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THE OFFICIAL ATARI JOURNAL

MARCH/APRIL 1992

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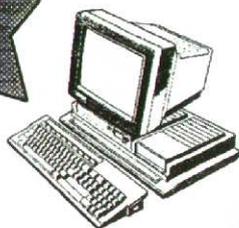
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EXPLORER

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Editor's Note

Spring Comes Early

What a year '92 is turning out to be! Even as I write this, in the depths of winter, thousands of FCC Class B TT030 computers, complete with Atari's new downward-compatible 1.44 MB 3.5" floppy drives, are appearing in dealer stockrooms, nationwide (and disappearing just as fast, thanks to substantial backorders). Brian Gockley, who runs Computers, Etc., in Bridgeport CT, says that the Class B systems are "rugged as hell and completely reliable. I couldn't resist taking one home for myself!"

Atari booted some major butt and took some major names (and got some major media coverage, and wrote up some major orders) at the Anaheim NAMM show, January 17th-19th. At a standing-room-only press conference on opening day, Atari's International Director of Music Markets, James Grunke, announced the formation of a consortium with tape-drive heavy-hitter Fostex, and major sequencer/control-software manufacturers Steinberg, C-Lab, and Dr. T's. The object of the consortium, Grunke revealed, was to promote the world's first completely hands-off recording studio. The setup combines an Atari computer with Fostex's innovative R8 recorder, offering fully-automated tape-transport management. Extensions provide automatic mixdown control and signal processing. Awesome! Read the whole scoop on NAMM in our report, beginning on page 17.

Other changes are in the air: also at NAMM, Explorer premiered its new title, Atari Artist—the magazine for creative computing. We're already planning the second issue of this innovative quarterly, called by one Atari marketing guru "the most important piece of marketing collateral Atari is currently fielding." We think they're just flattering us, but we've got to admit, it is a pretty book—largely due to the extraordinary cheekbones and chestnut locks of cover model Starr Parodi.

Meanwhile, changes were happening at some of the other U.S. Atari publications. Rod MacDonald, publisher of ST Informer, apparently came to a parting of the ways with editor Mike Lindsay and colleagues, and the resulting walkout seems to have spawned not one, but two new magazines. MacDonald has kept Informer afloat by employing a unique publishing scheme under which three regional editors take responsibility for several dozen pages each, per issue. At the same time, Lindsay and Co., along with certain of Informer's more high-profile columnists, have joined forces with an as-yet-unnamed angel to found Atari Advantage, whose first issue is due out in February.

Supercharge It!

Enhancements, upgrades, and new applications form the basis of this issue's coverage. Check out Ron

Luks' first-hand report on CodeHead's innovative TEC Board, a hardware box that lets 520, 1040, and Mega STe owners upgrade to the latest version of TOS (2.06), while retaining optional back-compatibility with older revisions. Our Q&A columnist, Atari's Mark Jansen, returns with another installment of Question Mark, in which he waxes lucid and poetic about \AUTO folders and offers a full rundown of TOS versions and the enhancements available for each.

We're also covering CodeHead's vector-raster drawing program, the amazing MegaPaint 4.0, and the newest version of GFA Draft Plus—two powerful graphics packages that redefine "state-of-the-art" in ST/TT design. Telcom lovers will be pleased at Mike Schoenbach's informative article about CompuServe's Atari Forums, now celebrating their tenth anniversary! Mike also researched and wrote our surprising article on modem games: software that lets you "reach out and blast someone." If you're bored with being a lone gamer, there's no more enjoyable way to connect!

Atari small-business aficionados will glean valuable tidbits and insights from Dorothy Brumleve's honest and introspective retelling of the trials and tribulations she suffered in founding D.A. Brumleve Software (their new program, Multiplay, now entering Beta testing, offers "drill and practice" with a typical Brumleve twist—watch for it!)

Portfolio programmers will get good enhancement mileage out of this issue's installment of "Programming Portfolio." Author BJ Gleason has gone public with an entire library of Portfolio-only graphics routines for Spectra/Atari PowerBASIC. And ST/TT programmers can continue exploring the mysteries of Atari serial programming, with the second of Steve Yelvington's informative articles.

About our Cover

In honor of Spring, we decided to indulge ourselves and create something unique and beautiful—something with the feel of a new American Classic. The way we figure it, Atari users know about performance. They start by buying the best, then "soup" their systems to the max. Unfortunately, office conservatism dictates that these "barely street legal" Atari monsters have to keep dressing up in shades of gray. Ho-hum.

We decided, for once, to belay the gray, and make our cover-model TT keyboard a little bit more striking. With the help of Bruce Wilson (President) and Alan Wells (Technical Advisor) of AutoGraphics of California, we went ahead and did a little hotrodding: dressing a standard TT keyboard out in custom candy-apply-red-tangerine-flake-streamlined clothes. Hope you like it, and keep on ridin' low and slow!

—JOHN B. JAINSCHIGG

Letters

No Sustained Coverage

Although you have an excellent magazine, I am disappointed that you have virtually no coverage of the 8-bit machines. AAAUA is an exclusively 8-bit user group, and I find it difficult to recommend to the membership that they subscribe to Atari Explorer while the 8-bit coverage is so dismal. Your Publisher/Editor John Jainschigg stated in his editorial in the Summer '91 issue that you were "responding to the volumes of mail" you've received from Atari 8-bit owners, demanding regular coverage. The Summer issue did have two excellent 8-bit articles, but sadly, the September issue gave no indication of any sustained response. I urge you to initiate at least one article devoted to the Atari 8-bit. Also, there are numerous articles that can relate to both 8- and 16-bit machines: e.g., printers, monitors, and telecommunications.

Alvan C. Sherrill
President AAAUA

The difficulty with providing sustained 8-bit coverage in Atari Explorer is that our standards are very high. Today's 8-bit user has continued to grow, and deserves coverage of current products and real news as relates to his choice of computing platform. After long deliberation, we realized that we could not provide this coverage in the normal manner, since unsolicited 8-bit submissions are so few and far between.

For this reason, we've acquired the help of a Contributing Editor whose will address himself exclusively to the Atari 8-bit line. CPT. Elwood J.C. Kureth, a long-time Atari 8-bit programmer and best-selling biographer, joined our masthead with the release of our January, 1992 issue. In that issue, you'll find his detailed review of P.A.M.—an arcade/adventure game currently in release for 8-bit systems. For our February issue, CPT. Kureth produced Archaic Arena, a furiously challenging type-in program, written in hybrid Atari BASIC and 6502 machine language.

At present, our aim is to try to offer 8-bit users frequent and substantial articles. We continue, moreover, to invite submissions on 8-bit topics.

Public Domain

I've written a little program which I would like to distribute in the US as a public-domain program. Would you please send me addresses of organizations distributing public domain software for the Atari ST?

Ralf Kaufmann
Essen, Germany

Many user groups, BBS's, information services (such as GENie and CompuServe), and private companies

facilitate the distribution of public domain and shareware in the US market. I use the term "facilitate" because, strictly speaking, these companies do not sell PD software, but merely collect, test, additionally document, reproduce, and distribute it. Profits, where earned, are for these important value-added services—not for the software, itself, whose copyright normally remains with the programmer.

The most time-efficient way to get something into the public-domain pool is to upload it to an international information service (both GENie and CompuServe have local nodes in Germany). From there, it may well migrate into collections of PD wares distributed by private companies, user groups, etc. In fact, the best way to insure that your program gets into a commercially-distributed PD collection is to give it some play on the information services first, to prove that it has audience appeal.

Nevertheless, of the "PD" companies we know about, three are particularly noteworthy. PDC Corp. (4320 - 196th SW Suite B-140, Lynnwood, WA 98036-6721) distributes a wide variety of public domain collections at bargain prices. BRE Software (352 W. Bedford Ave., Suite 104, Fresno, CA 93711) also carries an exceptionally broad and well-chosen selection of PD products, as well as books, hardware, commercial software, and accessories. ST Connection, from Computer Publications, Unltd. (P.O. Box 2224, Arvada, CO 80001) is a newsletter devoted to Atari PD. These should be enough to get you started. Good luck!

A Timely Warning for April

It would be a good idea if you were to warn your readers about the dangers involved in a new use for computers. Though very few know about this at present, it may spread like wildfire, and I have observed that at least three out of ten friends who have been exposed to this danger have gone off the deep end, mentally.

I devised this method originally for the purpose of attempting to overcome writer's block by bypassing the regular consciousness and attaining direct contact with the intuitional subconscious. For me, it proved to be very profitable, but among ten friends who also now use it, at least three are no longer aware that it is their intuitional subconscious with which they are communicating. They have begun to believe that they are psychically communicating with a manifestation of the psychic interaction of all consciousness, calling itself "Universal Consciousness." It is all awfully weird, and tragic.

The computer method used by me for this purpose involves swapping at random the symbols assigned to the alphabet letter, punctuation, space, and '@' keys, so that whenever one of these keys is struck, a different symbol is produced. As soon as any symbol is produced, it is swapped with another symbol, so their positions al-

ways change. On the computer screen are very rapidly, flashed (subliminally) the new positions that symbols are assigned to.

Although the symbol '@' is included, it is not printed and the key that it is assigned to is caused to be temporarily dead. Immediately after any key is struck, the symbol after being printed is swapped with the '@' symbol. This means that after any key is used it cannot be used again until any other key is struck. It also means that every time a symbol is printed, it is reassigned to another key.

Beginners practicing to attain use of this method watch the screen and strike the keyboard at random. After some practice they find that although they are still striking the keys at what seems random, words, phrases and finally full-length sentences appear.

Finally, although they are striking the keys at what seems random, they become able to produce high-quality, saleable literary material at high speed, coming from the subconscious. You do not have any control over what will be produced.

**A Reader
Springfield, MA**

Though Explorer periodically receives information on ergonomic dangers associated with computer use (radiation, carpal-tunnel syndrome, eyestrain, etc.), this is the first notice we have received that using computers may—under certain circumstances—drive people insane. While we are not in a position to judge whether the threat to sanity described by our reader actually exists, we thought it prudent to reprint his letter immediately, so that our readers may take what they consider to be proper precautions.

On the other hand, as journalists and publishers, we find fascinating the idea that a simple piece of computer software might make people capable of producing "high-quality, saleable literary material," albeit at a 30% casualty rate. It seems to us that the easiest way to implement such a program would be as a desk accessory that captures the ST's keyboard interrupt and subjects incoming data to modification. To provide the subliminal reference, the DA might set up an alternative screen buffer containing a constantly-updated keyboard-equivalency table, and display this screen briefly (by use of TOS' Physbase function), each time a key is struck. The resulting program should be made compatible with major ST word processors.

Though we accept no liability whatsoever for mental or physical damage incurred in developing software to the above specifications, we would nevertheless be most interested in reviewing any such products for possible licensing or outright sale. Please address diskettes to Atari Explorer Magazine, April Fool's Project, 29-05 Broadway, Astoria, NY 11106. Replies cannot be guaranteed.

