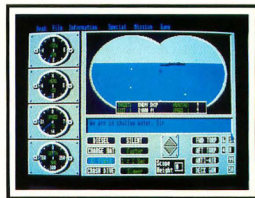
bombs on you, and everybody is shooting like mad. Run silent and deep when the destroyers come after you.

There are a daunting number of things to keep track of in SBS. Almost



Barbarian

every key on your keyboard controls a ship function—you can't use just the mouse. Besides the view, weapons and engine controls, you can charge your batteries periodically, zoom the map view, abandon ship, send a shore party, transfer torpedoes between torpedo rooms, check your coordinates and lay mines. Fortunately, SBS has a pause control, giving you a quick breather



Sub Battle Simulator

while you look over the controls reference card. The manual is superb, telling you not only about the simulation itself, but offering historical data and a short course on submarine tactics.

There are four levels of play in SBS. Not only is finding an enemy convoy harder at the higher levels (they don't show on the map), but damage is more severe, torpedoes don't go as far and

don't always explode, and it even takes longer to crash dive. Level four is a killer, suitable only for "real" submarine captains. In addition to these levels, you can choose from among "target practice" mode, a single-wartime cruise or an entire wartime command "experience."

The graphics and sound in SBS are good, but not spectacular. Enemy ships are black shapes in the periscope which slowly disappear when sunk, and the sound is limited to some hissing which I assume are bombs and shells. When you're hit, the screen flashes red and there is an uninspired explosion. The fountain of water following a torpedo hit on an enemy ship is well done, however. Messages from the crew tend to be extremely repetitious. For example, when I was running, the screen kept telling me that I was too deep. After 30 or 40 times, this got somewhat tire-

some! On the other hand, the snotty tone of the crewman when I asked for a lookout view (we were at 300 feet) was amusing.

Overall, Sub Battle Simulator is well-

Sub Battle Simulator
is a complex recreation
of submarine warfare.

done. At the lower levels, it's challenging but not overwhelmingly difficult for the novice (if you follow the excellent hints in the instruction booklet), while at the upper levels it will challenge the most experienced game players.

That's a wrap for this issue. The games for the next issue are already piling up. See you then!

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CIRCLE 017 ON READER SERVICE CARD

The FCC, Rate Increases and Decreases and Swapping Graphics

by Gregg Pearlman
Antic Assistant Editor

One of the most powerful uses for your ST is communication with other computers via modem. Among the computers willing to listen to *your* computer are the mainframes at CompuServe, GENie, Delphi and The Source, as well as the thousands of bulletin boards run on microcomputers all over the country.

In fact, Telenet's PC Pursuit lets you make an unlimited number of long-distance calls—inexpensively (during evenings and weekends)—to bulletin boards, specialized databases and major information services.

Of course, cost is always a consideration, but it used to be easy to find a conversation partner for your computer at a reasonable price. This may change soon.

Perhaps you've heard about the proposal put forth by the Federal Communications Commission saying that enhanced service providers, such as CompuServe and Telenet, should no longer be exempt from paying interstate access charges as of January 1, 1988. If this goes through, don't be surprised if Telenet, for example, jacks up the rates for PC Pursuit—or discontinues it altogether.

Depending on the service, users might find themselves paying an extra \$4.50 to \$5 per hour, which could price online services out of reach—especially for subscribers who access CompuServe

through Telenet or TYMNET. David Kishler, a CompuServe spokesperson, estimates a \$2 per hour increase. (Private or intrastate communications would not be subject to the increase, however.) Either way, information industry officials believe that the ruling could wipe out companies offering lower-priced services geared toward to

Users
might be paying
an extra \$4.50 to \$5
per hour.

the home computer and educational market.

Under the ruling, large, private data networks (such as a huge reservation database for an airline) wouldn't have to pay the charges, but small companies operating databases would. Yet these "private" networks are often linked to local telephone loops through the company's switchboard. Thus, though the big companies use the local telephone companies the same way, they're exempt from the new fees.

Why leave the big guys alone? Well, the difference between them and the average user is that the big guys could

light a much hotter political fire under the FCC than the average user could.

The FCC seems to think that the computer networks and information providers have been riding for free for too long. However, industry members feel that the FCC has singled them out for the increase. It's more than a fair guess that the online services will have to pass the extra charges on to their customers.

NEW COMPUSEVERE RATES

Interestingly enough, the FCC proposal comes right on the heels of CompuServe's reduction of daytime connect rates, whereby subscribers now pay \$6 per hour at 110-450 baud (a more than 50% reduction) and \$12.50 per hour at 1200-2400 baud. CompuServe isn't likely to want to go back on this—but stay tuned for further developments.

GRAPHICS SWAPPING

CompuServe's new file format, Graphics Interchange Format (GIF, pronounced "jif"), lets you exchange high-resolution graphics images such as technical design diagrams, business charts and graphs, medical illustrations, computer art images and digitized photographs between your ST and a Macintosh, Amiga and IBM PC-compatible with CGA, EGA or VGA graphics capability.

GIF also compresses files to between half and one-eighth the original memory size. Images can contain up to 256 simultaneous colors from a palette of 16 million, each of which can be identified by specifying its red, green and blue components.

GIF images can also be transmitted through EasyPlex and InfoPlex, CompuServe's two email systems.

The GIF programs and sample files are available through the hardware forums on CIS that correspond to the

computer models using the GIF format, and in other forums, including PICS, the Picture Support Forum. The GIF protocol is in the public domain, but CompuServe retains copyright on the encoders and decoders provided by the company.

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SUPERBASE PERSONAL

Database handles graphics and text

by Heidi Brumbaugh
START Junior Editor

The computerized database, and specifically the relational database, is arguably the most difficult of all software applications to master. As the sophistication of a task increases, the learning curve of the program needed to accomplish that task tends to rise geometrically. For this reason, any evaluation of a database must be based on the balance it achieves between power and ease of use.

Superbase, from Precision Software in England, carries most of the features database users have come to expect—and some surprisingly useful extras. It is fully GEM-based, which makes for an intuitive command structure as well as a decreased learning curve. Menus are consistent and fairly well documented.

RECORD DISPLAY

You move through the records in a database using a control panel at the bottom of the screen. The control panel has buttons which are activated by the mouse and resemble the controls you would expect to find on a tape recorder or VCR. That is, you can move forward or backward through the database either a record at a time or rapidly, pausing or stopping by pressing the appropriate buttons.

Superbase has three display modes: table, record and form view. Table view displays multiple records on the screen horizontally for rapid scanning. Record view shows one record per screen, with the fields listed vertically. Form view, which also shows one record at a time, gives you the power to edit the display—you can drag the fields around the screen with the mouse so that the arrangement of the fields best reflects the contents of the record. To optimize editing, there is an open/close field feature that allows you to temporarily "black out" fields from the display.

DATA STRUCTURE

Superbase has most standard field types such as text (up to 255 characters), numbers and dates, and allows fields to be either calculated or validated. Calculated fields can be either constants or values determined from the contents of other fields; validated fields test data as it is entered against conditions you define when the file is created.

In addition to standard field types, Superbase allows a field to be defined as an external file. This unique feature allows you to define a field as a file on disk, which can be either a picture (NEOchrome or DEGAS format) or an ASCII text file. The way it works is that as you add records you type in the file

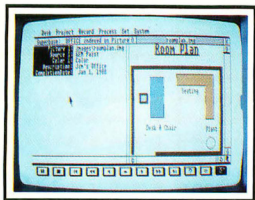
name of your picture or text file in the external file field. When you scan through the records, the record is displayed on the left of the screen and the actual content of the file is displayed on the right.

The usefulness of this capability is not immediately obvious. For example, you can create a database of, say, all your DEGAS Elite pictures. Use Superbase's fast-forward button to instantly scan the contents of your DEGAS gallery, or organize your pictures by category, title or date created. You could also use it to keep track of business letters. Imagine: use a filter to select a date and

**START uses
Superbase to keep
track of editorial
submissions and
incoming products.**

company name, and instantly bring up a copy of the letter you sent.

Superbase files must be indexed on at least one field. Additional indexes can be created at any time, and are updated as records are entered. Once you select a current index (or change the default), a handy key lookup feature accessed from the control panel allows a speedy search through the file for a particular record. Unfortunately, Superbase only allows multiple level indexes and indexes in reverse alphabetical or reverse chronological order when generat-



Superbase Personal

ing reports, but not while casually scanning through the file.

RECORD FILTERS AND REPORTS

Also available from the control panel is a filter option, which allows you to mask out records which do not meet certain criteria. Superbase has sophisticated string comparison options; you can either compare for identical strings, or compare strings that are "like" each other—ignoring case and including wildcards. Although the filter option is slow, it is convenient for record scanning and analysis.

As a relational database, Superbase allows you to work with multiple files at the same time. Once you have opened more than one file, you can update or remove records in one database based on the contents of others. You can also import or export data from or to ASCII files in Standard Database Format (SDF), making Superbase compatible with data created using most other ST database software. The command structure used in these options is similar to the filter; once you have mastered one of Superbase's features, an array of others becomes intuitive.

The power of Superbase lies not only in its unique features, but in the ease of use of the database features that have become standard. It has an excellent re-

port generation function, called the query option. This menu gives you full control of selection, sequence and format (including headers with page number and date) of reports which can contain information from any open file. Because report queries are sophisticated, formats can be saved to disk for future reference. Reports can be sent to screen, printer or ASCII file, and use menus which are consistent with Superbase's other, easy-to-learn filter and update options. In addition, Superbase has a built-in label generator.

DRAWBACKS AND LIMITATIONS

Superbase falls short of filling all your database needs by omitting some features which have become industry standard. For one thing, you cannot directly copy the structure of one database to another, nor can you copy records between files without using the intermediate import/export options. I also found it inconvenient that although you can change the contents of records us-

continued on page 97

1ST WORD PLUS

A dramatic upgrade of the original

by Heidi Brumbaugh
START Junior Editor

1st Word Plus, from GST Software, is a new and powerful contender in the word processing market. A dramatic upgrade of 1st Word, one of the first word processors for the ST, 1st Word Plus is characterized by its versatility and flexibility. It has two modes of operation: word processing and non-word processing. Non-word processing mode, which generates ASCII files, turns off options such as word wrap, reformat and hyphenation and turns 1st Word Plus into a powerful text editor for writ-

ing programs or entering data for 1st Word Plus's mail merge utility.

1st Word Plus is fully GEM-based, and allows you to edit up to four documents at once. Its "What you see is what you get" display shows whether text will be printed in Roman, bold, underline, italic, light or a combination of these. It has text justification and flexible, easy-to-use hyphenation as well as block operation support and search and replace options that have become standard. A special statistics option gives you information on file length (in words, pages, lines and bytes) as well as current memory availability in the com- ▶

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1st Word Plus...

puter and on disk.

1st Word Plus, which comes with two disks, has a folder containing standard printer configuration files. If your printer is not supported, it has a thoroughly documented program with which you can create your own configuration file. A font table on the screen displays which characters out of the Atari's 256 character set your printer supports and shows which printer is currently installed. Modem users can switch between parallel and serial ports with a mouse click.

FORMATTING

1st Word Plus's real strength lies in the power it gives you to format your documents. Headers and footers are fully supported, and you can control exactly the way the page is laid out on the paper. Three different kind of page breaks are available so you never have to split up tables or paragraphs. Footnotes are remarkably easy to generate: use the default settings for size or set your own, type the footnote in its own window and then let the computer do the rest. 1st Word Plus keeps track of numbering footnotes, adding superscript numbers and keeping the footnote on the same page as the reference wherever possible.

Text is formatted as it is typed in; however, you must reformat text after making changes. The manual contains many tips on how to manipulate reformatting to create indented paragraphs, right-aligned text and even hanging indents (paragraphs which are indented except for the first line).

Margins, tab stops, justification, line spacing and character pitch are all controlled with a ruler at the top of the screen. The ruler can be edited either with the mouse or by calling up a dialog box. In addition to normal tab stops, you can add "decimal" tabs which align characters on a decimal point or space. Once you're through editing the ruler, it can be hidden from view or replaced with a message telling your current

column, line and page number in the document. If you want to change formats in the middle of the document, simply add a new ruler. If you find yourself using the same margin settings in much of your work, you can save rulers to disk for future reference, or read a ruler directly out of another document.

1st Word Plus takes this idea of saving formats to disk one step further by having a special feature which actually allows you to store skeleton files in a

1st Word Plus is a powerful contender in the word processing market.

folder on disk called Format. Every time you open a new file, 1st Word Plus checks the disk for a file in the format folder with the same extension; if it finds one, it copies the margin settings, headers and footers, as well as any text, to the new file before you begin editing.

SPECIAL FEATURES

Up until now, the ability to combine graphics and text belonged in the realm of desktop publishing. 1st Word Plus has broken that barrier by allowing you to read specially formatted picture files from most popular drawing programs. An accessory program called Snapshot is included with the package and is used to store pictures in a form 1st Word Plus can understand. To load a picture into a file, simply switch on graphics mode and click on Read Picture. Once a picture is in the document it can be moved, deleted, or manipulated with any of 1st Word Plus's block commands. Al-

though pictures taken in another resolution will not show up on screen, they will be printed out with the text.

1st Word Plus has a 40,000 word dictionary that you can load into memory for convenient spell checking. You can also create your own supplemental spelling dictionaries which can be either merged or used in conjunction with the main dictionary. You select whether you want 1st Word Plus to check your spelling as you type or else all at once after you finish the document. A browse option in the spell menu lets you look through the dictionary alphabetically or ask 1st Word Plus to "guess" at the correct spelling of a word. Although spell checking can be a real timesaver, I would strongly urge 520 ST users to save their files before attempting to load the dictionary into memory. The first time I tried it the program bombed; I could only get spelling to work by removing one of my existing desk accessories.

1st Mail is a utility included with 1st Word Plus that lets you print out form letters. It comes with sample files and a tutorial to get you started, but also has an impressive command list for sophisticated users who want to optimize their time spent on mass mailings. You can create mailing lists using either 1st Word Plus or one of the many databases available for the ST; an appendix gives detailed information on how to format data from four of the most common. Completed forms can be sent to either disk or the printer, and features include a multi-column (up to nine) output option.

DOCUMENTATION

The 1st Word Plus manual patiently takes you through the features of the software; although it recommends that beginners refer to their Atari owners manual for some things, it does cover such basics as sizing windows and using an alert box. Experienced word processor users, however, may find the manual not very conducive to skim-

ming for information. Also, it doesn't have an index so it isn't handy for quick reference. Online help gives brief descriptions of features; click on Extra Help and 1st Word Plus will display an alert box with a brief description of each menu bar option you select.