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NEWS & NEW PRODUCTS

ATARI/PLI ANNOUNCE AGREEMENT

Atari Corporation and PLI, a leading manufacturer of high-performance, SCSI-based peripherals for DOS, Macintosh, and other platforms, have announced an agreement whereby PLI will support Atari TT and future SCSI-compatible computers. PLI's product line includes internal and external hard drives with capacities up to 2.1 Gigabytes, 3.5" and 5.25" magneto-optical drives (up to 600 MB capacity), DAT-based tape-backup units (2 GB capacity), 88 MB Winchester/Syquest removable-media subsystems, and CD-ROM readers. Testing is currently in progress with good results, and PLI expects shortly to begin marketing the entire line to Atari users.

Atari's Bill Rehbock notes that PLI "is probably the largest manufacturer of third-party peripherals for Mac and NeXt, and a significant player in the DOS and workstation markets. The fact that they have decided to support Atari systems is yet another indicator of the Atari's increasing importance as a high-performance platform."

Tad Shelby, Director of Marketing Communications for PLI, concurs. "We're very eager to enter the Atari market and to support Atari systems. This move fits very well with PLI's multi-platform strategy, and will assist us in achieving economies of scale that will benefit all users of PLI products. We'll be able to offer Atari users the best peripherals and service, at substantial savings."

PLI has been given access to Atari's dealer list, and plans to enter the worldwide Atari market through existing Atari dealerships and other channels. Support for PLI peripherals is currently available through their own facilities in Fremont, California and through a European subsidiary in Amsterdam, as well as many computer retail outlets; and Atari dealers will also be certified to perform on-site service.

Among the highlights of PLI's product line are a range of 88-MB removable media subsystems capable of reading from 44 MB cartridges of the type presently used by many Atari owners. Other highlights include PLI's Infinity Magneto-Optical Drive, which offers 600 MB capacity on a 5.25" cartridge (MSRP \$3,999.00). PLI's line of CD-ROM readers come in several form-factors, notably an external unit currently selling for \$799.00.

In addition to hardware, PLI is also considering porting its proprietary inter-platform translation software, Mac-to-DOS, to Atari. If accomplished, this will allow transparent file-sharing between Mac, DOS, Atari, and eventually NeXt, Silicon Graphics, and other platforms.

PLI and Atari are expected to announce delivery dates for PLI equipment at Hannover's CEBit exposition, in March. (For further information, call Bill Rehbock, Director of Developer Support, Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94089, (408) 745-2082; or Daniel Loski, VP Marketing and International Sales, PLI Corp., 47421 Bayside Parkway, Fremont, CA 94538, (800) 288-8754.)

MiGraph Ships OCR

MiGraph, Inc., a supplier of sophisticated graphics and DTP utilities and hardware to Atari and other platforms, has announced that they have begun shipping Version 1 of their OCR (Optical Character-Recognition) package. Demonstrated at November's Chicago AtariFest, Migraph OCR is compatible with Migraph and Golden Image hand scanners. The software allows direct scanning of text from documents and provides fast conversion into machine-readable ASCII files. Bit-image scans in .IMG and TIFF format may also be imported and converted.

Migraph OCR employs an Omnifont recognition-engine, recognized as the leader in OCR software technology. The engine can be "trained" to recognize new typefaces, unusual special characters, and even defaced type. It employs a combination of mathematics and table-lookup to make decisions about ambiguous letterforms. Lexicons (linguistic databases) are also employed to disambiguate spelling.

OCR comes pretrained on over twenty typefaces, and can recognize typeset, typewritten, laser printed, and NLQ dot-matrix text, from 10-18 pt. Smaller point sizes can be recognized when scanned at 400 dpi resolution, and additional typefaces and sizes can easily be taught. Runs on any ST/STe/TT w/2 MB RAM. (\$299.00, MiGraph, Inc., 200 S. 333rd, Suite 220, Federal Way, WA 98003, (800) 223-3729.)

The Tray from WizWorks

WizWorks has announced release of a new product, The Tray, that guides a hand-scanner over a page in two neat passes! Then use WizWork's Coalesce

Exile and ST!

Exile's latest CD, *Justice* (Arista), combines country and pop/rock idioms in new and exciting ways. It's evident that this veteran crossover band



is still going strong. But it's more than just Exile's signature sound that makes the album unique. Keyboard tracks on *Justice* were sequenced entirely with Dr. T's software on an Atari ST. Amazingly, keyboardist Lee Carroll (center) didn't even need a studio to lay down the basic sequences, but was able to compose them on the road, during Exile's recent tour. Final cuts were made at OmniSound Studios in Nashville, where Lee downloaded his sequences and played with patches and effects until he got the sounds he wanted. (Evelyn Shriver Public Relations, 1313 16th Ave. S., Nashville, TN 37212, (615) 383-1000.)

software (included) to merge the left and right-hand images into one unified picture, suitable for further processing or input into OCR software. Coalesce interfaces with WizWork's Dr. Bob's Scan Lite, so Scan Lite owners can scan and save from within Coalesce. The Tray fits MiGraph, GeniScan, Daatascan, Golden Image, and most other hand scanners for the Atari ST/TT. (\$69.00)

Add \$1.00 shipping to all orders. (WizWorks, P.O. Box 45, Girard, OH, 44420, (216) 539-5623.)

CIS Lynx Up

CompuServe's Atari Forums have announced newly-enhanced coverage of the Atari Lynx. The Lynx section, part of the Atari 8-bit Forum, will now be managed by Sysops Jeff Kovach and Todd Ellering, and will offer online help, game tips and strategy, GIF maps of Lynx games, contests, and more. (GO LYNX at any CompuServe system prompt.)

Telegames, Shadowsoft to Publish Arcade Hits

Telegames, a major third-party developers of entertainment software for the Atari Lynx (see our reviews of Telegames' Fidelity Chess and Qix, Atari Explorer, January 1991, page 17) has reached an agreement with arcade giant Tradewest, Inc., to publish Lynx versions of Double Dragon and Super Off-Road. The games are expected to be released in July and August, respectively, at a suggested retail price of \$39.95 each.

Meanwhile, Shadowsoft, Inc., has begun shipping its Lynx translation of Robotron, and will put Joust on store shelves by April or May. Shadowsoft also plans to introduce two original titles; a puzzle game and a superhero game, and is looking to license further titles. (For further information, Tom Crosby, Edelman Public Relations, 211 East Ontario St., Chicago, IL 60611, (312) 280-7000.)

Taylor Ridge Announces Assembler Book

Taylor Ridge Books, brainchild of former ST-Log Editor Clayton Walnum, has announced availability of Walnum's long-awaited ST Assembly Language Workshop, Volume I. The book teaches the basics of ST assembly-language programming, starting with theory and building up to full-length programs. A complete 68000 CPU instruction set reference is included, as well as a disk containing all sample programs and assorted additional files.

Walnum has already made Atari history with his book, *C-Manship Complete*, released early last year, which is considered the definitive guide to ST C-language programming. Volume II of the Assembly Workshop series, to be released later this year, will cover GEM programming. A planned third volume will cover more advanced topics. (\$24.95, Taylor Ridge Books, P.O. Box 78, Manchester, CT 06040, (203) 643-9673.)

Toronto ACE '92!

In conjunction with Atari Canada, the Toronto Atari Federation will present ACE '92—the Atari Canadian Exposition—on April 4th and 5th at Toronto's Skyline Hotel. The two-day event will feature demonstrations, seminars, and over 30,000 square feet of developer exhibits; and is expected to attract more than 2,000 attendees!

The Skyline Hotel is offering discount rates to ACE '92 attendees (subject to availability after March 15th). For reservations, call (800) 668-3656 (Skyline Airport Hotel, 655 Dixon Road, Toronto, Ontario, Canada, M9W 1J4). Show information, call (416) 425-5357.

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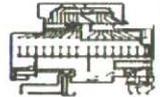
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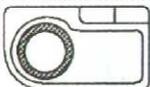


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Can upgrading to NewDesk really be as easy as changing a lightbulb?

TOS Extension Card

by Ron Luks

THE PARTNERS AT CODEHEAD SOFTWARE, Charles Johnson and John Eidsvoog, have attained near-legendary status in the Atari community for writing solid, versatile software that has extended the basic capabilities of the Atari computer line. Now, this company, renamed CodeHead Technologies, has ventured into the hardware-enhancement field, importing the TOS Extension Card (TEC) from Artifex Computer, of Germany.

Since its initial release in 1985, the ROM-based TOS operating system and desktop user interface has undergone three major revisions. With the American introduction of the Mega STe and TT, a year ago, a new and much-improved desktop interface, dubbed NewDesk, was released to widespread public acclaim. Atari decided to make this new desktop available to 1040 STe owners, via a ROM upgrade. Unfortunately, the increased size of NewDesk, which incorporated many profound enhancements to basic TOS, meant that older 520, 1040, and Mega ST owners, with 192K of ROM space, could not just plug in the new 256K TOS ROMs—even though NewDesk was designed to be compatible with any ST's basic hardware framework. Even though some of the functionality of NewDesk can be simulated by



The TOS Extension Card in "Bus Bridge" configuration.

third-party software upgrades, hundreds of thousands of current owners still want the real thing.

Enter Artifex

Luckily, Artifex Corp. discovered that with a small modification, the new desktop and operating system could run on older machines, and set out to design a hardware modification to allow older STs to re-enter the upgrade path. The result is their TOS Extension Card, now being imported by CodeHead.

The TEC board measures approximately 3" x 3" and comes with two TOS 2.06 chips (installed). The chips are socketed for easy replacement with future ROM releases. Attached to the board are two ribbon cables. At the end of one cable is a chip that plugs directly into the TOS ROM socket on the Atari motherboard. The other cable connects to the CPU or the Mega Bus connector, depending on the model of your computer.

The TEC board comes in three configurations. In

✓ TOS EXTENSION CARD (TEC)

Requirements: Any Atari ST series computer.

Summary: Easy-to-install upgrade permits owners of older STs to upgrade to Atari's latest TOS and Desktop.

Distributor:

CodeHead Technologies
P.O. Box 74090, Los Angeles, CA 90004
(213) 386-5735, FAX (213) 386-5789

Price: TEC Basic Configuration Package, \$139.00 (for 520 and 1040 STs and STacys, some soldering required). TECBridge CPU and TECBridge BUS versions (for Mega STs), \$155.00 each (no soldering required, except for optional hardware "TOS Version" switch). All versions include TOS 2.06 ROMs.

the basic configuration, you will need to solder the wires of the second ribbon cable to the pins of the CPU. If you have a socketed CPU (a socket is usually installed when you add a hardware speedup or MS-DOS emulator, for example) or if you own a Mega ST, you can purchase the TEC board in its CPU or Bus configurations. With these units, no soldering is required for installation. The second ribbon cable comes with an adaptor that plugs in between the CPU and the existing socket, or into the Mega Bus connector. Because the TEC board itself fits inside the computer with room to spare, double-stick foam mounting pads are included to affix it safely.

(Note: Installing any version of the TEC board will require opening your computer. This will void any remaining warranty if service is not performed by an authorized Atari Service Center.)

I Do It Myself

Since my computer is a Mega 4 ST, I opted for the TECBridge Bus version. Having never done a hardware modification, enhancement, or upgrade to any computer, and being generally terrified at the very thought of opening up my system, I felt that if I could accomplish this installation, anyone could. I started the stopwatch when I picked up the screwdriver to remove the cover screws, and I'm happy to report that in less than 20 minutes, I had successfully installed the TECBridge Bus unit and was looking at the NewDesk desktop. Installation really was as easy as changing a lightbulb.

While upgrading to a newer version of an operating system is generally a good idea, there is always the risk that certain software will not run correctly. If this is of concern to you, the TEC board manual describes an installation method that lets you retain your original TOS chips, switching between old and new OS's by means of a hardware switch. Installing the TEC board in this fashion requires a bit of soldering, even with the CPU and Bus versions. But it could be a big factor to anyone worried about compatibility.

Docs and Extras

The TEC package comes with two user manuals. The first is an installation manual with excellent, easy-to-follow instructions for installing the board itself, and the optional chip switch detailed above. The second manual is a complete guide for configuring and using the NewDesk user interface. CodeHead Technologies will also be selling the TOS 2.06 ROMs alone (without the TEC board) for owners of the STe or Mega STe computers who wish to upgrade to the new operating system and desktop. Although these ROMs may be purchased from any Atari-authorized dealer, the manual will only be available when purchased through CodeHead. The Cost of ROMs and manual will be \$60 (MSRP).

Software provided with the TEC package includes a copy of the Xcontrol eXtensible Control Panel desk accessory, NoRoach (a utility for shortening the bootup time with the new ROMs), DESKICON.RSC (a file with alternate desktop icons for programs, files, and peripherals used by NewDesk), and the latest version of Pinhead (a shareware program, written by Charles Johnson, that enables faster loading of \AUTO programs).

Besides the improved functionality and performance of TOS 2.06, the availability of NewDesk makes the TEC board package a bargain at the prices being charged. Since Atari will only be upgrading the 256K ROM versions in the future, the TEC board may represent the best way for owners of older model STs to benefit from future upgrades and enhancements. For now, the NewDesk user interface is wonderful, and greatly adds to the ST's functionality and ease of use.

Ease of installation of the TEC package combined with its very reasonable price (less than the cost of a new set of MacIntosh ROMs alone), makes this a "must have" purchase for any ST owner. Support for the product will be available on CompuServe, GENie, Delphi, and the CodeHeadquarters BBS as well as through CodeHead customer support. ■

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Tenth Anniversary CompuServe Atari Forums

Ten years on line, and still growing strong!

by Mike Schoenbach

The Atari Forums on CompuServe are celebrating their tenth birthday this year. To many of us, this occasion marks our tenth year of being a part of the largest and most active Atari users group in the world. What started off as a single section of a general computing special interest group on the CompuServe Information Service has evolved over the past decade into an aggregate of six separate CompuServe forums representing the complete interests of today's Atari community.

According to Ron Luks, manager of all the Atari support services on CompuServe, the original purpose of CompuServe's first Atari special interest group was to create a support network among enthusiasts. "Historically," Luks relates, "the Atari Forums have been a place for Atari owners to get help with their computers and peripherals." In the early days, under Warner Communications, the company was oriented more towards console gaming than productivity computing, and high-level technical support was harder to find." Luks set out to bridge this gap by convincing CompuServe management to allow him to set up one of their Forums for Atari owners.

He created the original SIG*ATARI for Atari 8-

Bit computer owners; a forum that is still available today, along with its offspring. All of the forums under the ATARINET umbrella continue to focus on providing user support through a medium that is available twenty-four hours a day, seven days a week, and accessible from virtually any place in the world.

Through the collective efforts of the Forum membership and sysops (system operators), the Atari Forums on CompuServe have made many vital contributions to the Atari community over the years, most significantly being their role in the development of major software and hardware products. Forum members contributed to the design of Russ Wetmore's HomePak series, Steve Ahlstrom and Dan Moore's PaperClip word processor, and most of the other 8-bit software products produced by Batteries Included. In the ST arena, Forum members had input into the design of many software titles, including Flash, InterLink, and Degas. They have also been consulted for feedback after the initial release of products by such companies as Word Perfect and Digital Research. This tradition continued in 1991 with the creation of Data Diet from Double Click Software, the soon-to-be-released FLASH II communications software, and PowerBASIC and Hyperlist for the Atari Portfolio.

Forum Services

The Forums serve members in various ways. The message board of each Atari Forum offers members the opportunity to correspond with other Atari users from all over the world. Message board discussions typically include analysis of Atari-related products, collaborative investigation into software and hardware solutions for fellow Forum members, and the latest Atari and computer industry news. On occasion, in response to industry happenings and changes in the Atari marketplace,

Forum members utilize the message board as an outlet to communicate their feelings—both optimistic and pessimistic—to other members of the Atari community as well as Atari management. Generally, the ensuing dialogue offers a healthy exchange of diverse points-of-view between members who have made significant investments in Atari equipment. Luks welcomes and encourages members to share their opinions here, and tries to manage the Atari Forums in a style that remains true to the definition of the term. "I'm proud to say that we have never had the occasion to forcefully censor

CompuServe Atari Services At-a-Glance

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Atarinet Main Menu

To access a menu of Atari-related services on the CompuServe Information Service, type GO ATARINET at any service prompt.

Atari ST Arts Forum

Specializes in graphics and entertainment-related software and information for the Atari ST. Includes games, game data files, GIF/RLE/FCP picture files, Degas/Spectrum/Cyber graphics, CAD/animations, Music/MIDI and related viewers and utilities. Type GO ATARIARTS to access this area.

Atari ST Productivity Forum

Specializes in productivity and applications software and information for the Atari ST. Includes telecommunications, programming, utilities, applications, desktop accessories, printers/font support, etc. Type GO ATARIPRO to access this area.

The Atari Productivity Forum has a private area for communication among registered Atari

Developers who are approved by Atari Corp. for access. To gain access to this section, send a CompuServe Mail (GO MAIL) message to Atari Corporation at User ID number 70007,1072.

Atari ST Vendors Forum

Specializes in the support of commercial hardware and software by participating vendors. By using the multiple Message Sections, Conferencing Rooms, and Libraries offered in the Forum environment, many of the top Atari software and hardware developers have set-up individual online "hot lines" to provide their customers with the best possible support.

Participating vendors currently include Intersect Software, MichTron, Precision Software, MacDonald Associates, Maxwell CPU, ICD, Inc., Gribnif Software, Lexicor Software, Talon Technology, Soft-Logik Publishing, Practical Solutions, Double Click, Gadgets By Small, Supra Corp., CodeHead Software, and ISD Marketing. Type GO ATARIVEN to access this area.

Atari 8-Bit Forum

Specializes in the Atari 8-Bit line of personal computers. Includes telecommunications, utilities, sound and graphics, productivity software, computer games, and programming. Atari Video Game systems, including the portable Lynx, are also supported in this Forum. Type GO ATARI8 to access this area.

Atari Portfolio Forum

Specializes in providing information and technical support for the

Atari Portfolio palmtop computer system. You will find information in this forum for interfacing your Portfolio efficiently to your desktop systems as well as help in using your Portfolio for "on the road" applications and productivity. Type GO APORTFOLIO to access this area.

The CompuServe Portfolio Forum has a private area for communication among registered Atari Portfolio Developers who are approved by Atari Corp. for access. To gain access to this section, send CompuServe Mail (GO MAIL) to Atari Corporation at User ID number 70007,1072.

The Atari Portfolio Forum has been designated as an official support site by Atari Corporation.

Atari ST File Finder

File Finder is an online comprehensive keyword-searchable database of file descriptions from the Atari ST-related forums. It was designed to provide quick and easy reference to all of the programs and files available in the Atari Productivity Forum, Atari ST Arts Forum, and Atari Vendors Forum. You can search by topic, file submission date, forum name, file type, file extension, file name or submitter's user ID. File descriptions, forum and library location are displayed for matched files. Type GO ATARIFF to access this area.

What's New in the Atari Forums

An area containing help and information relating to the Atari support services on the CompuServe Information System. Type GO ATA-1 to access this area. ●

anyone in our ten years, except of course, for profanity or obscenity. Some messages have skirted the edges of the libel laws, and in a few instances the sysops have privately or publicly suggested that people delete or rewrite some comments that simply got out of hand, but we are proud of our record on censorship."

That is not to say that Luks feels it is productive to continually disparage a product or producer; he suggests a tactful approach and constructive feedback to be most effective. He notes that, "at some point criticism can become destructive rather than constructive, and by continuing to "bash" a problem or situation, it actually becomes worse than it should be. The people being criticized will simply tune out all comments, both good and bad, and then nobody wins. This is the most delicate part of the sysops' job—to help guide communications along positive lines."

In addition to message board correspondence, Atari Forum members gather every Thursday at 10:00 PM Eastern Time in Conference Room 1 of the Atari ST Arts Forum (GO ATARIARTS)

for fun and lively conversation. If you have never attended one of these conferences, you are heartily invited by the conference regulars to drop on by. Active community participants, software developers, magazine staff and columnists, and long-time Atari luminaries are regularly in attendance.

The Libraries

The social atmosphere of the forums, as with all online networks and electronic bulletin boards, is without question a very important component of the service and provides one of the greatest advantages for becoming involved in telecommunications. However, the foundation of the Atari Forums on CompuServe is the software libraries. Thousands of files are available to download for all Atari systems. The software collection of each forum began with the release of each new Atari system and has grown to include almost any kind of file a user might need.

One of the objectives of the Atari Forums is to continuously offer new and interesting software for members to download, and to assist developers as much as possible in creating new products. To that end, the Atari Portfolio Forum recently completed an ambitious programming marathon that resulted in the creation of over 200 new programs in a period of two months. Headed by programmers BJ Gleason, Don Messerli, and Dave Stewart, the underlying goal of the marathon was to create a steady stream of new applications and

utilities that would expand the functionality of the Atari Portfolio palmtop system. Suggestions were recruited from members via a "Wish List" message section, and ideas turned into tangible programs in a matter of days (in some cases hours!) On average, four new programs were added to the Portfolio Forum Libraries per day.

While the online software libraries continue to grow and new ideas are implemented with the end-user in mind, the CompuServe Atari Forums are also very much committed to supporting software developers—shareware, freeware, and commercial enterprises—during the development process. Recognizing the symbiotic relationship that exists between these

developers and end-users, a considerable amount of forum resources are dedicated to group beta tests that enable developers and users to work together in refining new products. According to Luks, "Our policy is to make forum resources available to software developers who wish to use forum members as beta testers. We provide free access to the forum for the developer and will set up

private testing libraries and message bases." At the time of this writing, Double Click Software is utilizing this offer in the testing of one of their soon-to-be-released products. In addition to public resources, private areas are available for registered Atari ST developers in the Atari Productivity Forum. Similarly, a private area for registered Portfolio developers is available in the Atari Portfolio Forum.