CONCLUSIONS

For all its features and extras, I still have a few gripes with the program. First, it doesn't check to see if there is enough memory available before loading in the dictionary. Crashing for this reason is unprofessional. Also, 1st Word Plus doesn't check to see if your file has been edited since you last saved it; you must confirm abandoning a current edit even if you haven't made any changes. Another complaint is that it asks you, if you're sure you want to create a new file if you type in a new filename; since the whole point of word processing is putting information in files, why should

the program want to make sure we really want to start a new file?

1st Word Plus is geared toward typing with the keyboard and editing with the mouse, so hardly any commands have corresponding Control or Alternate keys. It's even impossible to move through your file past the current screen more than a line at a time unless you access the scroll bar with the mouse. This forces you to switch from keyboard to mouse every time you do a block operation or jump around in the file. Another gripe is that you must save a file to disk before you print it, so every time you want a hard copy you must save the file, print it out and then reopen the file. 1st Word Plus is a little slow compared to ST Writer, but then so, unfortunately, are most GEM-based ST word processors.

By the time you read this, 1st Word Plus should have one (or more) North American distributors, so you should be

able to purchase it with ease. Despite 1st Word Plus's relatively high price tag, I would recommend it as an ideal word processor for students because of its spell checker, footnote ability and flexible margins for indented quotations and bibliographies. It also has all the strengths of a business word processor with its ability to keep "skeleton" formats on disk and its accompanying 1st Merge utility. Because of the thorough documentation and intuitive command structure beginners will find a low learning curve; seasoned computer users will find all the features they've come to expect and a surprising selection of "and then some."

1st Word Plus. GST Software, distributed by Electric Distribution, 8 Green Street, Willingham, Cambridgeshire, CB4 5JA, England. 011-44-954-61258. \$99.50

CIRCLE 177 ON READER SERVICE CARD

Superbase Personal...

ing the update function, you cannot create new records from that menu.

Although the GEM-based interface is easy to use, only some of the commands have corresponding keyboard options. Specifically, the mouse-activated control panel has no corresponding function or keyboard commands, so you must use the mouse to move through the file.

Perhaps my greatest complaint with Superbase is that it takes a full two key-strokes to enter new records—one to save the current record and one to create the new one. This is extremely distracting when entering large numbers of records. This and the fact that Superbase saves records to disk as they are entered, simultaneously updating all indexes for that file, cause data entry to be a very slow process. The manual warns against this and even gives suggestions for speeding up use; however, I found the best solution to be to move files into a RAMdisk.

Extensive use of Superbase (START uses it to keep track of editorial submissions and incoming products) has revealed a few bugs that need to be ironed out. For example, although the manual boasts sophisticated string manipulation (such as functions like LEN, MID and INSTR which BASIC programmers are familiar with), when I called the technical support line about odd error messages the company admitted that many of these string functions simply didn't work yet on the ST version.

SUPPORT

The Superbase manual is comprehensive and contains excellent tutorials for beginners. Appendices include an ASCII chart, reserved word list and extra help on some of Superbase's more sophisticated functions. It falls short as a quick reference manual by not giving brief explanations for experienced database users or Superbase users who have completed the tutorials. The product is supported by Progressive Peripherals

and Software in Denver, and the technical support person is a programmer who is knowledgeable about the ST version of the product.

A smoother, updated version of Superbase is in the works, as is Superbase Professional, a programmable version of the database that's already available for the IBM. Programmability is sure to give Superbase a great deal more power, as well as some of the flexibility which it is missing because of its mouse-and-menu bar environment. I would recommend Superbase for people who need the strength of a relational database but lack the time to learn the complicated command structure associated with dBase III lookalikes.

Superbase Personal, Precision Software, Distributed by: Progressive Peripherals and Software, 464 Kalamath St., Denver, CO 80204, (303) 825-4144, \$1499.50.

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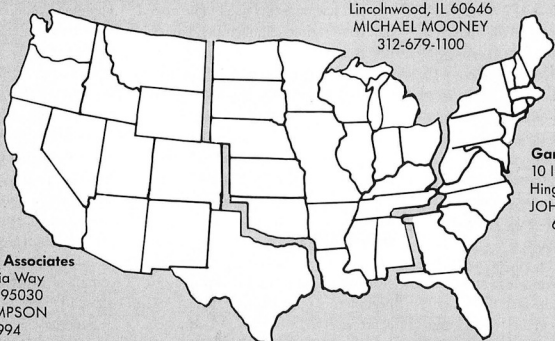
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Refresh Your Memory



And Keep Your Cool.

Introducing the ST Hard Drive System from ICD that refreshes your memory better than any other ST hard drive around. *No problem.*

It's the drive that not only looks cool, but stays cool too. All because of a built-in fan that knows exactly how to beat the heat and maintain a calm, cool and collected environment... even in your most heated situations. *No sweat.*

And, it's the hard drive that takes a refreshing approach to aesthetic ease design as well. See for yourself. It's easy on the space, fitting perfectly under the monitor. And it's easy on the eyes, tailored to look great in the company of your Atari ST. With adjustable front legs, your monitor gets the lift it needs for comfortable viewing. *No strain.*

Despite a sleek and compact exterior, the ICD ST Hard Drive

System is packed full of overwhelming enhancements. Like an internal clock that tags each file with up-to-the-minute time and date information. Not to mention expansion capabilities that welcome the connection of up to six SCSI devices and daisy-chaining Atari's DMA Bus (ACSI). It's available in more memory capacities than you can imagine. With storage ranging from 20 megabyte systems up to 280 megabytes. And, there's dual drives too, that double your protection and double your confidence. *No stress.*

So, the next time you think about a hard drive for your Atari ST, think about the countless ways we can refresh your memory. It's the only drive worth remembering. Because it's from ICD. *No wonder.*

For further product information, please call or write for our catalog today.

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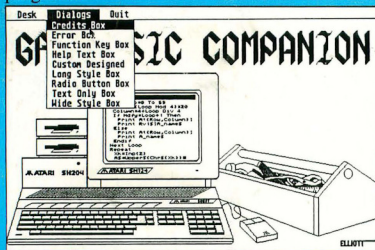
CIRCLE 050 ON READER SERVICE CARD

Atari ST is a trademark of Atari Corporation.

MichTron's new additions for your GFA library...

GFA Companion

If you're serious about giving your *GFA BASIC* programs a professional look and feel, but wish to avoid the confusion inherent with maneuvering through the GEM maze, you'll want **GFA BASIC Companion**: a dedicated RCS package that lets you create Dialog Boxes, Radio Button Boxes, Help and Text Boxes, Sliders, and more, interactively on the screen. These objects can then be saved as *GFA BASIC* .LST files for easy inclusion into your programs.



Even a beginning programmer can now produce, in a few easy steps, a quality user interface for his or her programs. Yet the *Custom Design Option* provides enough creative potential to satisfy even the hungriest "power user".

While other programming languages require a massive time investment just to learn the Basics, programming in *GFA BASIC* just keeps getting easier and easier.

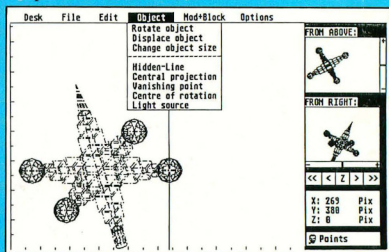
Requires the GFA BASIC Interpreter

\$49.95

GFA Object

Designing in three dimensions has never been easier or more accessible. With **GFA Object** you will be taken on a creative journey of remarkable proportions. You will initiate drawings of such depth and substance you'll want to reach into the screen and pick them up.

Items in *GFA Object* are produced by simply placing the points, edges, and surfaces on the screen, either with the mouse pointer, or by entering the coordinates with the keyboard. Further manipulation is easily accomplished. You can displace and rotate objects, even add a user selected light source and vanishing point. Object surfaces can also be filled with patterns to produce a solid look.



These objects, once created, can be saved as pictures (D.E.G.A.S.*), ASCII data files, *GFA DRAFT PLUS* files (for two dimensional editing), and as *MACROS* (for repeated use as parts of other drawings). Most importantly, objects can be saved in *Vector File Format* for use in *GFA BASIC* and *GFA Vector* routines.

\$99.95

**MichTron**

For more information on these or other programs, ask for our latest catalog!

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The most advanced software
for the lowest price.
It's all in The Catalog,
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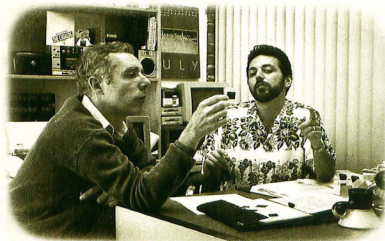


Who are you Antic?

We're a resource. The Atari Resource: three magazines, on-line services, and a catalog of software. But not just a catalog—The Catalog. And you're holding it in your hands. **Instant Gratification!**

The fastest way to get Antic Software is at your local Atari dealer. But if you can't find it there, by all means, let them know what they're missing. Then rush on home and give us a call. One free phone call, and before you know it your new Antic program is in your mailbox. Open the box, pop it in your machine, and go to town.

We've worked overtime to make Antic software the best you can buy for your Atari. Why? Because we live and breathe the Atari line of computers. We were there at the beginning, are there now, and will always be there—supporting the Atari user. We design our software *exclusively* for the Atari machines and know Atari hardware inside and out.



*Gary Yost and Jack Powell (the product development team) are 'brainstorming' specs for a new CYBER add-on. Gary and Jack have been Atari users since 1981, and have been with Antic since 1983. Gary may be found, almost nightly, on CompuServe's SIG*Atari, talking with Atari users and programmers, fielding questions, and uploading demos—keeping his finger on the pulse of the Atari community. Jack bases his experience on years with the Antic Editorial department. Instrumental in the development of ST Resource and STart, The ST Quarterly, Jack has kept in touch with readers' problems and needs—particularly in the area of written technical information.*

Because we've been here the longest, we know the most people—and they know us. We've got the best Atari software because we've got the best Atari programmers. Simple. Tom Hudson's been writing programs for Atari computers for as long as we've been in business. He's not just a programmer, he's a close friend.

And, yes, we've got an unfair advantage: *Antic* magazine and *STart*, *The ST Quarterly*. We're not only a resource to the Antic community. The Antic community is a resource to us! In 1985 we sponsored a \$2,000 DEGAS art contest. This was how we met Darrel Anderson.



Darrel Anderson is far more than a contest winner. He's a professional artist who knows the graphics possibilities of the ST computer. And professional means he's flexible and he's fast with results. And the faster he is, the sooner you get your program. Want clip art for CAD-3D? Darrel creates FUTURE DESIGN DISK, the most complex CAD-3D objects we've seen on this system. Want to show what CYBER STUDIO can really do? Darrel blows everyone away with CYBERSCAPE. What if you've got a 512-color paint program you want to show off? Just turn the page and check out the SPECTRUM 512 art.

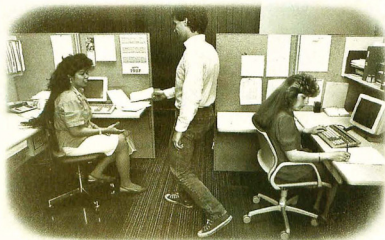
And, when the beta testing is finally complete, the documentation typeset, and the package design finished, it's time to get the final product to you.

Have you noticed our new 800 number? That's right, we've moved our 800 operators in house.

Now, you when you call and ask for a "Bifurcated Cyber Diphlex," your operator will know what you're talking about, because an Antic staff member is not just an answering service. (And remember, our toll-free number is for orders only.)



Once your software is shipped, our job has just begun. Antic has the best follow-up and customer support of anyone in the Atari software business. Our customer service people are ready for your calls. Our technical resources are second-to-none. (If Scot Tumlin can't answer your technical question, he can always turn to the Editorial programmers: Patrick Bass, Charlie Jackson, or Frank Hayes.)



Once your order is taken, it's processed as quickly as possible. Fidez Bituin handles the paperwork because she is accurate. She also has a background in accounting, so she knows what's being entered in that computer. When Fidez processes your order, you get the right program—and you get it now!

And Antic's customer service is not limited to telephone support or correspondence.

We're the most active Atari company on CompuServe, and have our own online service, ANTIC ONLINE (type GO ANTIC).

Through CompuServe, you can address anyone in Antic plus many of the actual authors of Antic Software (including Tom Hudson and Alan Page).

One of our customers recently had a problem with one of our products (okay, okay, we're not perfect), and left us a message on CompuServe. We contacted the author, who solved the problem and mailed a fix to the owner within a week. That's not only goodwill, it's good business.

Antic software support includes product support. When you buy an Antic product, you join a big family. Your program is not an orphan. It has a whole group of friends in The Catalog—compatible products that expand and enhance its power. And you can be sure that more are on the way.



We used to have an outside company package and ship our products. We'll never do that again! They couldn't handle it, and they really didn't care. We can and we do. All our packaging and shipping is now done in-house, supervised by Frank Ciminesi. Frank's got a thing about secure packaging, and he's got a thing about quick turnover. He can't stand having orders cluttering up his mailroom. Frank will have your shipment snugly packed, in the truck, and on its way.

Antic proudly supports adult vocational programs.

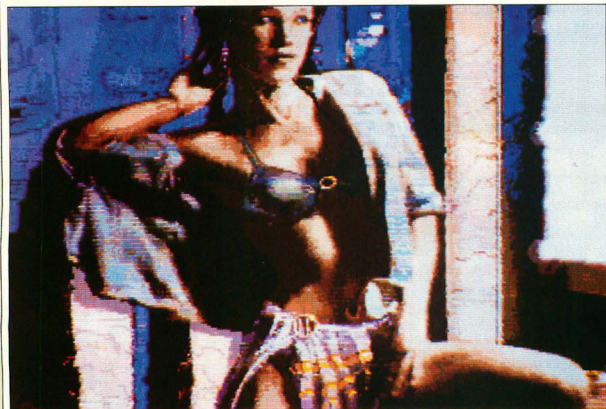


Who needs an AMIGA?

SPECTRUM 512™

The Omni-color Paint Program

by Trio Engineering



"Ellen" by Darrel Anderson

SPECTRUM 512 is the paint program you've wanted since you bought your ST. It gives you 512 colors to be creative with. *All at the same time.*

When we first saw this program, we couldn't believe our eyes. But there it was — a rock-solid, low-resolution screen displaying rich colors composed of a chock-full palette of 512 colors. No flicker, no faking, no fooling. We couldn't stop playing with it.

512 colors means a lot more than just bright rainbows. Perceived resolution is increased *threefold*. Anti-aliasing

replaces staircase zags — even in your old pictures. And the anti-aliased line mode creates an automatic, no-zag, french curve — smooth as a baby's bottom. Subtle shading and highlighting effects become possible for the first time, automatically.

48 Colors per Scan Line

The standard way to put more than 16 colors on the Atari ST screen is through "raster interrupts" — color registers are changed with each scan line. But this gives you only 16 colors each scan line, and this limited color arrangement causes "banding,"

where horizontal bands of similar colors streak across your picture. Pretty restrictive.

SPECTRUM 512 gives you *48 colors per scan line!* And you don't have to stop to think about it because SPECTRUM 512 does it for you. Just pick any one of 512 colors and draw. If your chosen color or exceeds the 48-color limit on any scan line, SPECTRUM 512 automatically adjusts the entire scan line of colors for a "best fit" — on the fly! The end result is, for all intents and purposes, you can place 512 colors anywhere on the screen!

How did they do it? The SPECTRUM 512 engineers hooked an oscilloscope to the Atari ST MMU chip and reverse-engineered its timers. Using this information, they designed a brilliant method to manipulate those timers and stuff more colors into extra simulated bit planes, before the signal even gets to the video shifter chip!



The SPECTRUM 512 work screen, including the user-defined palette

We sent SPECTRUM 512 to professional artist Darrel Anderson. As you can see from these pages, he went wild. Imagine what SPECTRUM 512 can add to your CAD-3D, DEGAS or NeoChrome pictures! No question, if you use a color monitor and have any interest in graphics, you will love SPECTRUM 512.

Look at all these tools!

Drawing:

- Freehand "pen" drawing
- "Rubber line" and "French curve" mode (no jaggies)
- Polygon (no jaggies)
- Circle/ellipse (no jaggies)
- Fill—patterned or solid
- Fill New—fill over any existing patterns or colors!
- Patterns—20 predefined, 20 user-defined
- Brush
 - 38 brush shapes, solid or patterned
 - User definable brushes
 - Auto-align patterns, or pixel offset for overlap



The DEGAS Bumblebee, before



and after SPECTRUM 512

- Airbrush—four sizes, nine flow speeds
- Undo buffer erases mistakes

Anti-aliasing:

- Zag-Out—Anti-aliasing DEGAS/Neo pics for smooth edges
 - Full screen
 - Local box
 - Brush
- Blur—Adjustable neighboring pixel averaging
 - Full screen
 - Local box
 - Brush
- No Zag—Anti-aliasing and auto-curve for:
 - Lines
 - Polygons
 - Circles

Colors:

- Select colors from:
 - 512-color system palette
 - 1 to 192-color user-defined palette, or
 - Any color on screen
- Save and load custom palettes
- Fixed or floating color menus for auto-color adjustment
- Change last painted color to any of 512

Works with all ST paint programs, plus CAD-3D 1.0 (ST0214) and CYBER STUDIO (ST0236).



"Laserbee" by Darrel Anderson

- Auto-create smooth color ranges between any two or more colors
- Color cycle paint flow through any range of colors:
 - Brush (solid or patterned)
 - Airbrush
- Fantastic color edit mode includes:
 - Search and replace one color with another
 - Search and replace several colors with several others
 - Add or subtract red, green, or blue values of one or more colors
- Increase or decrease luminence of one or more colors
- Perform any of the above functions globally (full screen), or locally with cursor control
- Magnify window for all functions
- 12-screen (1-meg) scrollable cut & paste buffer
- 4-way flip, and scale
- Programmable slide-show program to display your SPECTRUM 512 art

- Detailed manual includes advanced screen photography techniques
- Load IFF Amiga pics

Public Domain

SPECTRUM 512 pics!
The pictures on this page, plus *many more*, by Darrel Anderson and Richard Berry, are available for only \$12.00 on the SPECTRUM 512 SLIDE SHOW DISK (PD9100). See our ST PUBLIC DOMAIN LIBRARY on page 20.

**SPECTRUM 512
ST0249 \$69.95**

REQUIRES: Color monitor. 520ST's built before 12/85 may require \$30 MMU chip upgrade from auth. serv. center.

DEGAS™ Electronic Arts
NeoChrome™ Atari Corp.



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ST Cyber Family

"Antic's CAD-3D is one of the best programs I've seen for the Atari or anything else."

— Jerry Pournelle *Byte Magazine*

THE CYBER STUDIO™ Featuring CAD-3D 2.0



Works with all ST paint programs, and the CYBER family.

Tom Hudson's STEREO CAD-3D 2.0™

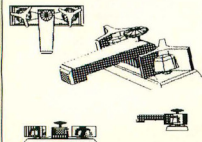
Hidden within your Atari ST is a professional 3D workstation. A 3D design system that is intuitive — yet powerful enough for professional artists, advertising agencies, or design firms.

Design and *walk through* your dream house with CAD-3D 2.0. Programmers use our system for dimensional tasks like flight-simulator scenic design, artists create accurate perspective foundations for their DEGAS or NeoChrome pictures, engineers find CAD-3D 2.0 the perfect sketchpad for conceptual design, and VCR owners use the CYBER STUDIO to create 3D titles and cartoons for home videos.

We made version 2.0 an open-architecture system, so that any programmer can easily write custom applications for CAD-3D 2.0 that run as desk accessories: motion control choreography [CYBER CONTROL-ST0250], advanced rendering/ray tracing, finite element analysis, texture mapping, custom modeling tools... There's no limit. CAD-3D 2.0 will *never* become obsolete.

The Original... Tom Hudson's CAD-3D™ 1.0

520ST-compatible



"A remarkably powerful modeling system."

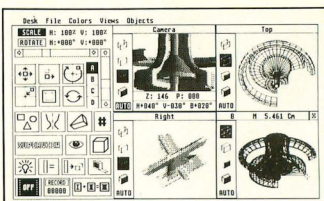
Computer Graphics World

If you own a 520ST and are interested in computer graphics, many of the features of CAD-3D 2.0 are included in this original version—even a basic animation system.

CAD-3D 1.0

ST0214 ~~\$30.95~~
REQUIRES: 512K RAM

Now! \$29.95



Let your creativity soar with all these new features:

- Icon control panel — fast, intuitive interface
- All new, DEGAS-style color design system permits custom-color lines, edges and backgrounds, plus multi-colored objects
- *Real-time* display mode for instant response [uses 3D math developed by Jez San for Starglider]
- Supports (optional) STEREO TEK 3D glasses (TH9020) for 3D viewing
- Dimensioning (feet/inches or meters/centimeters)
- Graphic lighting control — drag lights anywhere
- GDOS output supports laser and dot matrix printers
- Compatible with Generic CADD 2.0 from Generic Software
- User-selectable pivot points for articulated rotations
- Enhanced Spin, Extrude, and Join tools
- Load DEGAS pics into CAD-3D background

Mark Kimball's CYBERMATE™

The CAD-3D Animation/Editing language

CYBERMATE is a "post-production" animation editing language that gives you control over:

- Sequence looping, cuts, fades & dissolves
- Color cycling animation
- Sound effects (created with the G.I.S.T. editor, on pg. 19)
- Title generation and text display

CYBERMATE features editing power plus full programmability. At your fingertips is the most efficient real-time playback system for 3D graphics on any microcomputer. And it's fast! Up to 60 frames-per-second.

CYBERMATE transforms your one-meg ST into a TEN-MEGABYTE frame buffer. And because it's a real programming language, CYBERMATE can adapt to new technologies, like the new digital video tape recorders from Japan, RGB-to-NTSC converters, MIDI, and SMPTE time code.

THE CYBER STUDIO STEREO CAD-3D 2.0 plus CYBERMATE (2-disk set)

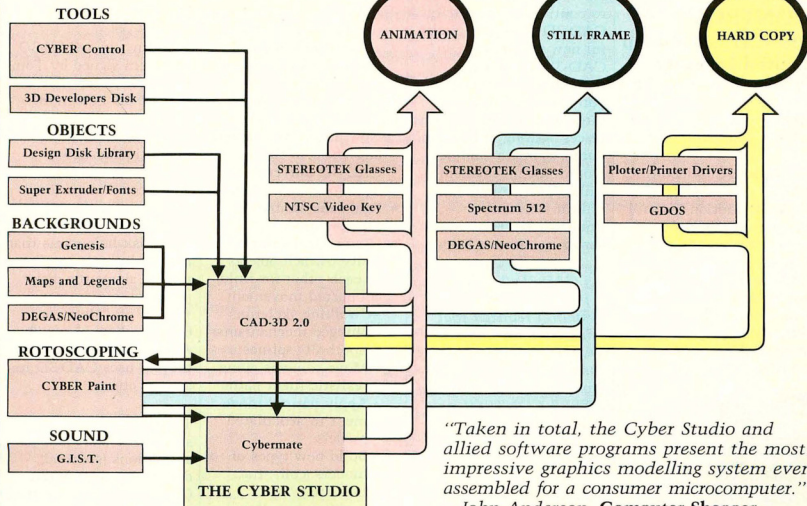
ST0236 \$89.95

REQUIRES: one-megabyte RAM
Upgrade from CAD-3D 1.0 for only \$60 (plus original disk and \$5 shipping)

Starglider™ Firebird Software
DEGAS™ Batteries Included
Generic CADD 2.0™ Generic Software

ST Cyber Family

THE CYBER FAMILY



"Taken in total, the Cyber Studio and allied software programs present the most impressive graphics modelling system ever assembled for a consumer microcomputer."
—John Anderson, **Computer Shopper.**

So many products are being added to the ever-expanding CYBER FAMILY, we drew a flow chart to help you understand how they work together.

Here's a typical use of the CYBER FAMILY, which you can follow using the flow chart: Using CYBER CONTROL, you write a program to control several unique cameras in CAD-3D 2.0 for an animation sequence which uses skeletons from the HUMAN DESIGN DISK, being assembled in front of a molecular background provided by GENESIS. Your completed animation may be immediately viewed from CAD-3D 2.0 without even firing up CYBERMATE. And then, you may want to touch up some of the frames with CYBER PAINT — perhaps add

some tweened Aegis Animator sequences. This time you check out your new animation directly from CYBER PAINT. If you want to add some wild G.I.S.T. sound effects, and eye-catching color cycling, the editing program, CYBERMATE, comes into play. Finally, you send the resulting, real-time animation straight out your 1-meg 520ST into your VCR, splicing it into your 45 minute budget presentation to, say, the National Science Foundation. And you did it for less than a

tenth the cost of any other 3D animation system.

Online CYBER CONNECTION

To back up our growing CYBER family of products, we've begun an online feedback service on CompuServe. It's called the CYBER CONNECTION, and includes the latest CYBER STUDIO animation demos, upgrades, public domain premieres, and more. Much of the new material posted here will not be available anywhere else. Send messages directly to the authors like Tom Hudson and Mark Kimball. And check out their replies as they respond to other users. CYBER CONNECTION includes hints, tips, and suggestions from the best.

The CYBER CONNECTION is easy to find: At the CompuServe prompt, type *GO ANTIC*. When the first menu appears, select *Online Cyber Connection*, and you're in!

Composite Video Cables

For those of you who own a 1-meg 520ST with composite outputs, Practical Solutions sells a special monitor cable (\$15) that has composite video jacks which avoid the noisy (and VCR-incompatible) RF signal output.

NOTE: Those with 1040STs will soon be able to use The Video Key, an RGB-to-composite converter with a much higher quality NTSC signal, available from Practical Solutions (602-884-9612).



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ST Cyber Family

CYBER CONTROL™

The CAD-3D Motion Control Language by Tom Hudson

Works with
CYBER STUDIO



Tom's latest brainstorm: CYBER CONTROL, The CAD-3D Motion Control Language—a desk accessory programming language, with built-in GEM text editor. When you want to simulate a real event with articulated life-like animation, plug in to CYBER CONTROL.



CYBER CONTROL is an animation scripting language that locks in to CAD 3-D 2.0, controls all of its functions, and magnifies its already powerful capabilities. Whether you're a hobbyist or a scientist, you can create animated 3D models in a single afternoon. Simulate particle physics; 3D animation for entertainment or education; 3D financial analysis; animated, fully dimensional math models; event reconstruction of P.I. litigation; human factors engineering... you name it!

Now, you can write code to control any feature of CAD-3D 2.0—plus powerful new features not in CAD-3D 2.0! With the new *hierarchical control*, you can create graceful birds with wings of many pieces, soaring in beautiful harmony. Or a complex clockwork mechanism of linked parts, moving in offbeat syncopation. . . . But we'll let Tom describe his newest baby:

As CAD-3D 2.0 grew into a powerful animation system, I realized that truly complex animations would require a scripting language for proper control. I purposely designed CYBER CONTROL as a BASIC-like language so anyone could pick it up quickly.

When activated in CAD-3D 2.0, CYBER CONTROL takes over full control of all functions, creating and manipulating objects and cameras (yes, three different ones). Its primary use is as a cinematic motion-control script language, but its flexible nature makes it an ideal "front-end" for CAD-3D so you can write your own BASIC-like programs that use CAD-3D as a "graphic engine!"

Language features include:

- FOR/NEXT for full Loop control; Conditional IF/THEN; GOSUB/RETURN.
- Labels instead of line numbers
- Numeric expression handling, *floating point*; logical AND and OR; parenthesized expressions; function library including sine, cosine, tangent, square root, and more!

- Up to 128 user-defined, alphanumeric variables, significant to 8 characters! Hardcopy Print statement for debugging.

Other features include:

- Two new cameras! Now, move your camera *anywhere* in the CAD-3D universe — fly *through* your scenes!
- Real-time animation preview mode!
- Hierarchical Connectivity. Attach objects to each other for fluid, connected movement — walking skeletons, or hinged mechanisms.
- Smooth 3D splines:
 - Move cameras along realistic flight paths
 - Apply natural movement to articulated models
 - Build new types of models (coils, fractals, etc.)
- Layer foreground and background images for cel animation.

I hope you enjoy CYBER CONTROL. Your ST can automatically create animations that would take you days to complete — in a matter of hours. Start the program and walk away, as your computer does all the work!

— Tom Hudson

CYBER CONTROL ST0250 \$59.95

REQUIRES: CYBER STUDIO
Recommended: CAD-3D version 2.02
CAD-3D 2.02 is available only in The Catalog's CYBER STUDIO package (ST0236), which also includes CYBERMATE.