With the onset of the 90's, CompuServe Incorporated is bringing its videotex services to foreign markets. Users located in Africa, Asia, Australia, South America, Japan, and the Middle East can now easily access the service. Additionally, European computer users are now able to gain low-cost entry into the CompuServe network through direct nodes (paying similar connect rates as domestic users), and have full access to local customer support specialists located in CompuServe's European offices. CompuServe's vision of a truly global information service and their efforts to continue to establish these direct links around the world are particularly beneficial to the American Atari community. "Over the past few years, the European Atari community has thrived," says Ron Luks. "By providing low cost access from many countries in Europe, we are able to allow our members to tap into this valuable resource. We are already seeing new programs previously available only overseas appearing in our libraries and the number of European members now frequenting the Atari Forums is growing exponentially."

Whatever the future may hold, one can be certain

'This is the most delicate part of the sysops' job—to help guide communications along positive lines.'

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of the commitment of these forums to present and future Atari users. The goal of these services remains consistent: to serve the needs of the entire Atari community. With CompuServe's recent overhaul of its system software (and with more enhancements planned for 1992), Ron Luks is confident that the services are postured for many more successful years.

Current Highlights

If you've never logged on to the CompuServe Atari Forums or haven't been online in a while, here are some noteworthy highlights from this year:

▲ Use the "Ask ATARI Corp." message area of the Atari ST Arts Forum as your direct link to Atari Corporation. Representatives of Atari continually read and respond to messages posted in this section. Type GO ATARIARTS at any CompuServe service prompt to access the Atari ST Arts Forum, and post a message in Message Section 13.

▲ CompuServe has introduced Atari File Finder, a comprehensive online keyword searchable database of file descriptions from the Atari ST-related forums. It is designed to provide quick and easy reference to all of the programs and files available in the Atari Productivity

Forum, Atari ST Arts Forum, and Atari Vendors Forum.

Through the use of File Finder, browsing through files becomes much easier and more time-efficient. File Finder provides you with seven common search criteria for quickly finding the location of a wanted file or files. You can search by topic, file submission date, forum name, file type, file extension, file name or submitter's User ID number. File descriptions, forum, and library location are displayed, giving instant information on where to locate the file you need (GO ATARIFF).

▲ Use the new and powerful BRO LIB:ALL command within any Forum Library to browse through all the Forum Libraries at one time. Files will be displayed in reverse chronological order, from most recent to oldest. Other new enhancements to CompuServe's Library software include the ability to move forward or backwards through a "browse," enhanced search and directory commands, improved file descriptions that contain more concise information about a file, the ability to easily search for older files, and much more.

▲ Learn more about using CompuServe through its free-of-connect-charge member support services. These services include CompuServe's "Tour/Find a Topic," command summaries and help information, customer service question/answer/feedback area, "What's New" product information, membership directory, billing information, and specials/contest information.

The flagship of these free-of-connect-charge member support services is the Free Practice Forum. Designed to assist CompuServe subscribers in learning how to use the CompuServe Forum environment and Forum command interface, the Practice Forum enables members to gain experience in navigating around a forum and using all of the features without incurring a large connect bill. Type GO PRACTICE at any CompuServe service prompt to access the Free Practice Forum.

▲ Jim Ness' QuickCIS navigation program for the Atari ST can help you get the most out of your CompuServe sessions. QuickCIS will automatically log-on to CompuServe, retrieve your waiting CompuServe Mail messages, and retrieve new messages from your favorite forums for you to read and reply to off-line without connect-time charges. QuickCIS will also capture descriptions of newly uploaded files for you to review off-line. You can tag files to be automatically downloaded during QuickCIS' next online session. Type GO ATARIPRO to access the Atari Productivity Forum and download files QWK CIS.TXT (a complete description of this program) and QWK CIS.TOS (the actual program) from LIBRARY 2 ("Telecommunications").

▲ Due to the popularity of QuickCIS, Jim Ness started development on a similar automated CompuServe terminal program for the Atari Portfolio called PortCIS. The preliminary version of the program is already available for download. Type GO APORTFOLIO to access the Atari Portfolio Forum and download file PRTCIS.ARC from LIBRARY 2 ("Communications").■

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REPORT FROM

NAMM

With TV coverage and rock stars galore, Atari pumps up the volume in the battle for world music-computing hegemony

BY JOHN B. JAINSCHIGG & PETER DONOSO

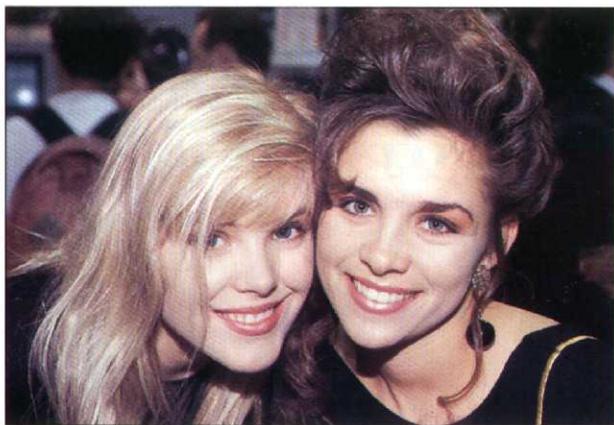


PHOTOS: MIKE FULTON

James Grunke, Atari's Corporate Director of International Music Markets, demonstrates the ST Book for reporters. Mark Vail, an editor at Keyboard Magazine, looks on.

The National Association of Music Merchants show is one of the world's biggest gatherings of music manufacturers and dealers, and one of the highlights of SoCal's Winter season. That Atari—the pre-eminent music computing company—would be present at NAMM was assumed. In years past, Atari—almost unique among computer manufacturers—has attended the show in style. But this year, James Grunke, Atari's International Director of Music Markets, decided to pull out all the stops. Planning for the show began last Summer, but things moved into high gear in the Fall. Timing was of the essence, as at least three major projects (and a few deals) had to be closed for things to happen on schedule. All through the pre-Holiday season, Grunke and his colleagues worked furiously to insure that all the parts were in place: media, marketing, sales, and of course—something to show.

Explorer became part of the process, preparing the first issue of Atari Artist, our new music-and-allied-arts journal, for a NAMM premiere. As a result, the first



High-Performance Systems: Marketing consultants Gina and Alicia indulge our photographer.

weeks of January became a blur of activity, as staff coordinated printing, shipping, and delivery schedules; made travel arrangements; and designed and fabricated a series of POP displays for show-floor magazine distribution.

We checked in at Anaheim Convention Center late in the afternoon of January 16th, the day before the show opened. The Atari boothspace was deep in "setup hell," with volunteer Tara Jacobs, of ACES, playing head demon. Only hours before the show was to open, flats filled with extra supplies were still awaiting transport to storage, carpet had yet to be laid, and six thousand copies of Atari Artist had yet to be distributed to displays placed at strategic locations on the Convention Center floor.

But by midnight, the job was basically done. Organization and manpower overcame all obstacles, and the Atari team retired to area hotels for a well-earned rest.



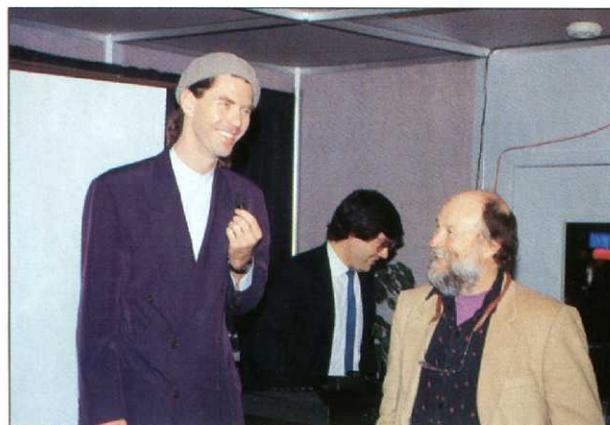
At a press conference at the Anaheim Hilton, James Grunke displays the premier national ad promoting Atari's alliance with tape-transport giant, Fostex.

Doing the Loop

NAMM in action is like a rock-concert where you've got an "unlimited clearance" backstage pass. The noise, first of all, is incredible. Music pounds constantly from almost every booth: demo sound systems and promotional videos compete for attention with live performances by artist/endorsers. Musicians are everywhere: though NAMM is primarily intended as a showcase where musical instrument and equipment manufacturers can show off their wares to dealers and distributors, musicians treat the show as the ultimate gadgetfest—a three day "free for all" where they can check out the next guitar, the next effects-box, or indeed, the next computer they'll use to ply their trade.

Because Atari had the wherewithal to build an acoustically-isolated demo room, the precincts of their booth were less noisy than surrounding presentations. But they more than compensated by drawing record crowds. The outside booth-space was divided into exhibit stations, where third-party representatives showed different aspects of music-making on the Atari platform.

The hustle and bustle remained orderly, however,



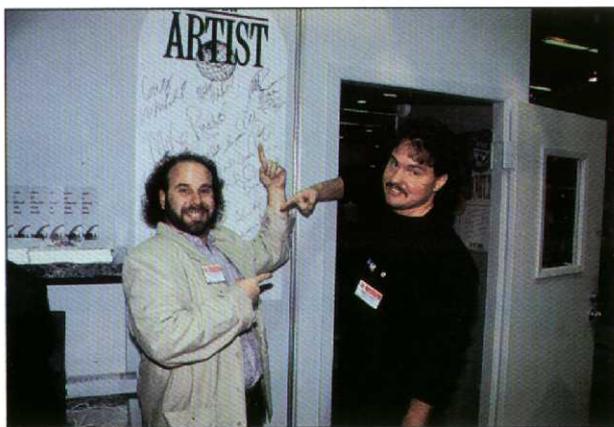
C-Lab's Mikhail Graham (left), discusses Notator's fine points with composer Terry Riley.

because of inspired planning on the part of James Grunke and his colleagues. Upon entering the booth, each VIP was given a card that was stamped by exhibitors at each station. Everyone who finished "Doing the Loop" received one of the impressive new Atari Music sweat-shirts: a premium item designed by Winterland, a well-known design firm serving the rock market. More than just a gimmick, the Loop insured that visitors to the booth saw everything the Atari could do, and accelerated the heavy flow of traffic.

Manning the booth was a hand-picked team of Atari music experts, including Grunke, VP of Sales Don Mandell, National Sales Manager Mike Groh, Design Director Mel Stevens, Director of Communications Bob Brodie and Director of Tech services Bill Rehbock, along with Art Morgan, head of Tech & Mkt. Training, and VP of Tech/Engineering Richard Miller. Inside the sound room, musicians Greg Whelchel and Marc Rittor, who normally back The Pointer Sisters, were doing continuous demonstrations of Atari music technology. Rounding out the dedicated booth personnel were John King Tarpinian, of HACKS, and marketing consultants Gina Smith and Alicia Jones, who welcomed people to the booth and directed them to one of the many developer stations throughout the booth.