HOLOGRAM CONTEST!

You can win a CAD-3D hologram signed by Tom Hudson! What's that? A CAD-3D hologram?

That's right! Using a revolutionary new production process, Advanced Dimensional Displays, Inc. has developed reflective, laser disk holograms that *float* holographic images above the disk! (Like an inanimate version of: "Help me Obi-wan Kenobi. . . .") And this incredible new process uses CAD-3D images as objects!

The three best monoscopic and stereoscopic animations (six total), designed using CYBER CONTROL, will earn their respective authors a five-inch hologram, generated by CAD-3D and autographed by Tom Hudson. Contest deadline is midnight, January 31, 1988.

Note: This contest is only available to registered CYBER CONTROL owners. Limited to one entry per owner, and you must include the contest entry blank enclosed in the CYBER CONTROL package.



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ST Cyber Family

CYBER PAINT™ Pro Animation Studio by Jim Kent

Sometimes 3D animation just isn't enough. The classic Disney animations were painted, cel by cel, in a flowing, two-dimensional brilliance of color. Some of the best animation is still created this way. Thus, CYBER PAINT.

CYBER PAINT is a frame-by-frame animation/paint program with a lot of extras. You can use it by itself to create 2D animated fantasies, or...

...load in a three-dimensional CYBER STUDIO animation and add classic animation flourishes.

Say you've just created a CYBER STUDIO animation of a rocket launch, and it looks great — a realistically shaded 3D space vehicle lifting off. But now you want to add flickering exhaust flames, smoke, and some alien trees waving in the breeze. CYBER PAINT lets you do it fast. And it's fun!

Designed by Jim Kent, author of Aegis Animator, CYBER PAINT lets you touch up individual frames, or add smooth, tweening effects — automatically — to any range of frames. And, with CYBER PAINT, you can merge your Aegis Animator animations directly into the 3D CYBER Universe!

And, since CYBER STUDIO isn't required, you can use CYBER PAINT as a stand-alone 2D animation/paint system. The possibilities are limitless.

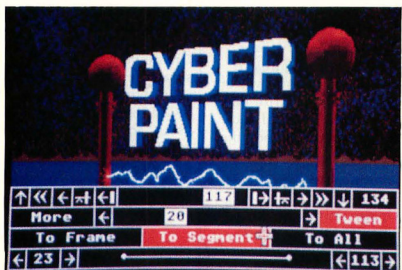


3 frames of CYBER STUDIO animation before CYBER PAINT



The same 3 frames after a CYBER PAINT touch-up

Works with all ST paint programs, plus CYBER STUDIO (ST0236), and AEGIS ANIMATOR.



Just a few of CYBER PAINT'S many features:

- Automatic mode for cel registration
- ADO-style special cfx
- Fly animations on multiple axes or paths
- Real-time "scratch video"
- Cut & Paste, Stretch, Flip & Rotate
- Overlay or underlay entire animation files, portions, or single pics.
- Multiple brushes + Airbrush & Stipple
- Pen, Line, Polygon, Circle, and Box
- Tweening operations on selected areas
- Time menu for global or local tweening
- Flood fill and Color Separation
- Real-time Magnify, active at any time
- Color Cycle, Tint, Inverse, Change
- Intuitive mouse or keyboard control

**CYBER PAINT
ST0251 \$69.95**

REQUIRES: One-megabyte RAM & color monitor
Aegis Animator™ Aegis Development
DEGAS™ Electronic Arts
NeoChrome™ Atari Corp.

CYBERSCAPE™ A 3-D "feature film" on disk

by Darrel Anderson

Skim the fantastic, 3-dimensional terrain of the mind! Metamorphosing metallatons and transforming tubular time slots! This full-color, animated feature was created by professional

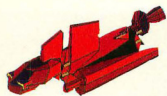


artist Darrel Anderson, to show what can be done with CYBER STUDIO (ST0236). An incredible tour de force of computer graphic power, this demo is a guaranteed auto-lobotomy of the very first order!

**CYBERSCAPE DS
(1 double-sided disk)
SB0104 \$10.00**

REQUIRES: Double-sided drive and 1 megabyte RAM

ST Cyber Family



FUTURE DESIGN DISK™

by Darrel Anderson

Get a fast start on your three-dimensional explorations with the CAD-3D FUTURE DESIGN DISK. Everything you need to create **spacecraft, stations, bases, vehicles, robots, and androids.** Model your future then populate it with androids and CAD-People. Bring it to life with CYBERMATE; detail it with any popular paint program. Includes:

- Blueprints
- Complete models
- Component parts
- Construction tips

FUTURE DESIGN DISK ST0232 \$29.95

REQUIRES: CAD-3D 1.0, or CYBER STUDIO

HUMAN DESIGN DISK™

by Richard Berry

Populate the CAD-3D Universe. Bring to life your CAD-3D creations with the CAD-3D HUMAN DESIGN DISK. Complete modular male and female prototypes, in skeletal anatomy forms, are included. Complex



head and hand details add realism to your figures. Modify your figures to create the infinite variety of the human form, pose your figures, detail the images with any popular

paint program, or bring them to life with the CYBERMATE Animation System. Includes:

- Blueprints
- Tips on the dynamics of human anatomy.

HUMAN DESIGN DISK ST0242 \$29.95

REQUIRES: CAD-3D 1.0, or CYBER STUDIO

ARCHITECTURAL DESIGN DISK™

by Darrel Anderson

Create CAD-3D renderings of your Dream House or build an entire CAD-3D City from the ground up. Component parts including: Doors, Windows, Arches, Roofs, Walls, Stairways, and a wide variety of architectural accoutrements. Create your own CAD structures and populate them with HUMAN DESIGN figures. Build "sets" for your CYBERMATE animated movies.



NOTE: The ARCHITECTURAL DESIGN DISK can be used to visualize and render real world architecture. It is not intended for use as an architectural engineering tool. Includes:

- Blueprints
- Complete models
- Design tips

ARCHITECTURAL DESIGN DISK ST0243 \$29.95

REQUIRES: CAD-3D 1.0, or CYBER STUDIO

Now you can write the next hit 3D program!

3D DEVELOPER'S DISK

For CYBER STUDIO

by Tom Hudson
Works with most popular ST C's plus machine language

While Tom was rewriting CAD-3D, he quickly realized that it was impossible to add *everything* and still release a product in this century. Plus, who wanted CAD software that required a 4 megabyte machine? So he opened up the system—by providing a programmer's "pipeline" through desk accessories.

Opportunity Knocks!

The 3D DEVELOPERS DISK clearly explains to programmers and developers how to access the pipeline. Included on the disk are full-featured source and object code examples, plus detailed instructions by Tom Hudson showing you how to hook into CYBER STUDIO. Create your own 3D applications—with no knowledge of 3D math. There's no licensing fee required.

3D DEVELOPER'S DISK ST0244 \$29.95

REQUIRES: CYBER STUDIO



3D-FONT PACKAGE™

by Tom Hudson

Works with CAD-3D 1.0 and CYBER STUDIO. Design your own 3D greeting cards, signs, logos, and letterheads with CAD-3D. Over 250K of serif and sans-serif letters. At the heart of this packed disk is Tom Hudson's *Super Extruder Tool*, which doubles as a 3D Font Editor. With it, you can create new kinds of complex, *multicolored 3D objects* (such as those

seen in the 3D DESIGN DISKS) that can't be built with CAD-3D alone.

3D-FONT PACKAGE ST0224 \$24.95

REQUIRES: CAD-3D 1.0, or CYBER STUDIO

3D PLOTTER & PRINTER DRIVERS™

Supports Hewlett-Packard pen plotters (and compatibles); plus Gemini/Star, Epson, Okidata, IBM, Color, NEC, Panasonic, C-toh dot-matrix printers.

PLOTTER DRIVERS ST0225 \$24.95

REQUIRES: CAD-3D 1.0, or CYBER STUDIO

ST Stereoscopy

True stereoscopic 3D graphics for your Atari ST STEREOTEK™ 3D GLASSES

by LC Technologies

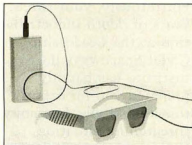


Put on the STEREOOTEK glasses and jump into a new universe. Discover a magical world that you always knew existed. That extra dimension—depth. Now you can add depth to your computer graphics with STEREOOTEK Liquid Crystal Shutter glasses. Solid, realistic, 3D images you want to reach out and touch. STEREOOTEK glasses plug into your Atari ST cartridge port to provide absolutely realistic 3D graphics in full color or high-res monochrome. Your STEREOOTEK depth-view system includes:

- One pair electronic Liquid Crystal Shutter glasses with six-foot cable (can be comfortably worn over eyeglasses)
- ST cartridge interface unit—supports six sets

- of glasses (additional sets optional)
- DEGAS Elite Stereo Desk Accessory
- Stereo CAD-3D animation and stereo slide show by Tom Hudson
- For programmers: Complete developer's instructions plus source code for adding stereo to your own programs (C or GFA BASIC)

The secret to full-color stereo images on a computer screen is electronic Liquid Crystal Shutter (LCS) glasses. Two optical shutters in eyeglass frames are connected electronically to the ST. Every time the ST screen refreshes (60hz/color, 70hz/mono), one shutter closes and the other opens.



The monitor displays alternating right and left eye views synchronized with the shutters. The alternating views appear faster than the eye can see, and your brain translates the normally flat monitor image into one of startlingly realistic depth.

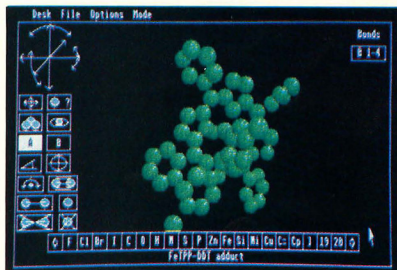
STEREOTEK 3D SYSTEM
TH9020 \$149.95
ADD-ON GLASSES
ONLY

TH9021 \$99.95
Satisfaction guaranteed or your Money Back!
(during 30-day warranty period)

LC Technologies is a venture of Tektronix, Inc.

GENESIS™ The 3D Molecular Modeler

by Scott Legrand



The atoms of life: carbon... nitrogen... hydrogen... oxygen... phosphorus...

This is the stuff we're made of. But until now, only research scientists in large universities could actually *image* the building blocks of matter.

Imagine creating the basic elements yourself, then watching as they come to life. And with a pair of STEREOOTEK glasses, this miraculous process unfolds in 3D stereoscopic depth.

Using GENESIS and your mouse, you can:

- load and display amino acids, hydrocarbons, and sugars
- create your own molecules onscreen or build them with data from pre-stored libraries
- Explore X-ray Crystallography

Rotate 3D molecules on any axis — X, Y, or Z, using real-time control. In *stereo*, hexagonal carbon rings and delicate fingers of hydrogen burst right out of your monitor.

With two molecules on-screen, you may:

- create your own rules for molecular bonding, then animate the chemical reaction between them
- derive the new empirical formula and print hardcopy data for reference

GENESIS offers the same type of iconic control panel and intuitive human interface pioneered on the Atari ST with CYBER STUDIO (ST0236).

Three different display modes for every imaging need:

- 1) STEREOOTEK LCS glasses (TH9020)
- 2) Red/blue anaglyphic glasses
- 3) No-glasses (monoscopic)

And with data provided on the program disk, you can create virtually any known molecule using the on-line periodic table of elements.

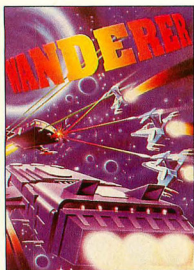
GENESIS
ST0239 \$79.95

REQUIRES: One-megabyte RAM



Monday-Friday MasterCard, VISA Only
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ST Stereoscapy



Now available for use with StereoTek Glasses



LCS WANDERER™
Deep space has never been so real!

by Pyramide Software

LCS WANDERER is the first ST game designed for full-depth stereo. Written in France, but set in outer space, this stunning arcade adventure transports you through galactic Space sectors, Black holes, and Limbo. Startlingly realistic, stereo point-of-view animation puts you in the cockpit as you swoop and dive through star fields while dodging enemy aircraft.

This is no ordinary space shoot-em-up. The bizarre, complex plot involves the ruthless kidnapping of every cat on earth. As you wander through space,

collecting pilfered pussycats, you run across the Heads of State of the Planetary sectors with whom you must play interstellar poker. LCS WANDERER is a complex, multimodal program—really several games in one. Journey from the dogfights in the Space sectors to the interstellar poker strategies, from the Battlezone-style of the Planetary sectors to the stereo tunnel of the Black holes, and Limbo... well, there's always Limbo.

The liquid crystal clarity of the StereoTek glasses transforms LCS WANDERER into a multi-colored micro universe within your monitor. Includes a completely redesigned solid-surface cockpit, full 16-color displays, and reduced eye fatigue compared to the original red/blue version.

**LCS WANDERER
ST0238 \$39.95**

REQUIRES: Color monitor and StereoTek Glasses
Battlezone™ Atari Corp.

\$5,000 CONTEST

Antic and LC Technologies are co-sponsoring a competition to search for the **most innovative stereo application program**. We're going to pay \$5,000 in cash [advance against royalties] for the winner, plus a continuing royalty upon publication here in The Catalog.

For an official entry blank and competition details, write to: STEREO COMPETITION, The Catalog, 544 Second Street, San Francisco, CA 94107, or call (415) 957-0886.

A new perspective in Arcade Action!
SHOOT THE MOON™

3D Alien Invaders

by Mountain Fresh Software



You've been in worse fixes — but you can't remember when. Aliens! Floating down from the sky, dropping bombs. And not just overhead... and not just to the right... and not just to the left... but *way down back there, and right up front here!*

Fortuitously, your three years of depth indoctrination at the Leadership Cadet Spaceways (LCS) institute has handily prepared you for exactly this kind of vile, humanity-threatening situation. With the LCS STEREO TEK glasses (TH9020) firmly affixed to your face, you correctly perceive the precise Z-space location of each ugly little alien beastie, manipulate your Kronos-Smithfield servomote laser tractor beneath the erratically twitching horror, and blow the abhorrent critter out of the sky. But, no time to enjoy the view, Depth Cadet! There's plenty more space nasties where that thing came from. And, if you clear this sky, it's on to another world — where the monsters get smarter.

SHOOT THE MOON is a colorful, high-speed shoot-em-up in the classic arcade tradition, with fabulous animation, original sounds, and one big difference — *stereo*. The floating aliens menace you from multi-depth levels as you maneuver your ship beneath them, find the right depth level, and pulverize them.