On the Floor

Manning the demo stations were representatives of many of Atari's most valued partners in the music game, several of whom also had substantial booths elsewhere on the floor. Steinberg/Jones was demonstrating a variety of exciting new products in Atari's sound room, using a 38" color monitor to insure that everyone in the audience felt they had a front-row seat. Notable among Steinberg's upcoming new releases are Cubase 3.0, due out March 1st at a suggested retail price of \$579. The version 3.0 upgrade is fully TT-compatible, making it among the first of the "high end" sequencing/composition packages to exploit all of the TT's added speed, huge memory, and



Sound-effects wiz Scott Gershin (left) mugs with James Grunke after signing the Atari Artist roster.

advanced features. Steinberg was also showing Master Score II, an entry-level program compatible with Cubase, and sporting many—but not all—of the advanced features that have made Cubase a favorite.

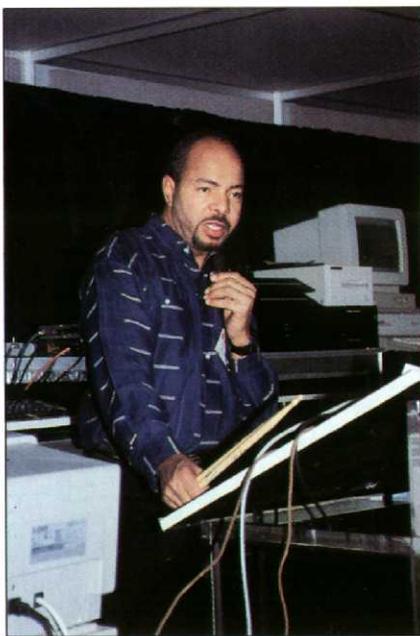
Not to be outdone, Hybrid Arts announced version 2.0 of GenEdit (\$249), which provides a new "studio setup" feature that remembers MIDI channel, port, filter, and other data for each MIDI device in a complex network, and fully automates

MIDI patchbays. Hybrid was also demonstrating their Digital Master EX, a new version of their incredible direct-to-disk recording system that offers four channels and 16 internal "virtual" tracks, expandable up to 32 tracks and 12 channels. An upgraded software interface can be expanded to support up to 16 virtual tracks in a 4-in/4-out configuration. Digital Master EX will debut March 15th, at an astoundingly low \$4,995!

Oktal Corp. was showing a totally re-written version of their sequencer, Multi (now called Multitude v. 1.0). The product will be released in the beginning of June at an SRP of \$395. Multitude features an extremely intuitive interface which reduces even the most complex tasks to a few mouse clicks. Its Tape Manager interfaces with Fostex/Tascam servo-controlled tape recorders via the MIDI interface, while its Mixer provides automated cross-fading and panning of unlimited tracks. The product will be distributed in the U.S. by PROM Musica of New Hampshire and is also TT compatible.

MIDIMan was showing a unit called "LMTC" (\$449.95), which interfaces by software driver to Cubase (Steinberg) and Creator/Notator (C-Lab) sequencers. LMTC stripes tape with SMPTE while learning the characteristics of your tape-transport, then returns to beginning of the tape and writes a header. Thereafter, the LMTC transparently controls your tape machine via MIDI, responding to System Exclusive commands. Supported are Teac TSR-8, MSR-16, MSR-16S, and MSR-24/24S, and Tascam 238, 644, and 688 MIDI Studios Tape machines.

Jimmy Hotz and Mihai Manoliu, along with Jimmy's daughter, Rain, were demoing the brand-new software-only version of the incred-



Chester Thompson, of Genesis, demonstrates building a multilayer drum track, using Hybrid Arts software.

ible Hotz MIDI Translator, compatible with any MIDI instrument. The package wowed onlookers during Jimmy's frequent sound room demonstrations. As a result, many musicians are now beginning to understand the extraordinary creative freedom and power of the hyper-instrument environment created by the Hotz Software. When packaged with Hotz Technologies' custom-made touch-pad actuators, the Hotz system retails for upwards of \$5,000. The software alone is an amazing value at only \$199.

PG Music was showing Band in a Box 5.0, another major upgrade to this popular package that provides combo accompaniment to solo musicians. Version 5.0 offers five instrument styles, all fully user-editable. The upgrade is only \$29 to registered owners. Also demo'd were two add-on disks: Style Disk #2 (25 new styles) and a MIDI Fake Book Disk, featuring accompaniments to 100 standard songs (each \$29).

Amadeus music, of Germany, was demonstrating an ultra-high-end, TT-based scoring package, designed for professional music publishing. When output directly to phototypesetting equipment, the scores are indistinguishable from (or in some cases, marginally better-looking than) engraved copy. While priced beyond the reach of most individual musicians, the product's overall utility and features provide a bargain platform for publishing companies. Interestingly, the program runs on a TT-compatible Unix operating-system base.

Electronic Courseware Systems was present as well, showing off their effective ST-based ECS curriculum. Take Note Software was showing Take Note, the popular ear-training package. And Nevin Shalit of Step-Ahead software was present, demo'ing version 3.0 of Tracker ST, a "people-tracking" package that's ideal for helping musicians manage the business of maintaining contact lists.

In the rear of the booth, Bob Brodie held court, showing off Atari's telecommunications capabilities to an audience eager to hear how music—and modems—work together. On Wednesday night, prior to the show, Jeff Wilson, one of Genie's Atari sys-ops, chaired an online



Greg Whelchel (foreground) and Marc Rittor, of the Pointer Sisters band, lock up with SMPTETrack.

interview with James Grunke, part of a well-attended "pre-NAMM" conference. Throughout the show, Bob Brodie maintained constant online contact with GENIE, CompuServe, and PAN (the music network). Bob's "NAMM-COMM" program served the double purpose of providing fast show-news to the outside world, and demonstrating each of the major online services to show attendees. Elsewhere on the floor, Perry Leopold of PAN network (where Atari has just launched a substantial product-support forum) was demonstrating an "almost ready" ST version of his graphic "front-end" package, software that will permit ST musicians to access all of PAN's multitude of high-tech services, quickly and cost-effectively.

Elsewhere on the show floor, Atari systems (most provided by the company) were much in evidence, as was the obvious prosperity of the companies using them in demonstra-

tions. Steinberg/Jones and Hybrid Arts, in particular, fronted massive booths of their own (in addition to staffing demo stations at the Atari's booth). In the latter case, Hybrid's talented production staff had dressed a huge demo-room out as a concert hall, complete with lights and special effects, the better to demonstrate Digital Master EX and other products. GPI Publications was also running a large booth, filled with posters proclaiming Keyboard Magazine's current \$25,000 Atari promotion giveaway.

Thread it and Forget it!

At a standing-room-only press conference at the Anaheim Hilton, James Grunke announced that Atari has entered partnership with Fostex, Steinberg, C-Lab,

and Dr. T's to provide state-of-the-art studio systems based around Fostex' extraordinary R8-, 16-, and 24-track reel-to-reel, MIDI-compatible tape drives. The technology, referred to as "thread it and forget it," allows ST users to fully integrate and automate the normally-tedious process of mixing and transport control, placing all recording functions under the management of a top-brand sequencer. Combining full SMPTE lock-



Jimmy Hotz (left) and Mick Fleetwood demonstrate the extraordinary Hotz Translator.

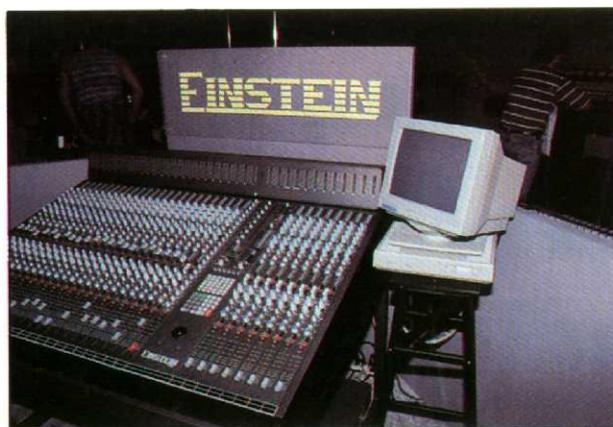
up with transport, record, and playback controls, a person sitting at the ST can automate punch-ins and punch-outs in response to sequenced data, SMPTE frames, or other cues. Precise control imparts to the tape drive the same ability to "pre-roll" before punch-ins that has long been a feature of MIDI sequencing packages.

The Fostex/Atari partnership offers musicians a new level of price-performance. For only \$4,500 (conservative estimate), it's now possible to own an Atari 1040 STe, a Fostex R8 8-track tape system, a MIDI/SMPTE converter, and software. With one track reserved for SMPTE striping, the above system offers seven tracks of analog audio, plus a minimum of 16 MIDI tracks (maximum number dependent on sequencing package selected): a 23-track recording outfit at less than \$195 per track.

At a second, more wide-ranging Atari presentation at the booth, representatives from every major music publication (and Business Week, too) were regaled with demonstrations of Atari technology—notably the new ST Book—as well as applications from Hybrid Arts, C-Lab, Steinberg, Hotz Technologies, and other manufacturers. Additional presentations and demonstrations were mounted to oblige camera crews from The Computer Chronicles, who spent almost an entire afternoon at the Atari booth, recording all of the excitement. Segments were scheduled for national downlink to more than 250 stations, nationwide, starting February 25th.

Starr Quality

Perhaps the most fun of NAMM is being able to catch up with your friends in the music biz! All weekend, Atari's artist friends kept stopping by: to say hello, sit in on a demo, or just to chat about where music technology was going. Long-time Atari supporters Mike Pindar of the Moody Blues and Mick Fleetwood of Fleetwood Mac were present, cheerfully answering questions and signing autographs. In fact, the booth itself amassed an amazing collection of autographs on a prominently displayed Atari Artist logo poster. Among the signatories were such renowned musicians as Rick Serrate; Chester Thompson of Genesis; producer Ronnie Foster; Greg Giuffria, of House Of Lords; legendary guitarist Lee Ritenour; and composer Terry Riley (recently commissioned by Atari to write a piece whose premiere will benefit the Bay Area Children's Hospital).



The ultimate in automation: Amek's Einstein system puts a \$100,000 mixing console under ST control.

We especially welcomed the visit of Starr Parodi and Jeff Fair, from Arsenio Hall, whose faces graced the cover of Explorer's February issue, and who were featured in an interview in Atari Artist, written by Mark Vail of Keyboard Magazine. Starr was kind enough not only to autograph our poster, but to sign copies of Atari Artist for the crowd of fans that gathered round. Over six thousand copies of Atari Artist were distributed at the show, and response to the

magazine was laudatory. We're glad—because we plan to make Atari Artist a tool to help musicians and others get full value from their Atari investment!

Always a force to reckon with in music computing, Atari is renewing its efforts to provide the best technology for demanding musical applications. And James Grunke and colleagues are making sure that Atari's light doesn't get hidden under a basket, applying expert marketing techniques and accessible approaches to this profitable and image-conscious market. ■

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Modem-to-Modem Gaming



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These modem-
based
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products add
a human
touch to
videogame
competition.

by Mike Shoebach

I HAD MY CLAIM TO FAME AS A "GRAND MASTER" VIDEO GAMER DURING the mid 1980's. At the height of my addiction, I vividly remember spending countless hours at the local video arcade practicing and polishing my techniques. Sure, I was interested in maximum scores. But my real goal in feeding an endless stream of quarters into the hungry machines was to find that calculated combination of skill, strategy, and good old-fashioned luck that would let me beat the daylights out of my fellow arcaders.