Beyond the sheer entertainment value of SHOOT THE MOON, we've found stereo games to be excellent training tools for children requiring ocular muscular exercise, or training in depth perception.

And, for those who want their traditional arcade games to remain completely traditional, you can play SHOOT THE MOON in 2D without the glasses. The game play is just different enough to make it a whole new challenge. Master the double-dimension version before moving on to the STEREO TEK universe, or, if you already have STEREO TEK glasses, master both versions.

**SHOOT THE MOON
ST0252 \$39.95**



Monday-Friday MasterCard, VISA Only
All 50 states 6AM-6PM PACIFIC TIME

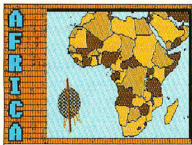
*The world on a disk.
Maps for everybody!*

MAPS AND LEGENDS™

The Cartographer

Enhanced Version

by Harry Koons and
David Chenette



Hold on a second. Now that you've word-processed, spreadsheeted, databased and telecommunicated with your Atari ST, aren't you looking for something different?

How about Cartography? Until now, mapmaking has been a unique art mastered by only a few talented people. With MAPS AND LEGENDS, your Atari ST becomes a personal desktop cartography system.

Show your children exactly what the world looks like—with or without political boundaries. And in STEREO, the world globes appear to be floating in front of your monitor. Or print an impressive custom map to go with your travel itinerary. We use MAPS AND LEGENDS all the time at the office for sales and marketing maps. And since it's based on the GEM interface, it's GEM-easy to use!

MAPS AND LEGENDS 3.0
ST0202 \$34.95
(upgrade is \$15)

LET'S GET TECHNICAL

Packed with features, including: Stereo Compatibility, Built-in 9000-Coordinate Database, 11 Different Map Perspectives, Plotting from any altitude, Works in all 3 screen modes, Built-in Paint System (and compatible with DEGAS and NEO), Multi-font Labeler, Custom Overlay Plotter (create your own maps—build your own map databases), Auto-locate Mode (reads coordinates, distance and bearing from maps) and so many more that we don't have room to list them all.

DATAMAP COLLECTION™

Expand Your Maps and Legends Database!



NATIONAL POLITICAL BOUNDARIES

Europe, Latin America, S. America, Asia, Africa

PROVINCIAL BOUNDARIES

Australia, Canada, China, U.S.S.R.

PLUS HISTORICAL MAPS AND MORE!

DATAMAPS
ST0227 \$24.95

REQUIRES: MAPS AND LEGENDS 2.0 or greater

Now! A professional flight planner for the ST!

THE NAVIGATOR™

by Scott D. Stephenson
Works with MAPS AND LEGENDS

Sometimes, you really need to know *exactly* where you're going. Have you ever wondered, while boarding your plane, how the pilot will find his way to your destination? The answer is navigation. The pilot follows a detailed flight plan created by his navigator.

Now, accurate computerized navigational planning is available on the Atari ST. THE NAVIGATOR is a professional, automated flight planner created specifically for the ST by professional navigator Scott D. Stephenson. Private pilots, military pilots, navigators (ocean-going as well as air), and commercial operators can use this amazing program to create accurate, detailed flight plans.

Amateurs, arm-chair flyers, teachers and students of navigational theory can discover how the professional navigator plans his flight, compensates for wind direction, establishes waypoints, and calculates times and distances. And we've included a special MAPS AND LEGENDS overlay function which creates custom map overlays, graphically displaying your flight paths.

- **Private Pilots:** You'll love THE NAVIGATOR'S printed flight plan and extensive ICAO waypoint database.
- **Armchair Pilots:** Generate your own flight plans for subLogic's FLIGHT SIMULATOR.
- **Teachers:** Show your students the rudiments of navigation. Use THE NAVIGATOR plus MAPS AND LEGENDS to measure the earth!
- **Sailors:** Plan for currents or winds—taking fuel flows and times into consideration.
- **THE NAVIGATOR** comes complete with these databases: European ICAO, Asian ICAO, and US ICAO.



2 PROGRAMS IN 1!

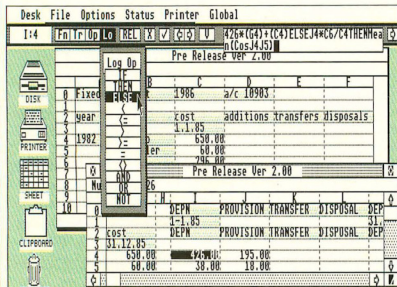
Included with THE NAVIGATOR is THE NAVIGATION TOOLKIT, a bonus program of computer navigation tools which performs sophisticated data management operations on your waypoint databases. Create new data files or modify existing files using its advanced random-search technique.

THE NAVIGATOR
ST0245 \$49.95

Byte tests show A-Calc almost twice as fast as Microsoft Multiplan on the Mac Plus!

A-CALC PRIME™

by Kuma Computers, Ltd. UK



That's right! In the February 1987 review of the Atari 1040 ST, Byte magazine selected A-CALC 1.0 to test the Atari against the Amiga and the Macintosh Plus. On recalculation of a 25 x 25 cell spreadsheet, A-CALC was the clear winner at 4.7 seconds, compared to 7.5 on the Mac Plus, and 6.5 on the Amiga (using Lattice Unicalc).

And now, you can have all the speed of the original GEM-based spreadsheet plus the powerhouse features of the next generation: A-CALC PRIME—it blows away the competition.

Features that made the original A-CALC 1.0 the easiest-to-use spreadsheet ever:



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"This is the easiest to use spreadsheet that I've ever seen." —W. Krieger, Computer Shopper Magazine

- Up to five windows open at once
 - WIDE VIEW option to see 50 percent more of your worksheet at once
 - SEARCH for character strings
 - Powerful PRINTER FORMATTING commands
 - .DIF file compatibility
 - Exclusive A-CHART compatibility
 - Sparse-matrix design maximizes available RAM
- And now, PRIME adds dozens of special features:
- Row and column lock
 - Conditional expressions (IF, THEN, ELSE, etc.)
 - MACROS
 - Labels
 - 8192 rows x 256 columns
 - Color/pattern coding of formula, text, value, etc.

- SORT and FIND
- Trig functions
- Sideways printing (for Epson FX 80)
- High-speed SMOOTH updating
- Complete printer control from within the spreadsheet
- Password-protected cells (hide and unhide)
- Additional ease-of-use features:

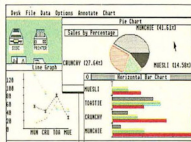
- Off-screen scrolling with the mouse
- Out-of-the-way convenient edit window
- Cell and range reference by pointing with the mouse (even reference cells in inactive windows!)
- Ten clipboards
- Illustrated manual and on-disk examples

In short, PRIME gives you premium spreadsheet power for the rock-bottom price of \$59.95. And, for A-CALC 1.0 owners, the upgrade is only \$20.00 (plus \$5.00 shipping. Enclose your original ver. 1 disk).

**A-CALC PRIME
ST0235 \$59.95**

Make your next presentation the one they remember.
A-CHART™

by Kuma Computers, Ltd. UK



A-Chart

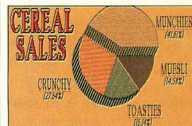
When was the last time you were excited about your spreadsheet? A-CHART makes working with figures fun and intuitive.

A-CHART automatically turns your A-CALC (or A-CALC PRIME) spreadsheets into beautiful graphs that are DEGA-compatible. And, if you don't have a spreadsheet, A-CHART's built-in editor will help you organize those numbers into a super-sharp presentation.

View your data in **eight different chart styles**—change styles instantly with one mouse click. **Drag and size multiple charts** in each window, **define your own fill patterns and line styles**. The flexibility of the graphic presentation of your numbers will give you an **entirely new perspective on your business or home budget**. And A-CHART grows as you do, with the capability of storing up to 50,000 data points in a 512K machine and 150,000 datapoint in a 1 meg machine. **Full statistics menu** for detailed analysis includes Mean, Median, Variance, Standard Deviation, Skewness, T-test, F-test, and much more.

**A-CHART
ST0230 \$39.95**

Epson Compatible Printer from A-CHART
Multi-printer compatible from DEGA



Degas Enhanced

File Compatible with BASE-TWO, PHASAR and A-CALC PRIME

PHASAR™

Professional Home Accounting System and Register

by Marksman Technology

PHASAR: A friendly, GEM-based, single-entry accounting system that will make your life easier. PHASAR is fast, sophisticated and contains the best interface programming design we've seen in any ST applications program.

GENERAL FEATURES

- 130 expense/income categories
- 40 accounts (VISA, checking, etc.)
- Up to 500 transactions per month
- Custom check printing
- A.I. parser predicts input, minimizes typing
- Instant help messages with right mouse button
- Relational design integrates financial data

TRANSACTIONS

- Automatic transfers between accounts
- Split-category transactions
- Create transaction macros for repetitive entries
- Point-and-type spreadsheet-style relational summary update

FINANCIAL ANALYSIS

- Easy budget setup and maintenance
- Analyze loan/savings plan
- Display multiple loans simultaneously for easy comparison

RECONCILIATION

- Display outstanding transactions for any account
- Confirm transactions with a single keystroke

IBM and Amiga users say: "The first home accounting package I have found in five years that is actually usable." — Mark Baldwin, Littleton, CO

"I am enjoying your tutorial almost as much as I admire the power and versatility of the software itself." — Joe Joyce, Huntington, VT

PHASAR is the standard by which other financial packages will be measured



REPORTS

- Clearly formatted printed reports include:
 - Account Summaries
 - Category Summaries
 - Net Worth Statement
 - Tax Calculations
 - And more...
- Display or print total income/expenses, monthly or year-to-date
- Sort categories in any order
- Built in data graphing
- Compatible with A-CHART (ST0230)

DATE/ADDRESS ORGANIZER

- Store up to 250 names, addresses and phone numbers
- Integrated scheduler stores special occasions
- Display calendar with highlighted special occasions
- Optional auto-alert reminds you of important events

TAX

- Design your own tax forms—never out of date
- Calculate tax liability in less than one minute
- Project tax liability at any time

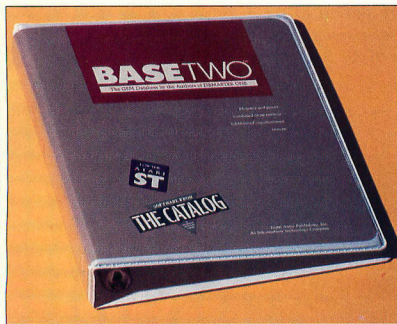
**PHASAR
ST0237 \$89.95**

BASE TWO™

The GEM Database by the Authors of DBMASTER ONE

The next step in databases!

by Dan Matejka and Stanley Crane



It's no fun re-learning your database commands every time you boot it up. And those simplistic "filecard" databases just don't have the power to do the job. Or, maybe you've just created your custom database, entered 5,000 records, and now you want to print a report... good luck. You need a degree in programming just to get some decently formatted hard copy.

Dan Matejka and Stanley Crane have eight combined years of experience writing databases on computers ranging from the IBM PC to the Apple Macintosh. And their databases range in complexity from the extremely powerful and complex IBM PC DB MASTER to the familiar, introductory

DB MASTER ONE on the Atari ST. They've watched the ST database market grow—and they've spotted a gap: until now, ST databases have been either too simple, or too complex. Until now, ST owners were limited to easy-to-use, inflexible "mailing lists," or involved, programmable "throw-backs" to the CP/M or MS-DOS world. Until now, there was no intuitive, yet powerful database featuring an adaptable report generator. *Until now.*

BASE-TWO fills the gap. Entirely GEM-operated, DB MASTER ONE owners will find it familiar, yet far more powerful. Look over some of the features and see if it solves your problem:

INSTANTANEOUS SORTING!

size	number records	sort time
512K	5,000	5.1 sec
1 Meg	10,000	9.7 sec
2 Meg	20,000	19.2 sec
4 Meg	50,000	46.1 sec

Using a sample eight-field mailing list.

- Variable field types:
 - Implicit (default)
 - Alpha
 - Numeric
 - Date (calculable)
 - Formula
 - Formula fields automatically calculate results from several fields in same record
 - Adjustable numeric decimal placement
 - Re-edit database at any time without losing data
 - User-definable .DIF file creation for software compatibility (with A-CHART, for example)
 - DB MASTER ONE conversion program
 - On-line Help screens
 - Optional mouse or keyboard control
 - 64 character label length
 - 100 fields per record
 - Multi-level Search and Sort
 - Totally RAM-based for instant action
 - Format disks from within program
 - Optional, automatic date, time and page numbering
 - Print reports to screen, printer, or ASCII disk file for word-processor editing
 - Optional subtotal printout
 - Adjust number of records per page
 - Double-line report headers
 - Place "comment" text anywhere
 - Customize with printer control codes
 - "Soft" field borders for autofield truncation
 - Single-sheet or continuous feed option
 - Store 10 custom reports for each file
 - Up to 100 unique fields per report
- BASE TWO**
ST0246 \$59.95

DB MASTER ONE is a registered trademark of DB MASTER Associates.

The intuitive BASE-TWO Report generator includes:

- Multi-line field word-wrap, screen and printer
- Completely adjustable label or column-format report



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How To Order

DON'T LET THIS HAPPEN TO YOU!

"I ordered FLASH and got these funny purple things!" "Shipping and handling! What shipping and handling!" "Why did I get ST software! I wanted XL/XE software!" "My software was delivered where!"
Sounds alarming, doesn't it! We don't want this to happen to you!
Take a moment to read the ordering information below,
so that we may ship your order as fast and accurately as possible.
Thanks for ordering from The Catalog!

Lisa Wehrer
 Manager, Customer Service
 The Catalog



ORDERING INFORMATION

1. Check for any hardware requirements at the end of each product description (e.g., REQUIRES: one-megabyte, color monitor, etc.).
2. Make sure the programs you are ordering are for your machine. The first three letters of the **Item Number** will tell you which machine each program is for.

FOR THE ATARI ST
 ST0 PD9 SDS SB0
 TH9 BB9 ST9

FOR THE ATARI XL/XE
 AP0 PDO ADS
 TH0 BBO

3. **\$20.00 minimum order**, on all orders.

ORDER BY MAIL

1. Use the attached order form if possible. If you do not have one, please:
 - a. **Clearly print** you name, address and telephone number.
 - b. **List Quantity, Item Number**, name of item, price of item and total.
 - c. **Add correct amount for shipping and handling charge** (see below). California residents must add 6.5% sales tax on merchandise total (shipping and handling are not taxed).
 - d. **Enclose check, money order or credit card information.** We accept MasterCard and Visa only. Please indicate MasterCard or Visa; include account number and expiration date.
2. **No C.O.D.'s. Do not send cash.**
3. **Overseas Customers**, order by Visa, MasterCard, or check or International Money Order in U.S. funds drawn on a U.S. bank only. **No wire transfers. \$40.00 minimum order.**

ORDER BY TELEPHONE

WHEN TO CALL

Ordering by phone is quick and easy. If you call in the afternoon, you will get fewer busy signals. Orders are taken from 6am to 6pm **Pacific Time** Monday through Friday.

HOW TO ORDER

1. Have the **item number** ready for each item you wish to order.
2. Phone orders are payable by **Visa or MasterCard**. Please have your **account number** and **expiration date** handy.

CALL TOLL FREE

(orders only) All 50 states Monday through Friday 6am-6pm **800-234-7001 Pacific Time**

SHIPPING AND HANDLING CHARGES

Disks	Domestic	Foreign	Canada/Mexico
1-5	\$3.00	\$10.00 Air	\$4.00
6-10	\$6.00	\$15.00 Air	\$7.00
11 or more	\$9.00	\$20.00 Air	\$10.00
Books	\$3.00 per book	\$10.00 per book Air	\$3.00
Magazines	\$1.00 each	\$5.00 each	\$1.00 each

For Order Inquiry and Technical Support, please call: (415)957-0886
 Monday through Friday 8am to 4pm **Pacific Time** (closed for lunch 1pm-2pm)
 CompuServe™ subscribers enter: GO ANTIC
 We regret we are unable to accept technical support or order inquiry calls
 on our 800 number. The 800 number is for **orders only**.

Prices and availability subject to change without notice.

HOW TO ORDER

WANT TO SELL YOUR ST SOFTWARE?

HERE'S HOW:

We market a wider variety of software than anyone in the ST marketplace. Whether you're a first-timer, veteran, or a major software firm, we have a place for you in The Catalog. We also distribute through over 1,000 retailers. So, if you're looking for broad distribution and understanding support, send us your program and let us take a look. Worried about security? So are we. Just send us a description of your software and we'll arrange the necessary non-disclosure agreements. **THE CATALOG Product Development Department**
 544 Second Street
 San Francisco, CA 94107
 (415)957-0886

BYTE picks FLASH — Top Atari terminal program! FLASH 1.5™

SALE
25%
OFF

The Most Popular ST Terminal Program

by Joe Chiazzese and Alan Page

If you own a modem you should be using FLASH. Why? Because FLASH is the best. It will simplify your online time and make telecommunicating more enjoyable and less expensive.

And now, with version 1.5, FLASH just got a whole lot better — for a whole lot less (effectively \$15 after subtracting the \$15 CIS time). Check out the new features:

- Enhanced GEM Word Processor
 - Automatic, adjustable word wrap
 - Search and Replace
 - Reformat text blocks

- Supports CompuServe's B protocol for faster, more convenient file transfers (in addition to color Vidtext graphics).
- Now includes VT100/VT52 line-drawing character set
- New Script language functions
- Command line history
- Faster Type-ahead lets you scroll thru previous lines and resend them
- XMODEM batch file
- Ability to run other ST programs from inside FLASH

Ask Anyone

If you're looking for an ST terminal program, ask any online veteran about FLASH. FLASH is so GEM-intuitive, you feel right at home the first day you use it. Imagine turning on your ST, and with *one click* from the GEM desktop, beginning an online session on your favorite BBS. Watch FLASH dial the number, log on, and *automatically* browse through the most recent messages or files. Then, edit some email in the *built-in text editor*, and upload it right from the capture buffer, instantly! And FLASH is programmable, so you have total control for full customization.

"FLASH is my #1 choice on the Atari ST."

— Ron Luks, Founder of CompuServe's SIG*Atari and Atari Developer's Forum.

LATE FLASH!!

Order now and get an additional \$18 FREE GEnie time!

FLASH has a barrel-full of terminal emulation, so it's compatible with a wide range of mini or mainframe systems. And talk about bulletproof transfers! It's got the *most reliable XMODEM around!*

PACKED WITH FEATURES!

In addition to the new features, here are some of the original, solid standards. See for yourself why *Byte* magazine chose FLASH as the top Atari terminal program.

- Programmable "script" language (70 plus commands)
- Unlimited Macro keys
- Mainframe VT100 terminal emulation
- XMODEM (CRC), ASCII and DC2/DC4 file transfers
- Totally configurable to *your* needs!

FREE! Try FLASH now and get \$15.00 of CompuServe access time.

FLASH 1.5
ST0220 ~~\$39.95~~
Now!
Only \$29.95

(* Free upgrade with original disk and \$5.00 shipping.)

"FLASH is the fastest, most complete, most reliable terminal program I've used..."

— M. Ratcliff,
ANALOG Magazine

BBS and Kermit Accessory for Flash! REMOTE CONTROL ACCESSORY & KERMIT PROTOCOL™

by Joe Chiazzese and Alan Page

Instant Kermit protocol within Flash with this custom desk accessory. Plus Remote Control accessory turns Flash into a mini-BBS.

REMOTE/KERMIT
ST0226 \$24.95

REQUIRES: FLASH ST022

Soup up your modem... in software!

QUICKTRAN™ The Modem Accelerator

by Adrian Jovanovich
Works with FLASH, or
by itself.

Your 1200-baud modem can now transfer files at over 2000 baud... 2400 baud now flies at 4000 baud... The telephone company can't stop you. It's totally legal!

QUICKTRAN comes to you as two disks, each with an identical desk accessory. One QUICKTRAN accessory shrinks the file you're sending — in real time, using one of four automatic compression schemes. The second accessory — on the receiving end — expands the file to its original size as it's coming in over the phone lines. Why spend hundreds on a faster modem when you can transfer files in almost half the time with QUICKTRAN? QUICKTRAN (2-disk set) ST0247 \$34.95



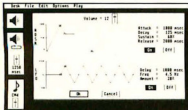
The program that created the sounds in CYBERSCAPE!

G.I.S.T.TM

G.I. Sound Tool

by Lee Actor &
Gary Levenberg
for Synthetic Software

Works with C Compilers,
CYBER STUDIO (ST0236),
and Dr. T's MIDI
Recording Studio



If sound has always fascinated you... or if you're a programmer or developer... take a look at G.I.S.T., the sound editor. G.I.S.T. was created to establish a standard of sound generation on the Atari ST that far surpasses the abilities of the built-in sound chip. G.I.S.T. is really two programs:

- 1) GEM-based editor
- 2) Sound Driver

As you can see from the screen display, the G.I.S.T. editor gives you real-time motor control over any sound shape. The key to G.I.S.T.'s power is dynamic control of the GI chip. Each voice has three ADSR (envelope) controls and three LFO's (low frequency oscillators). You'll be creating sounds like a professional engineer—Near Synthesizer Quality (NSQ) sound.

For programmers, the Sound Driver is linkable object code that can be used in your own software. Adding superior sound effects to any program... it's interrupt driven, so it won't interrupt the speed of your software. In fact, it's already

NOW! Compatible with GFA BASIC & PERSONAL PASCAL!

built into CYBER STUDIO—just one of many useful applications.

LET'S GET TECHNICAL

- Volume ADSR to shape attack, decay, sustain, release
- Volume LFO for Tremolo effects and AM (Amplitude Modulation)
- Frequency ADSR—frequency shifts up to ± 3 octaves!
- Frequency LFO for Vibrato effects and FM (Frequency Modulation)
- LFO delay lets you add effects at any point in the sound
- MIDI-compatible! Use your keyboard to play the GI chip
- Three sound windows may be open at once

Add sound effects to your CYBER STUDIO animations!

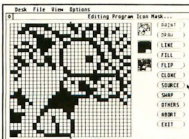
GFA BASICTM Michtron
Personal PascalTM O.S.S.

G.I.S.T.
ST0233 \$34.95

Start Icon Editor Hits "Big Time!"

**P.I.E.
Professional Icon Editor**

by Alex Leavens



It began as a hot little desk accessory in START, The ST Quarterly—you know, "Customize Your Desktop Icons!" or so the copy read. And it was a lot of fun. You could

redesign your Trash Can to look like a paper shredder. But the programmer, Alex Leavens, just couldn't leave it alone. He kept adding things.

Now, the Desktop Icon Editor has graduated. P.I.E. is the Professional Icon Editor—for programmers as well as desktop artists. Alex has added icon code generation so you can now design icons for your own programs. And while he was at it, he added a bunch of graphical improvements to delight the artist in you.

New features include:

- Generates Resource Construction Set code for icon images; P.I.E. can be used from within the Resource Construction Set to create and edit icons for the resources you're currently working on!
- Improved Editing Features:
 - Faster Print and Line Modes
 - New Image Cut & Paste Functions
 - Selectable Fill Patterns
 - Nine-level Bi-directional Undo buffer
 - In-program Desktop Icon Preview mode
- Improved Keyboard Resource

P.I.E.
ST0248 \$29.95



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Add a world of DOS Icons to all of your GEM programs.

CRYSTALTM
(It makes GEM shine...)

by Jim Thompson



These are the DOS Icons Digital Research forgot when they wrote GEM. It's too bad Atari didn't put CRYSTAL into the DOS ROM's, because for about 30K of code, CRYSTAL gives TOS the most powerful features of MS-DOS. Plus, you never lose the look and feel of GEM. And since CRYSTAL is a desk accessory, it's always available.

In fact, these eight icons will eliminate all the frustration you feel from not having powerful DOS functions available from within your favorite GEM program (or the desktop)...

Of course, CRYSTAL is compatible with all monitors, all disk drives, and all printers.

Make your favorite personal version of GEM shine—for \$24.95.

CRYSTAL
ST0229 \$24.95

"The best utility buy of the year, without a doubt."

— Current Notes

**CAD-3D
COLLECTION II**

More fantastic 3D objects! Includes the NEW TV STAR TREK ENTERPRISE; detailed Space Shuttle with working bay doors; Israeli Lavi Fighter; Advanced "F-24" Swept-Wing Fighter; complete Atari Logo; and Darrel Anderson's CYBERSCAPE DISKCRAFT!

PD9101 \$12.00

REQUIRES: CAD-3D 1.0 or CYBER STUDIO

MISFIRE

MISFIRE is by David Snyder, and it's the first user-submitted (1.5 minute long) CYBER STUDIO animation. MISFIRE is a frighteningly real scenario of a next decade SDI nightmare featuring multiple scenes and special effects. Who will survive? This disk is completely self-contained and needs no other program. Just boot it and amaze your friends.

PD9102 \$12.00

REQUIRES: DS drive, 1-meg. RAM, and color system

SPELL/Writer's Tools

SPELL, written by Eric Bergman-Terrell in Personal Pascal, is a simple spelling-checker for ASCII or

1st-Word files. It scans your document, reporting incorrect words and allowing you to add them to the program's unlimited-size dictionary.

PD9093 \$12.00**TOM HUDSON'S
PD3DCTL**

This is the early, public domain version of Tom's motion control language desk accessory for CAD-3D 2.0 — a subset of the powerful CYBER CONTROL (ST0250, elsewhere in The Catalog). Create your own programs to control CAD-3D 2.0 and automatically create CYBER STUDIO (ST0236) animations.

PD9095 \$12.00

REQUIRES: CYBER STUDIO

**DARREL
ANDERSON'S
SPACE PROBE**

This superb CYBER STUDIO (ST0236) animation demo with sound effects was created by Darrel Anderson, author of CYBERSCAPE (SB0104), for the Contact Aliens Lifetime PBS special.

Complex space probe enters space in the foreground before diving to the distant planet's surface.

PD9096 \$12.00

REQUIRES: One-megabyte RAM, DS drive, color

**DARREL
ANDERSON'S
SPACE DOCK**

Another fabulous CYBER STUDIO (ST0236) animation demo by Darrel.

This one features a deep-space hydro-wing launch from one of the Future Design craft.

PD9097 \$12.00

REQUIRES: One-megabyte RAM & DS drive

**TOM HUDSON'S
STEREO
STEELYBOINK**

Incredible, animated ray-tracing demo by Tom Hudson shows off the amazing properties of the STEREOTEK glasses as reflective balls bounce in three-dimensional space.

PD9098 \$12.00

REQUIRES: STEREOTEK GLASSES, one-megabyte RAM, DS drive, color

**SPECTRUM 512
SLIDE SHOW**

Professional artists Darrel Anderson and Richard Berry contribute to this colorful collection of SPECTRUM 512 (ST0249) pictures. (Includes pictures from SPECTRUM Catalog ad.) Show your friends what the Atari ST is really capable of. Or, if you don't have SPECTRUM and want to see what it can do, we've included a special slide show program on this disk. *You don't need SPECTRUM to display these 512-color pictures.*

PD9100 \$12.00**XLISP**

XLisp, written by David Betz, is a version of the LISP programming language based on the Common LISP standard with extensions for object-oriented programming.

PD9084 \$12.00**ARCHive Collection**

A collection of tools for manipulating archives—multiple files combined and compressed into single library files for later extraction and use.

PD9094 \$12.00**CAD-3D
COLLECTION I**

The first collection of complex objects created by Tom Hudson with CAD-3D.

PD9085 \$12.00

REQUIRES: CAD-3D

PROFF

PROFF is a text formatter similar to popular mini-computer tools like RUNOFF and TROFF. PROFF takes input from standard ASCII text files with embedded formatting commands and produces fully-formatted output files.

PD9089 \$12.00**STEREO STARS &
SLIDE SHOW**

Float through stereoscopic space with this hypnotic, animated starfield demo. Plus, over ten full-stereo slide pictures! Show your friends, then load them into DEGAS Elite and touch them up!

PD9099 \$12.00

REQUIRES: STEREOTEK Glasses and DS Drive

**MicroEMACS
COLLECTION**

MicroEMACS, originally developed by David Conroy, is a popular implementation of a useful subset of the EMACS text editor used on mini-computers.

PD9090 \$12.00**ST Software Bargains**

See pp. 30-31

STart Back Issues

See p. 29

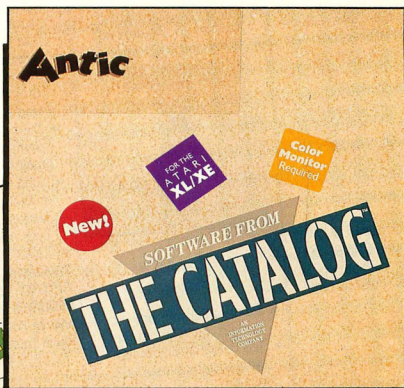


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47

of the best
Atari 8-bit
programs
available
today!