To this video gamer, there is nothing quite like the thrill of playing against other humans, matching skills against my peers, and dazzling them with cunning maneuvers. Alas, in more recent years, schedule constraints and a significant investment made in personal computer equipment put the damper on my arcade social life—or so I thought.

But now, due to advances in computer-gaming and telecommunications technology, I can once again experience the thrill of playing video games against human opponents—this time, from home! Enter modem-to-modem gaming: the technological innovation that breaks the solitary barrier traditionally associated with computer entertainment.

An MTM Gaming Primer

Modem-to-modem gaming lets computers link up, creating a shared gamespace in which players can compete from across the room or across the country. Unlike regular multiplayer games, which use "split screens" and other dodges to display two or more player points of view, modem games offer each competitor the privacy and convenience of their own console. Full-screen graphics are therefore possible, player interfaces can be made simpler and more transparent, and more raw processing power is available for enhancing game play. And because each player can have their own, private view of the "gamespace," modem gamers can keep secrets—guarding a Poker hand or preparing an ambush in virtual terrain.

The actual mechanics of modem play are usually quite simple. Normally, each player must be running the same type of system and the same version of the game software. Different system configurations, however, should be no problem (i.e., provided the software runs on both machines, a 520 ST owner should be able to link up transparently with a Mega STe owner). And an increasing number of

modem games even permit cross-platform links, e.g., between ST and Amiga, or ST and PC.

Commonly, a modem game will support one or more of the following linkup options:

▲ Direct connection.

Used to link two (or sometimes more) nearby computers. Two-computer links are normally achieved by running a “null-modem” cable between the serial ports. Appropriate cables and adapters can be home-made, or purchased through Radio Shack or most electronics outlets. With proper shielding, cables may be up to 50 feet in length.

Before play can commence over a serial connection, RS-232 parameters (e.g., baud rate, word size, parity, etc.) must be set identically on both systems. Usually, parameters may be set from within the game software, though occasionally, players are required to use a desk accessory, utility, or telecommunications program to perform this task, prior to firing up the game.

Multi-computer links usually involve connecting the MIDI OUT port of one ST to the MIDI IN port of an adjacent system, and continuing in this manner until all systems are connected in a ring. Systems must then typically be turned on in a specific order, allowing the game software to initialize the network connection. However, because the basic protocol of MIDI connections is invariant, no further parameterization is normally required. MIDI cables are available at music stores, as well as through Radio Shack and other electronics suppliers.

▲ Modem connection. Lets two players engage head-to-head in realtime, connecting their computers via modem and telephone line. Normally, only Hayes-compatible modems are supported, though modem-control parameters in some programs may be altered. Connection usually requires the players to set identical serial parameters, then decide which one will call, and which will answer. Actual connection may be achieved by dialing manually, or by means of auto-dialing features. The receiving modem must normally be set to auto-answer, which may entail resetting DIP switches or (where softswitches are employed), sending appropriate commands to the modem, either from within the game software, or by means of a general-purpose telecommunications package.

Real modem-to-modem play is usually similar to that experienced in direct connection, though the lower



Falcon, from Spectrum Holobyte.

speed of modem communications is sometimes a limiting factor, especially in high-speed combat games. Other problems encountered by modem gamers are common to all telcom applications. Line noise, call-waiting “beeps,” and other interference may occasionally disrupt a game in progress. Additionally, because many people don’t have more than one phone line, it may be difficult to coordinate aspects of play while online. However, many

modem games circumvent this problem by providing a “chat” facility that allows players to type short statements (or catcalls!) to one another.

▲ File-based (deferred) competition. Allows two players to compete (or cooperate) by saving and transferring an ongoing game scenario back and forth. Similar to an electronic play-by-mail game, this form of modem-to-modem play is mostly used for turn-based games, such as chess. However, with a little ingenuity, many single- or multi-player game that let you save your current position to disk can be adapted to deferred competition.

Because position or game-scenario files are normally quite short, deferred competition minimizes connect time—a significant cost-factor when systems must be linked directly over long-distance phone lines. Even greater savings can be achieved if players transfer scenarios via electronic mail through a commercial network, such as CompuServe or GENie. While these systems do charge for connect time, they’re usually just a local call away if both players reside in the U.S., and are increasingly accessible from foreign countries. And because large networks are available 24 hours a day, players can send and retrieve scenarios at their convenience, without regard for time differences or other complications of long-distance communication.

The Modem Gaming World

Perhaps one of the most admirable accomplishments of modem games is that they have bridged computer gaming—often charged with being an anti-social form of entertainment—with traditional gaming by adding back that important missing quality of social interaction. “The numbers indicate that computer users see the value and advantage of bringing their work online and sharing information with other real people via elec-

tronic bulletin boards and information services. Now people are finding out how much fun computer games are when you bring them online, too," says Bradley Murphy, founder of the New York Modem Gamers Society, an organization that was created to help modem gamers network and facilitate competitions.

Modem games not only allow people to meet and play with other people from all over the world, but because each player brings to the game his or her own personal experience and skill, each game session becomes much more unpredictable and consequently much more challenging. "Message-sending" functions add to the dimension of human interaction possible through modem gaming. As a result of this feature, many valu-

able personal and professional relationships have developed in-between exploding F-16 missiles, checkmates, volcanic eruptions, and conquering tank artillery.

There are quite a few modem-to-modem games currently available for the Atari ST—both commercial and freeware/shareware—spreading across several genres, with more under development. The future continues to look very promising for this technology, primarily due to the falling prices and higher speeds of new modems that are starting to hit the market. So if you've never played modem-to-modem, read the sidebar to this article, pick a game, post a message on your local BBS or information service, and join your fellow Atarians in the global arcade of the 90's. ■

Modem-to-Modem Game Products Directory

▲ SPECTRUM HOLOBYTE

2061 Challenger Dr., Alameda, CA 94501
(800) 695-GAME, (510) 522-3584, FAX: (510) 522-3587
Tech support: (510) 522-1164

FALCON

Platforms Supported: Atari ST, Amiga, Macintosh. All versions capable of cross-platform play. All versions support direct (null modem) and modem-to-modem connections.

Summary: F-16 Fighter simulation. The enemy MiGs you encounter are resourceful and very skilled. You may challenge another pilot in the head-to-head option via direct or modem connection. Multiple skill levels, technically accurate heads-up displays, actual flight characteristics, multiple views, multiple targets. Black Box flight recorder and complete weapons systems.

FLIGHT OF THE INTRUDER

Platforms Supported: Atari ST, Amiga, IBM/Tandy. Amiga and Atari ST versions capable of cross-platform play. Supports null-modem connections only.

Summary: Flight simulator game, portrays the harrowing missions flown over North Vietnam by Navy A-6 Intruder and F-4 Phantom pilots. You fill pilot Jake Grafton's shoes as he climbs into the cockpit, taxis down the carrier runway, and takes off into the Vietnam skies in search of enemy targets.

▲ SUBLOGIC CORP.

501 Kenyon Rd., Champaign, IL 61820
(800) 637-4983, (217) 359-8482
Tech support: Use toll-free number

FLIGHT SIMULATOR 2.0

Platforms Supported: Atari ST, Amiga. Supports null-modem and modem-to-modem connections.

Summary: Share the friendly skies with a buddy. Formation flying and aerobatics, but no combat.

▲ P.A.L. PUBLISHING

3290 W. Ashlan, #193
Fresno, CA 93722



Flight of the Intruder

HERO!

Platforms Supported: Atari ST. Supports modem-to-modem connections.

Summary: An adventure/role playing game that features over 200 rooms to explore, multiplayer action, full color backgrounds, a rich and complex character development system, real time battle system, macro command system and much more. A demo can be downloaded from Library 11, "Other Modem Games", of the CompuServe Modem Games Forum (GO MODEMGAMES) - file HERO.LZH.

▲ INTERSTEL CORPORATION

P.O. Box 57825, Webster, TX 77598
(713) 486-4163

EMPIRE

Platforms supported: Atari ST, IBM/Tandy, Amiga, Macintosh. All versions are cross-platform capable. File-based competition.

Summary: Empire is a multiplayer game of exploration, economics and war. There are ten different modes of play. Play with an opponent by exchanging files.

▲ **PSYGNOSIS**

29 St. Marys Court, Brookline, MA 02146
(617) 731-3553, FAX: (617) 731-8379

▲ **ARMOUR-GEDDON**

Platforms Supported: Atari ST, Amiga. Versions are cross-platform capable. Supports direct (null-modem) connections.

Summary: Armour-Geddon is a complex real-time strategy game. It integrates intense action with the need to do a good job of both managing one's resources and planning one's pattern of attack. The player must first go through a research and development phase and allocate engineers and scientists to develop and produce a series of vehicles, weapons and instruments necessary to the task of defeating the opponent and collecting the five pieces of the Neutron Bomb.

▲ **ELECTRONIC ARTS**

1450 Fashion Island Blvd., San Mateo, CA 94404
(800) 245-4525, (415) 571-7171, FAX: (415) 571-7995
Tech support: (415) 572-2787

▲ **F-16 COMBAT PILOT**

Platforms Supported: Atari ST, IBM/Tandy, Amiga. Supports direct (null-modem) connections.

Summary: Take control of the skies as Combat Pilot or Squadron Leader in America's finest multi-role dogfighter. As Combat Pilot, you fly at the edge on critical missions from air-to-air intercepts to strategic air strikes. As Squadron Leader, test your strategy against a real-time enemy in multi-mission campaigns. You decide what missions to fly for yourself and for your squadron. Fly head-to-head against a friend using two computers and a null-modem connection.

▲ **POPULOUS**

Platforms Supported: Atari ST, Amiga, IBM/Tandy. All versions are cross-platform capable and allow direct (null-modem) as well as modem-to-modem play.

Summary: An ominous tune greets you as you elect to lead the forces of good or evil, leaving the other side to the computer or a human opponent whom you dial up by modem. It's up to you to develop arable land for your forces to settle and secure with fortresses. Zoom across a map to check your opponent's progress and wreak havoc in the other camp with a flood or volcanic eruption, or campaign brutally with powerful knights. Includes a messaging facility, so human players can goad and pester one another as they destroy generation upon generation of peace-loving agrarian tribes and reduce vast tracts of arable land to rock-strewn waste.

▲ **ORIGIN SYSTEMS, INC.**

P.O. Box 161750, Austin, TX 78716
(800) 999-4939, (512) 328-0282

▲ **OMEGA**

Platforms Supported: Atari ST, IBM/Tandy, Amiga, Macintosh, C64/128, Apple IIe,C,+. All versions are cross-platform capable. File-based competition.

Summary: Design the future's ultimate military cybertank. Match your designs against more than 12 increasingly sophisticated OSI tanks in free-for-all or team combat on a simulated battlefield. Select from 10 chassis types, 10 drive systems, 8 weapons types, 9 special items and 10 scanner types.