SOFTWARE FROM
THE CATALOG
AN INFORMATION TECHNOLOGIES COMPANY





All-time best-selling Atari
paint program

RAMbrandt™

Atari Design Studio

by Bard Ermentrout

Imagine... the ultimate paint software. For under \$20! Sit down with RAMbrandt and enter a design studio with the tools to make anyone a creative artist. It took our technical staff three hours to step through each of RAMbrandt's features. Use the built-in toolkit to enhance your own programs or picture files. Or just doodle for the joy of it! We barely have enough room to list all the power, but here goes:

- 5 graphics modes (7, 7+ (ANTIC E), and GTIA 9, 10, 11)
- Works with joystick, Koala Pad/Touch Tablet or both

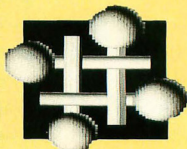
- Horizontal and vertical coordinates always displayed
- Box, Circle/Ellipse, Rubber band line, Freehand plot, Text (4 sizes, any font—3 fonts included), Zoom, Mirror (vertical, horizontal, 4 way)
- Fill (solid, pattern, random, user-defined patterns)
- Unlimited user-defined brushes (5 pre-defined)
- Quilts and Tiles (user-definable color patterns—5 of each pre-defined)
- Color Hunt Mode (paint over only the color you choose)
- Animate mode (up to 32 frames at any speed)
- Window mode—any or all of your picture: Rotate, vertical or horizontal flip (T-shirts), wipe, animate, scale (larger or smaller), cut and paste, rubber stamp
- Printer dumps for Epson, Star (Gemini), C. Itoh, NEC and compatibles
- Okimate 10 color printer dump supports color fine-tuning
- Load pictures from Movie-maker, Microllustrator, Micropainter, and Computer Eyes formats
- 130XE RAMdisk Support!



BEST SELLER!

- Paint or Fill with any pattern, quilt, tile, or font
- 128 colors in any mode with easy one key DLI access
- Random/Probability/Exclusive-Or/Transparent "colors"

FREE BONUS! Order now and get a FREE DISK of pictures and extra character fonts.



A 3-D Solid Object
Modeler for RAMbrandt
SOLID OBJECT

MODULE

by Bard Ermentrout

Now you can easily create 3-D objects with RAMbrandt. Start with 8 different primitives: Sphere, Torus, Cylinder, Spool, etc. Combine them to make complex structures. Then flip into RAMbrandt to complete your picture. This module will not rotate the objects, but it will do just about everything else: 4, 8 or 16 level grayscale. Halftones (random or up to 64 dithered patterns). Backlighting or point source lighting. Clipping window to use parts of objects. Undo command. Much, much, more. If you use RAMbrandt, you need the SOLID OBJECT MODULE.
SOLID OBJECT MODULE
AP0182 \$15.95
REQUIRES: 48K RAM, RAMbrandt

RAMbrandt
AP0157 \$19.95
REQUIRES: One Joystick and/or Koala Pad or Atari Touch Tablet

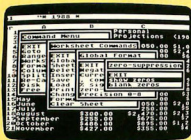


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PROGRAMMABLE spreadsheet for the XL and XE computers

CALC MAGIC

by Metamorphosis Development



This is a full power, fast spreadsheet presented in a much easier-to-use programable, multi-menu package. Now you can have sophisticated facilities to really control a spreadsheet—and get a solid grip on your budget or business.

Features include:

- Built-in plain-English programming language. Build templates to reduce your keystrokes.
- Quickly test multiple "what if" conditions and determine actual effects.
- Pop-up menus let you choose commands easily, avoid complex command sequences.
- Supports DIF file transfer.

CALC MAGIC

AP0177 \$24.95

REQUIRES: XL or XE Computer, 64K



THE ENHANCEMENT DISKS (A 2-disk set)

by Robert Wilson

Ever since B/GRAPH—the most powerful Atari business/graphics software ever—was released, rumors persisted that its co-author, Robert Wilson, had created a collection of super utilities and enhancements for the original program that, combined, made the whole set comparable to business-presentation systems worth hundreds of dollars on other computers.

Those rumors were true. For several years, Robert Wilson created, debugged, polished, and reworked his collection of utilities until they became four packed disk sides of programs and documents. Although it is possible to use many of these programs without owning B/GRAPH, THE ENHANCEMENT DISKS are primarily designed to run with B/GRAPH—which is available from Batteries Included.

THE ENHANCEMENT DISKS

features include:

- Bubble charts for market segmentation analysis
- Opposed bar charts
- Segmented horizontal bar charts
- Loan amortization schedules
- Instant switching of plotted variables
- Covariance and correlation matrices

And THE ENHANCEMENT DISKS support the Atari 1020, Radio Shack CGP115, and Mannesmann Tally Pixy plotters for the ultimate in clear presentation. Plotter features include:

- Exploded pie charts
- Floating bar charts
- Plotting of algebraic expressions
- 17 factors per graph with overlays
- Left and right side scaling

THE ENHANCEMENT DISKS

AP0190 \$19.95

REQUIRES: Atari BASIC

Recommended: B/GRAPH

B/GRAPH™ of Batteries Included

Organize ideas with the only outline processor for the Atari. Compatible with Word Magic, Atari-Writer, Paperclip and other word processors.

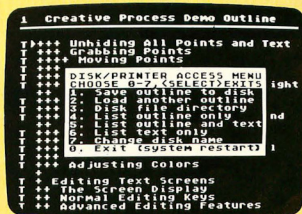
CREATIVE PROCESS Version 1.8

by Dave Thorson



Outline processors have become indispensable authors' tools (you've seen them advertised for the Macintosh and IBM). CREATIVE PROCESS on the Atari is a tremendous aid in report writing—for business or school. Capture your ideas and turn them into pro-

cesses for organizing everything. Pop-up command windows let you concentrate on ideas. Undo key, adjustable screen colors, utilities package, and 130XE RAMdisk support are only a few of CREATIVE PROCESS'S huge list of features. Comes preconfigured for



fessional documents. Reduce the time needed to get out a document, because speed is the key feature. It can help you manage your projects, make sense out of long meetings, and monitor works in progress. Plus, it's so flexible that it can be used as: an address and phone number filer, calendar, recipe data-base,

single and enhanced density. Capable of supporting your double-density DOS's as well. 100% compatible with Word Magic, Atari-Writer and Paperclip.

CREATIVE PROCESS

AP0151 \$19.95

Optional: Printer, Word Magic

SPELL MAGIC

by Blue Collar Software

Spell it right—every time, with this 34,000-word integrated dictionary. Get started fast with on-line help and simple menus. Install SPELL MAGIC and Word Magic together on one disk. Also—check documents created by other word processors such as Paperclip and HomePack, and AtariWriter. Check in context: SPELL MAGIC always displays your document in a

Also works with Atari-Writer and Paperclip!

window in the upper half of your screen. Add an unlimited number of expandable personal dictionaries (up to 10,000 words each). Updates your personal dictionary automatically while checking words. Counts words. Works with single or double drive systems.

SPELL MAGIC

AP0144 \$19.95

8-Bit Software

Great moves... for all level players

Colossus Chess 3.0

The *Ultimate* Computer Chess

by Martin Bryant English Software UK

BEST SELLER!



Here's a chess program with all the moves of a chess master, a great chess tutor or a master tournament opponent. Whether you're a beginner or a pro, COLOSSUS CHESS 3.0 is for you.

Dare to challenge the program that *outplayed* 20 of the best computer chess programs available.

- Unique two-screen dual display—current game and unique view of COLOSSUS's "brain." Watch COLOSSUS consider thousands of moves.

- On-screen elapsed-playing-time clocks add realism, excitement to Tournament mode (full tournament play).
- COLOSSUS teaches you to be a better chess player with simulation modes (infinite mode, problem mode, equality mode, average mode, all-the-moves mode, blindfolded mode). Adjust playing speed and style.

COLOSSUS CHESS 3.0

AP0161 \$15.95

REQUIRES: 48K RAM

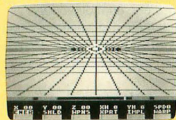
Note: *Colossus Chess* was named "...one of the best buys in chess programs today" by *Analog Magazine* (Nov. '85).

Star Raiders was a great game... for its time.



XTAL(CRYSTAL) — AN ADVENTURE IN SPACE

by Dave Reese



A planet-threatening Ion Radiation storm has developed in the peaceful Canisian section. Your mission: destroy that storm.

The EXCALIBUR comes equipped with impulse and warp drives, transporters, phasers, communicators, shields, quadrant map display, and a spectacular 3D cockpit/navigation viewscreen.

XTAL (CRYSTAL)

AP0158 \$15.95

STAR RAIDERS™ Atari Corp.

Joystick-busting Kung-Fu Action

CHOP SUEY

by English Software UK

BEST SELLER!

An action-packed martial arts competition simulation. For anyone who likes thrill-a-minute competitive games. One or two players. Eight progressive levels, two speeds—normal and (for the insane) superfast. Killer scorpions add an

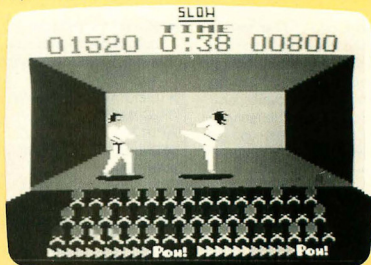
unpredictable element. Fast, smooth animation and 29 on-screen colors add to the excitement.

CHOP SUEY

AP0162 \$15.95

REQUIRES: One Joystick per player

"...one of the best Atari buys of the year. Go get it grasshopper!" *Atari User Magazine* (UK)



The card game of royalty... and society

BLUE TEAM BRIDGE

by Walt Huber

A complete, tournament-level computerized bridge simulation. Now you can learn to play and play more often. Improve your game.

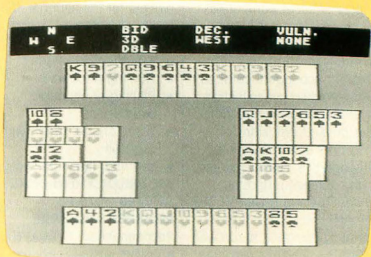
can learn new bidding conventions to sharpen their skill. All will have a worthy competitor when you "can't get a foursome together." Your favorite game is always at your fingertips.

BLUE TEAM BRIDGE

AP0178 \$15.95

REQUIRES: Joystick

New players can learn to play right. Intermediate players can learn an advanced style of bidding. Advanced players



Your computer can teach you the language of the ST.

DEEP BLUE C COMPILER

by John Palevich

MATHLIB

by Frank Paris

DEEP BLUE C is faster and more powerful than BASIC. C is one of the most transportable languages—runs on other computers with minor modifications. This all-purpose language is the *de facto* standard for the new generation of 68000-based machines like the Atari ST. Pointers, recursive functions, and high-level control structures make complete software systems easy to design, implement and maintain.

MATHLIB is a complete library of math functions for DEEP BLUE C. The 32 functions provide access to Floating Point and Trig operations. Now you can get both disks for the price of one!

DEEP BLUE C and MATHLIB
AP0188 \$19.95

REQUIRES: Text Editor like Word Magic

INTERLISP / 65

by Special Software Systems

The Catalog is proud to offer INTERLISP/65, version 2.5, from Special Software Systems. LISP (LIST Processing) is the symbolic language of artificial intelligence applications, designed especially to logically manipulate structured symbols. It's different from any language you've ever used on the Atari!

INTERLISP/65 is a subset of the standard "INTERLISP" dialect of LISP. This version includes special enhancements so you can take advantage of the Atari's graphics and sound capabilities. Over 70 pre-defined functions are included, plus these features:

- Eight-digit, floating point arithmetic, including multiplication, division, exponential, and logarithms.
- PEEK, POKE, and XIO functions for access to monitor and hardware functions.
- STICK and STRIG for game controller input.
- Sequential disk file functions, including OPEN, CLOSE, PR#, IN#, NOTE and POINT.
- PAGE and TAB screen control functions.
- Debugging facilities include BREAK and BAKTRACE.
- Example LISP programs on disk include the famous "Towers of Hanoi" puzzle which provides an excellent example of the power of recursive programming, plus "Doctor," a classic example of artificial intelligence applied to conversational programs.

And now, version 2.5 includes 21 new functions, a special graphics-buffer initialization sequence, plus the new TRACE utility for detailed debugging.

INTERLISP / 65
AP0191 \$19.95

BASIC VIEW

by Softview Concepts

This is a utility all BASIC programmers will want. Beginners will learn programming faster, and veterans will find BASIC VIEW invaluable for debugging. Written entirely in machine language, BASIC VIEW provides a window showing the actual execution of your program code while the program is running. Even if your program uses full graphics displays, you can instantly switch—without program interruption—to the BASIC VIEW window, and then back to your program display. Beginners quickly see which line of code is affecting the program while it actually happens.

Features include:

- Joystick controlled for ease of use.
- Current line highlight during program execution.
- Adjust program execution speed using joystick "throttle."
- Variable Display shows updated contents of variables during program execution.
- Stop, skip to any line, then restart your program at any point.
- Variable Menu displays all variables, arrays, strings in alphabetical order.
- Examine dimensional array structures and elements, and memory locations.
- "Find" command for instant search of any variable or array element by name.

BASIC VIEW
AP0192 \$19.95

Power combo for Assembly language programmers

FLOATING POINT PACKAGE

by Louis J. Chorich III

EXTENDED D.D.T.

by Jim Dunion

FLOATING POINT PACKAGE makes math with MAC/65 as easy as BASIC. It gives you the tools to use the precision of Floating Point operations. Also includes Floating Point array management and Trig functions.
REQUIRES: Mac/65

EXTENDED D.D.T. (EXDDT) is the best debugger, made even better. The improvements include:

- Symbolic disassembler
- EXDDT completely relocatable
- NEXT instruction for single stepping past subroutines
- Includes mini-assembler
- Complete source code and all assemblers

FLOATING POINT PACKAGE and EXTENDED D.D.T.

AP0189 \$19.95

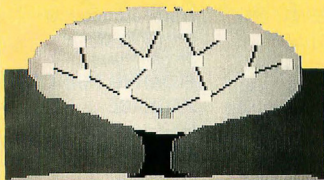
MAC/65™ Optimized Systems Software, Inc.