Populous, distributed by Electronic Arts

▲ **MICROILLUSIONS**

P.O. Box 3475, Granada Hills, CA 91394
(800) 522-2041, (818) 785-7345, FAX: (818) 787-7345

▲ **FIREPOWER**

Platforms Supported: Atari ST, Amiga. All versions cross-platform capable. Supports modem-to-modem connections.

Summary: It takes firepower to meet this grueling military challenge. Shadow 6, Marc XJ1, or the Scorpion are the machines of destruction you may choose from. Each has its advantages, but you are the one who must take them through combat and back to capture your opponent's flag.

▲ **INTERPLAY PRODUCTIONS**

3710 S. Susan, Ste. 100, Santa Ana, CA 92704
(800) 227-6900, (714) 545-9001, FAX: (714) 549-5075

▲ **BATTLE CHESS**

Platforms supported: Atari ST, IBM/Tandy/Windows, Apple IIgs, Amiga, Macintosh B&W, Mac CD-ROM, IBM CD-ROM. All versions are cross-platform capable, and offer direct (null-modem) as well as modem-to-modem connection.

Summary: Sets strategy into motion with animated medieval characters, battling for position on the board. Colorful, dramatic graphics combined with the logic of chess dare the novice and expert alike. Each piece has its own unique style of attack when confronted by a foe. Complete with digitized sound effects, and an opening library of 30,000 moves. You can play against the computer or your friends, or let the computer play itself. Ten levels of difficulty push skills to the maximum.

▲ **COMPUSERVE INCORPORATED**

P.O. Box 20212, Columbus, OH 43220-9988
(800) 848-8199

CompuServe offers three services to support modem gamers. The Challenge Board (GO CHALLENGE) is an electronic directory of modem game players. The Modem Games Forum (GO MODEMGAMES) is an electronic special interest group used for discussing all aspects of games that support modem play. The forum also contains libraries of modem-to-modem public-domain and shareware. Another service, the Modem-to-Modem Gaming Lobby, allows subscribers to connect "directly" for actual game play, using CompuServe as an intermediary, and saving on long-distance charges. —M.S.

Midnight Engineering

Starting a small software company isn't a venture for the faint-hearted. But with a lot of elbow grease and midnight oil, small developers can thrive and prosper in the Atari market. Here, Dorothy Brumleve, author of *Kidpublisher*, *Kidgrid*, and other popular children's software, relates some of the challenges of running her own small software business, D.A. Brumleve Software.

by D. A. Brumleve

I SUBSCRIBE TO A JOURNAL CALLED *Midnight Engineering*, filled with tips on how to (and how not to) create, package, promote, and market software and hardware. The readership is a unique group of people who feel certain they can handle all aspects of a development enterprise on their own, who blindly risk enormous amounts of time and money without any awareness of market survey techniques, who believe that their product is so unique and so desirable that it can actually make them some money. In short, it's a magazine for small software developers, publishing firms that are essentially one- or two-person operations.

The term "midnight engineer" is an apt one. Like most small developers, publishing is not my only job. It's only after my husband is snoring contentedly in his easy chair and our five children are tucked under the covers that I can make any real progress on current projects. The hours between midnight and 5 AM are often my most productive. In fact, wee-hours programming had already become part of my life-style long before I took the plunge and actually published under my own company name.

First Steps

Several years ago, one of my programs was published commercially by MichTron. This was a fairly satisfying route: I made some money, and MichTron dealt with the headaches of actually publishing, marketing, and supporting the product. But I thought—as I suspect most independent developers do—that I could do a better job myself. I wanted to control the product from start to finish. I wanted to choose the cover colors, the fonts for the manual, the wording on the registration card. I wanted contact with the customers. So, late in 1989, I formed a company named “D.A. Brumleve.” I saved some \$50 by using my own name; my lawyer said I’d need to do a search to avoid duplicating some pre-existing company’s name if I wanted something more exotic. I needed that \$50 to take out my first ad, so “D.A. Brumleve” it was.

By the time I consulted my lawyer, my first program was already written. Once the company name was chosen, it was time to seek out a printer and actually publish it. Before I did this, I sought advice from more experienced developers. The IAAD (Independent Association of Atari Developers) had just been formed, and I was a member. I was literally inundated with advice—all of it good. But surely this advice was colored by my advisors’ unique experiences; surely it didn’t really apply in my case. Independent developers may lack competence, but they never lack confidence, and so it was that I proceeded to ignore most of the advice and make my own mistakes.

My advisors urged me to use offset printing to produce manuals. This is very cost-effective if you are publishing a large number of manuals, but for the number I envisioned (a few hundred at a time), it was relatively expensive. So I took my project to the neighborhood copyshop and paid 10 cents per page. My advisors recommended glossy full-color packaging, manuals in plastic binders, and other ecological nightmares. Surely my public would be more interested in sparing the environment than in glorious packaging; after all, it’s what’s inside the package that really matters. And so my early products were simply wrapped in zip-lock baggies. The staple-bound manual was visible through the bag and thus did double-duty as the package “cover”, and it looked—well, it looked shoddy, but I knew that the contents would wow the public no end. No one is more confident of a product’s value than its developer. I was certain the public would see right through the plastic bag to the inner beauty of Kid-publisher Professional version 6.1.

Public Image

My advisors told me to make people aware of my products. This was one piece of advice I couldn’t ignore. I dutifully sent a press release along with a copy of the



PHOTO: JULIE EIDSVVOOG

The author (right) and friends, standing in front of her booth at the Dusseldorf Atarifest.

program to every ST-related publication available in North America. Some of these magazines subsequently published glowing reviews. I posted a playable demo version of the program on all the national information services. I contacted each magazine for a “media kit”; this packet promotes the magazine as an advertising vehicle and lists ad sizes and prices. Ad prices in the Atari market are very reasonable compared to those for other platforms. Unfortunately, I couldn’t afford reasonably-priced ads; I could only afford cheap ones. So I sent in my ad copy—straight from the tray on my DeskJet—and my tiny checks, and waited for the orders to pour in.

Now, it turned out that there was much to be learned about ad design, and I hadn’t learned it. I failed to list my telephone number in my early ads; this apparently gave people the impression I couldn’t afford a telephone. Of course, adding the telephone number meant that I had to hang around my home-office to answer it. This isn’t always possible, and my children have become impromptu secretaries. My 8-year-old daughter will politely inform my customers that I’m on the toilet and could they please call back in five minutes—no, maybe 10 minutes would be better. A 12-year-old son will write down the customer’s number and promise that I’ll call back, “if I feel like it.” When I’m lucky enough to answer the phone myself, my 5-year-old will provide enough background noise that the customer is sure he’s called the wrong number.

Distribution

The tiny ads I can afford don’t offer much room to boast about my products’ many unique and outstanding features, so I hope and pray that the ad will at least catch the potential customer’s eye and he will call for a brochure. Fortunately, my early ads did catch the eyes of the middlemen known as “distributors”. These are the fellows who order many copies of a program at a time

“It’s only after my husband is snoring contentedly in his easy chair and our five children are tucked under the covers that I can make any real progress on current projects.”

and then resell them to dealers. First to call was a distributor in New Zealand. Then a distributor in Australia caught on. And, then—yes!—a North American distributor picked up my products. It’s really a thrill to get that first quantity order—whether the quantity is 10 copies or 100. Now, my advisors had told me not to wait for the distributors to call. They said I should initiate contact with the distributors myself. But this was working so well, so effortlessly, that again I ignored their advice. I waited for more distributors to call. Eventually I got tired of waiting, broke down and contacted them myself after all. And I waited for them to call back. I’m still waiting.

Price Wars

My fellow developers had explained the pricing system, how each person dealing the product takes his “cut.” Distributors may expect to buy software products for as much as 60% off the retail price. Dealers in turn will purchase the product for anywhere from 35% to 50% off retail. With this in mind, I priced Kidpublisher Professional at \$25. I knew parents would recognize this as a great value; certainly, the years of development that went into it were worth much more. If I sold primarily to dealers and end-users, if I didn’t buy ads of a readable size, if I cut expenses on packaging, my little accounting sheet indicated I’d make at least \$10 on every copy I sold. That seemed quite reasonable.

But it wasn’t. The first problem with this logic was that, in reality, I sold primarily to distributors, and they took the greatest discount. Distributors can’t make much profit handling an inexpensive program, anyway, so even those who were ordering were doing so with reservations. And this wasn’t the only problem with my pricing schedule.

About this time, I came out with two additional products and priced them both at \$25. Super Kidgrid and Kidpainter debuted at the Toronto Atari Users Convention in April of 1990 and again a few weeks later at the World of Atari Show in Anaheim. This was my first face-to-face contact with the buying public. And it was also my first opportunity to understand American advertising in a most intimate way: People don’t perceive a \$25 program as a great value. They perceive a \$50 program *selling* for \$25 as a great value! It seemed that nobody wanted to buy his kid a cheap program. Even I didn’t. When I went shopping for my own children, I looked for *expensive* programs at *bargain* prices. Clearly, a price change was in order.

It turned out that a substantial upgrade was in

order, too. I’d found a few bugs in both Kidpublisher Professional and Kidpainter, and my educational consultant had suggested a variety of enhancements. I devoted nearly every waking hour of the next month to implementing these changes. When I was done, a price change to \$35 was truly deserved. If I was to charge \$35, however, I was going to have to make my products look like they were worth \$35 on the outside as well as the inside. And so I dispensed with the plastic zip-locks and bought real boxes and two-color box labels which were vaguely reminiscent of legal notices. Once shrink-wrapped, this packaging has a “near-professional” appearance. The boxes aren’t full-color, they aren’t plastic, they aren’t glossy, they aren’t even Lino-typed, but they also very definitely are not zip-lock baggies. Dealers aren’t embarrassed to place the programs on the shelves. And they do sell!

Road Tripping

I had originally expected to conduct a mail-order business, dealing directly with orders from end-users. Most of my registration cards, however, were coming in from people who had bought the programs from dealers who had bought them from distributors who had bought them from me. Computer shows became a very important venue, because they afforded an opportunity to promote my products directly to parents and their children. Attending computer shows can be a very expensive proposition. There’s transportation and housing to worry about. Booth prices in the Atari market can be as high as \$700. Obviously, a show can be profitable only if I can sell enough programs to pay for the trip—and then some. There are other benefits to shows, of course; it can make sense to attend one at a financial loss. I enjoy meeting with customers, user group members, fellow developers, and others in the industry. The press is always in attendance, and there may be some coverage of my booth and my products. Like any ST devotee, I shop for the latest releases myself. But I can’t justify too many losses in my business for the sake of press coverage and personal enjoyment. As a result, I’ve learned to weigh the benefits and risks of show attendance very carefully.