Ideal partners for MAC/65. Use FLOATING POINT PACKAGE to speed development.



Monday-Friday MasterCard, VISA Only
All 50 States 6AM-6PM PACIFIC TIME





THE FAMILY TREE

by Harry Koons

Record and access up to 6 generations of historical family data with THE FAMILY TREE. Enter names, dates, places and facts; then print out an actual pedigree chart of your own lineage (on any printer). Use the joystick or keyboard to select any relative. Display three windows of pertinent information about that family member instantly. All his-

torical data can be displayed and edited on-screen. Save up to 24 generations on one disk. Send printed charts to distant relatives—get their help in completing each family member's history. Preserve your family tree for posterity!

THE FAMILY TREE
AP0133 \$19.95
REQUIRES: Atari BASIC
Optional: One Joystick

Finally, a flexible, full-featured database

DATA MANAGER XL

by William Bartlett

Here's a flexible, integrated data base manager/mini-word processor that's easy to use. Highly flexible features include: color-coded files, program handles up to 100 fields (indexable categories), each field as large as 120 characters. Quickly make changes with easy add and delete options. Print custom reports from existing files. An Index Manager function allows sorting and file rebuilding.

Use with compatible Atari-Writer and/or Word Magic for mail merge, form letters, or other letter/list processing needs! A special "Tools Manager" section features: database diagnostics and utilities plus a disk drive speed checker! How-to instructions are complete and detailed.

DATA MANAGER XL
AP0129 \$19.95
REQUIRES: Atari BASIC

SHERLOCK 1050

by Dan Moore and Steve Ahlstrom

Get a fighting chance to restore crashed disks. Examine or edit any byte in any sector of your single or enhanced density disks (in HEX or ASCII). Disassemble (from the disk itself) any machine language file or

autoboot disk and learn its secrets. Restore deleted files and salvage broken files with the Trace option.

SHERLOCK 1050
AP0155 \$19.95

PRINTER DRIVER CONSTRUCTION SET

by John Eric Hinckley

Now AtariWriter is totally compatible with every printer. Comes with drivers for FX-80/MX-80, 10X/SG-10, NEC 8023, Prowriter, 1027, HR-25. Build your own drivers for other

printers.
PRINTER DRIVER CONSTRUCTION SET
AP0131 \$19.95
REQUIRES: AtariWriter cartridge

CHAMELEON CRT TERMINAL EMULATOR

Version 4.03

Written in machine language
by John Palevich



Turn your Atari into a variety of computer terminals! Five popular types: Glass TTY, ADM-3A, DEC VT-52, IBM 3031, ASCII, plus a test terminal. Software supports tab, backspace, line feed (on/off), form feed, bell signal, speeds up to 9600 bps, plus a lot more! Wide-screen 80 and 132 column emulation. You've never seen anything as fast and smooth as the vertical and horizontal fine scrolling. All these features make CHAMELEON flexible enough to use with UNIX operating systems. Perfect for logging

on non-standard systems, such as MCI MAIL and DELPHI, because you can customize all terminal parameters. Auto-dials and stores up to 16 phone numbers. Supports file transfers and features on all Atari 850-interface, 835, 1030, and XM301 modems. Version 4.03 includes Columbia University's Kermit file-transfer capability, in addition to total compatibility with the popular Xmodem protocol.
CHAMELEON CRT TERMINAL EMULATOR
AP0113 \$19.95
REQUIRES: 48K RAM

The only programmable modem software available BACKTALK 1.2

by Steve Ahlstrom, Dan Moore and Don Curtis

BEST SELLER!

Designed by the authors of Paperclip, Synfile +, and Sherlock 1050, BACKTALK is powerful and easy to use. "Script" files can be executed with the touch of a button. Or they can run automatically—even in the middle of the night while the phone rates are lowest. Now you can wake up in the morning and read your email—with your morning paper—without having to download anything yourself! Bulletproof file transfer. Three protocols: Xmodem (with or without CRC), Amodem, and Xon/Xoff. Supports 300, 1200, 2400 baud modems, ASCII/ATASCII translation, full and half

duplex. CB "chat" window provides uninterrupted communication during on-line conferences. Smooth scrolling text reduces eyestrain. Friendly pop-up menu makes entering commands a snap.

Now you can use BACKTALK with every modem. Supports Hayes-compatible and Atari 1030/XM301. There's even a way to load your own modem handlers. 130XE users will love the way that can download files into the RAMdisk.
BACKTALK 1.2
AP0154 \$19.95
NOTE: Some early 810 disk drives will not work reliably with BACKTALK's high speed I/O.

This 2 DISK SET gives you complete command of your dot matrix printer.

PICTURE PLUS 3.0 and LISTER PLUS 1.5

Non-Standard Magic!

by Chet Walters

BEST SELLER!

PICTURE PLUS is the total graphics utility combined with the ultimate ATARI screen dump. Now Version 3.0 is faster and works with nearly any DOS. It even works with RAMdisks.

Translate pictures between MicroIllustrator, SuperSketch, Paint, Fun With Art, B/Graph, Movie Maker, Micropainter, Atari Light Pen, Atari Touch Tablet, Koala Pad, LOGO, Computer Eyes, Drawit, RAMbrandt (when converted), Graphics 7, 7+, 8, 9, 10, 11, and 15.

Work with the entire picture or just the area you want. PICTURE PLUS will merge two pictures, reverse a picture left to right (for T-shirts), turn it upside down, move it in any direction, make a negative, or change colors. Add text anywhere on the picture, in any

color(s) and any font(s), in 6 sizes.

PICTURE PLUS will print screens in 4 sizes from 3" x 4" to 8" x 14". Directly supports printers compatible with Epson, Gemini, Prowriter, Okidata, color IDS, and color Mannesmann Tally. Custom printer installation program handles most others.

LISTER PLUS will print anything exactly as it appears on your screen including control characters, inverse letters, custom character sets, and character graphics. These two packages formerly sold for over \$30 each.

PICTURE PLUS and LISTER PLUS

AP0179 \$19.95

REQUIRES: 48K RAM, Atari

BASIC

Optional: Dot Matrix Graphics Printer

Simulate a trip to the Moon.

ORBIT—A TRIP TO THE MOON

by John D. Reagh

BEST SELLER!

Dock with the Space Station to get supplies, then head for the Moon. Establish a low altitude orbit, detach the landing module and descend to the lunar surface. This is a serious simulation of a true

mission. Fuel consumption, life support systems, orbital position, altitude, rocket burn time, thrust vectors, radial velocities, orbital constants—keep track of them all. On-board ship's computer instantly plots new courses.

Designed and written by a Lockheed aerospace engineer. Complete with documentation that's educational too.

ORBIT-A TRIP TO THE MOON

AP0168 \$15.95

REQUIRES: Joystick



The RAMbrandt of character graphics

ENVISION

by Darren Schebek

Create giant, multi-screen, 8-way scrolling pictures. Build effortless animations (up to 128 frames at 10 speeds). There has never been anything like ENVISION before. Did you think character graphics were blocky, ugly substitutes for the real thing? Take another look at this screen shot. Graphics O. And in real life, it's animated.



ENVISION has over 50 commands giving you total control over the Atari's 6 incredible text modes. Print out your pictures, do fancy typesetting. ENVISION also supports GTIA modes 9 & 11. A special utility converts microscreens to character graphics that are indistinguishable from the original. ENVISION is a brand new art medium and much more. It will create stand-alone pictures or produce BASIC and Assembler SOURCE CODE, a programmer's dream come true. On the 130XE, ENVISION supports 16 simultaneous fonts.

ENVISION

AP0185 \$19.95

REQUIRES: Joystick

Optional: BASIC, MAC/65,

SynAssembler, Epson-

compatible printer



Mercator Projection

Perfect for Geography, Science, HAM Radio, History, Current Events

EARTH VIEWS

by R.G. Wilson

EARTH VIEWS is a world atlas—an electronic globe—an exciting adventure game. Yes, it's all three in one. Call up many different maps and views of the Earth instantly. Includes detailed hi-res maps and projections linked to a "Gazeteer" of world place names.



Rotating Globe

In the game: you fly into the Bermuda Triangle and go on quests to exciting places. Detailed screens display longitude and latitude, lots of colorful information.

EARTH VIEWS

AP0141 \$19.95

REQUIRES: Joystick



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8-Bit Public Domain

All programs in this series sold as is. There's almost no documentation included, except what's built into the programs themselves. Therefore, you may need some expertise in order to use the products properly. Because this is public domain software, the Customer Service Department cannot provide the same type of service as for programs we publish ourselves (i.e., copy-righted Antic software). However, all programs have been tested at Antic and will perform.

TRIVIA QUIZ

The *Ultimate Trivia Game!* 100% machine language. Play alone or with 2 friends (2 on XL/XE). Plus create your own Trivia Files (over 350 questions per disk—730 with double density). Includes instructions and Assembly SOURCE CODE.
PD0072 \$10.00

THE RAMBRANDT COLLECTION

Now you can design your own special effects slide shows for RAMbrandt pictures. Choose a different dissolve for each picture: horizontal or vertical wipes, pixel dissolve, spin, telescope, and five others. Change the speed of the dissolves, mix graphic modes, repeat pictures or dissolves in any order. Supports 130XE RAM-disk, comes with a selection of the best RAMbrandt art. (RAMbrandt not required.)
PD0073 \$10.00

FIX XL (PD TRANSLATOR)

Run early 400/800 software on your XL or XE.
PD0026 \$10.00

DOS 4.0

by Michael Barall

Here it is—the DOS that Atari, Inc. spent over \$100,000 on and never released. Code named QDOS, it supports single, 1050 (enhanced), and double density drives. Single drive systems require minimal disk swapping. Docs included in Atari's 100 screen online (Help) system. DOS 4.0 is fast—two times faster than DOS 2.0, three times faster than DOS 2.5.
PD0067 \$10.00

ICON GRAPHICS EDITOR

by Gregg Tavares, The NightHawk Group

Draw your own Print Shop icons with this advanced paint program. Use this fabulous "MacPaint"-style program to create your own libraries of icons. Full-featured drawing program includes user-definable fill and a smart brush which can AND, OR or XOR with the background.
PD0088 \$10.00

REQUIRES: Print Shop
Print Shop™ Broderbund Software

VT100 TERMINAL EMULATOR

Turn your Atari into a DEC-compatible 80 column VT-100 graphics terminal. Works with Hayes-compatible modem and interface. No other hardware needed.
PD0037 \$10.00

ANTIC FORTH

Learn the fast, compact FIG-FORTH language. Double-sided disk includes tutorial and editor.
PD0020 \$10.00

RADIO & ELECTRONICS (JACE)

Another great JACE collection. This one will teach you Ohm's law, satellite orbit prediction, and Morse code. It also in-

cludes a YAGI antenna designer, three resistor design programs, an LC circuit computer and HAM programs.
PD0064 \$10.00

130XE HI-RES DESIGNER

For 130XE owners only. R-DRAW, a powerful new Mode 8 paint program that has lots of goodies like spray paint, auto-artifacting, 4 text sizes, star fields, L-R reverse (for T-shirts), and more. R-DRAW is so good that, if it had run on all the machines, it would've been accepted for APX.

Special: includes the BASIC SOURCE CODE for this compiled program.
PD0070 \$10.00

AMIS XM10.BBS from M.A.C.E.

A full-featured bulletin board for the 835, 1030 and XM301 modems. Version 4.5PD supports the auto answer on the XM301. The other modems will require an easy-to-build ring detector (instructions included). Join the telecommunications revolution with this easy-to-use and easy-to-maintain BBS.
PD0080 \$10.00

COMPUTER USING EDUCATORS SOCIETY (C.U.E.S.)—San Mateo

Official Education Packages from teachers who use Atari. EDPACK #1 includes world geography, states and capitals, French and English Hangman, math games. EDPACK #2 has spelling bee, metrics, advanced math, and the famous Function Machine.
C.U.E.S. EDPACK #1 PD0044 \$10.00
C.U.E.S. EDPACK #2 PD0045 \$10.00

1030 EXPRESS/TSCOPE 850 EXPRESS/TSCOPE MPP EXPRESS/TSCOPE

Keith Ledbetter's brilliant modem program, now available for all modems: 1030 EXPRESS for Atari 835, 1030 and XM301; MPP EXPRESS for the Supra/MPP 1000 series; 850 EXPRESS for modems using the 850 (or compatible) interface. **Bonus:** each comes with the correct version of TSCOPE/MSCOPE so you can access the R.L.E. VIDTEX graphics on Compuserve.
1030 EXPRESS/TSCOPE PD0081 \$10.00
850 EXPRESS/TSCOPE PD0082 \$10.00
MPP EXPRESS/TSCOPE PD0087 \$10.00

ASTRONOMY & METEOROLOGY (JACE)

The Jacksonville Atari Computer Enthusiasts (JACE) have collected these wonderful programs for amateur astronomers. Includes an observation simulator for tracking objects in the solar system, a planetary prototype, a planet tracker, and much more.
PD0063 \$10.00

PD MICROPAIN ARTIST

(A.C.A.O.C.)—BBS:
714-731-6523

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As you can probably tell from reading the Catalog, we Antic folks are very proud of our products, and we're particularly proud when we receive letters from you.

ON PHASAR:

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It is one of the most impressive programs I have ever seen: everything I had been searching for and more--versatile, easy to use, and superb documentation. Software of this caliber makes computer ownership both a pleasure and a valuable asset.

Darrel W. Orwig
Long Beach, CA

ON FLASH:

Dear Publishers of Flash:

Thank you thank you thank you thank you thank you thank you (etc.).

Michele Gray
Sausalito, CA

ON A-CALC PRIME:

A-CALC PRIME is the spreadsheet that I have been waiting for. It combines the power of VIP Professional with a GEM interface so good I can (almost) operate the spreadsheet entirely with the mouse if I want. And the SIDEWAYS option prints directly from the program, instead of from a separate utility. I bought a new EPCON-compatible printer just to use the sideways feature. Combined with A-CHART, you've created an unbeatable mix of productivity and value.

Richard Thaman
Virginia Beach, VA

ON BASE TWO:

I recently purchased your program BASE TWO. As a former Mac let me say I found your program much easier to use.

Preston Lindey
Toledo, OH

Thank you and keep in touch!

Bob Weber
Best Seller

Salvatore
Fred J. Lemmer

John Pell
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Sidney Betts

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Forensic Computer Graphics, Inc. (accident reconstruction)
General Dynamics, Ft. Worth (F-16c human factors design)
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