I put a lot of thought into my booth display, most of it wasted on ill-fated experiments. At the first few shows, I assembled a large black sign made of cloth and PVC pipe and set it next to the computer on my table; I hung my zip-locks from it with velcro strips. I had worked very hard on the design and construction of this ugly sign, and it is difficult to admit that it wasn’t the

“When I undertook to handle all aspects of the business by myself, I didn’t realize that this would include many things I don’t like to do or don’t do well.”

least bit effective. I’d probably still be using it as a matter of pride, in fact, if my new packaging hadn’t been too heavy for it. I decided to make a tiered rack to display the new packages, and so I looked around the house for appropriate materials and happened upon my youngest son’s Duplo blocks. These made an eye-catching display, so much so that they grabbed the attention of every child and parent who walked by. Then that child or parent would reach for a copy and knock the whole thing down. The offender would be so embarrassed that he would escape my booth area as soon as he’d clumsily reassembled the display!

My educational consultant, an expert Duplo builder, finally came up with a rack that wouldn’t collapse, and now my customers can pick up the copies with confidence. At the first shows, I had placed a binder filled with sample printouts from my programs on the booth table. Unless I opened it myself, my customers left it closed. Now I’m displaying these same printouts on an easel made of Tinkertoys. Customers are just as unlikely to leaf through this sampler, but one printout gets exposure at all times. After a few shows, one of my friends tactfully suggested that I stop wearing solid black (my favorite color) while working in my booth. I’m glad I followed this advice! My black suits must have reminded adults of funerals—and children, of witches.

Doing what you do Worst

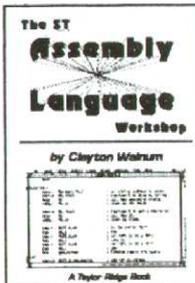
When I undertook to handle all aspects of the business by myself, I didn’t realize that this would include many things I don’t like to do or don’t do well. It turns out, for example, that the government, for reasons entirely its own, expects to see an accounting for all of my sales each year. This means that I have to record these sales and keep my records in an orderly fashion. It means that I have to do math with real numbers rather than variables. The government also expects me to keep every receipt for every tiny little thing I buy for my business: pins, paper clips, paper, tape, ink, boxes, wrapping paper, mailing labels, pens, stamps, disks, software, luggage, hard drives, and computers. They want to know about it all—and they want to know about it all at once! Where is all this vital information? I don’t know. Maybe it will turn up.

Product support can take a lot of time. Some publishers devote an employee—or an entire crew of employees—to this single task. Fortunately, my products require little after-purchase support. There is the customer with the incompatible printer here and

there, of course. I find that I enjoy these contacts, and I enjoy problem-solving, assuming the problem can indeed be solved.

In over two years in the publishing business, I’ve learned some things I needed to know—and I’ve got plenty more to learn. I listen to advice more carefully now. I’ve got a better handle on advertising, pricing, packaging, displays, desktop publishing, and even record-keeping. I’m pleased with my booth display; my packaging is marginally satisfactory; my customers, by and large, are happy. My programs are available in four languages and are used in homes and schools in places as diverse as Reykjavik, Iceland, and Vienna, Austria. Now, if I could just find some time to do what I enjoy most: programming. Maybe after the dishes are done and I’ve mailed in that new ad and I’ve sent that customer a printer driver and my husband is snoring and the kids are dreaming. Maybe after midnight ... ■

Available At Last!



The ST Assembly Language Workshop, Volume 1

by Clayton Walnum

Learn the basics of ST assembly language programming. Book and disk only \$24.95 plus \$3 P&H (\$4 outside U.S.).



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by Clayton Walnum

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Taylor Ridge Books
P.O. Box 78, Manchester, CT 06045
(203) 643-9673

This feature-rich paint program handles vector and raster graphics.

MegaPaint Professional 4.0

by Peter Donoso

AMONG THE LARGE NUMBER OF EUROPEAN programs lately introduced to the American ST market by various distributors, it comes as no surprise that CodeHead's recent entry has raised industry standards. In the continuing global race to see how far the Atari "envelope" can be pushed, CodeHead's MegaPaint establishes a new level of power, excitement and sophistication for all other paint programs to come.

Mega means "large or great," and MegaPaint Professional from German-based Tommy Software certainly qualifies to wield that descriptive prefix on both counts. The program features an elegant and fairly intuitive user-interface which serves as the overlay for some blindingly-brilliant programming, allowing access to a full array of powerful tools and features at a very reasonable price.

✓ MEGAPAINTE PROFESSIONAL 4.0

Requirements: ST/STe/TT with Monochrome Monitor and 1 MB RAM.

Summary: Powerful B/W paint program with raster and vector capabilities.

Manufacturer:

CodeHead Software
P.O. Box 74090, Los Angeles, CA 90004
(213) 386-5735

Price: \$175.00

The most unique aspect of MegaPaint lies in its versatile ability to edit, stretch, compress, and otherwise manipulate both raster- and vector-based objects, merge them into one another, project one onto another and even convert between the two! Even on a stock 1040 ST, this program's load and redraw time is fast, regardless of image type. On a Mega STe running at 16 MHz, it's hard to catch the time lapse when redrawing any but the largest images, and on a TT, redraws are practically instantaneous!

Modular Design

MegaPaint employs a module-loading facility that can be used to field-enhance the program in a wide variety of ways. CodeHead has secured an open-ended agreement that allows them to develop their own modules for MegaPaint; and several of their module enhancements are now available, free of charge. Among CodeHead additions are a module that works in conjunction with WizWorks' Scan-lite to scan images directly onto MegaPaint's screen; a paper-size conversion utility for use with the Atari laser printer; and most recently, an enhancement that lets MegaPaint load vector fonts and graphics in Calamus format.

Setting up the program involves running INSTALL.PRG, which requires you to enter your name, address and disk serial number. Once INSTALL has

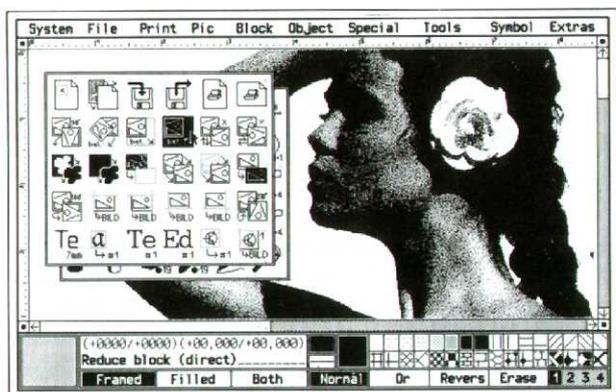


FIGURE 1. A dual pop-up menu provides easy access to MegaPaint's full array of paint and drawing tools.

finished its work, it erases itself, at which point you can copy MegaPaint onto back-up floppies or install it on your hard drive.

MegaPaint has two modes of operation, Raster and Vector, and most of its features are only available in one mode or the other. Each mode features a main window that can be scrolled to cover a total work area of up to 7,680 x 7,680 pixels, large enough to handle practically anything. The size of this work area (but not the size of the actual window) can be freely adjusted in steps of 32 pixels, starting from 640 x 480 at the low end, up to maximum capacity. Graphics that are larger than the viewing window can be selected, reduced or otherwise manipulated using the window's two scroll bars.

Display resolution options conform neatly to available printer resolutions, meaning that what you see on screen is basically what you'll get in terms of printed output. Four display resolutions are available (180, 240, 300, or 360 dpi). Four European paper sizes (DIN A2-A5), and two format options (upright or landscape) are supported. At DIN A4 the respective printed area equals 20 x 26 cm, or a little under 7 7/8" x 10 1/4" at 300 dpi; and there is a module for conversion to the more familiar 8-1/2" x 11" size.

MegaPaint can load and save pictures in Degas .PI3, .PAC, .IMG, .PCX, 32K generic screen-dump, and MegaPaint's own .BLD format. The use of other popular formats, such as .TIF, .GIF and .IFF are being considered for module development. Loading and saving of pictures is fairly rapid. However, MegaPaint also features a re-sizable RAM buffer into which images can be loaded from disk and stored for rapid access. Buffer contents can be viewed without loading them into the workspace.

Menu Magic

Most of the menus located along the top of MegaPaint's screen offer additional sub-menus, accessed by holding down the left mouse button. Many

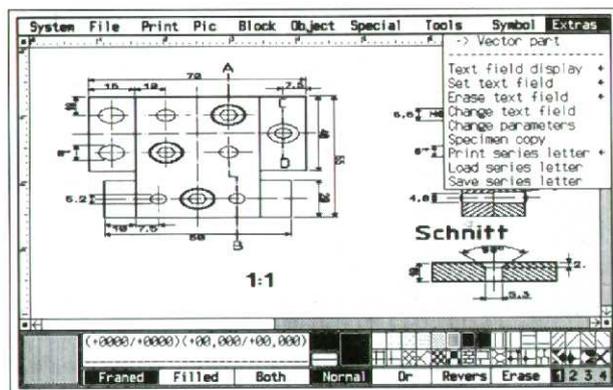


FIGURE 2. Vector graphic manipulation is fast and objects remain intact when other objects are placed in front of them.

of the functions represented in these menus can alternately be accessed from a pair of iconic pop-up menus that appear at the present cursor position when you click the right mouse button. This is a nifty feature, the use of which can easily become habit-forming, once you start remembering what action each icon performs. Fortunately, MegaPaint identifies each icon on its status line as the mouse pointer passes over it (*a la* Calamus). Icons and menus can be edited and saved in groups, facilitating the creation of control panels optimized for particular tasks.

Below the work window is a control panel that includes a small fixed "spotlight" window at its lower left. This window serves a variety of purposes. It can be set to display a magnified 7 x 7-pixel area around the cursor, giving you pixel-accurate positioning for editing and placement. The window is also used to display MegaPaint's 32 fill and frame patterns; to indicate which of four independent drawing levels is currently active (MegaPaint's "drawing levels" feature functions like a set of transparent overlays even permits generation of spot-color "separations"); and displays the current "write mode."

The control panel also offers access to a set of rulers that can be used to scale images, and can be switched to show centimeters, inches, or pixels. The current unit of measurement is displayed below, next to the cursor's current X,Y position. To complete the control panel, there's a drawing-color indicator showing either black or white, and a Line Pattern/Width field allowing quick line-style and -thickness changes without having to access the top menu.

... And More!

MegaPaint Professional comes with a library of sample drawings, fonts, and other goodies, plus a user-expandable symbol library that includes symbols used in printed-circuit design and other useful industrial elements.

The manual is a fairly good translation from the German version (a few details have quite obviously gotten lost in the translation, but these are not crucial) and its overall layout and design are quite pleasing to the eye.

A word of caution, however, concerning memory requirements. Though the manual states that the program can run on either an Atari 1040 or Mega ST/STe or TT computer with at least 1 MB of memory, I found that the program grabbed a little more than 1.3 MB from my Mega 4 upon boot up, and 2 MB is probably a more realistic figure for working comfortably. Both 9- and 24-pin drivers are supplied for a number of popular dot-

matrix printers, and the Atari laser printer is also supported (but requires at least 2MB extra memory for most output). Those who intend to use MegaPaint on systems with less RAM, however, need not abandon hope; for a module has recently been released that enables you to print from disk.

The number of features in this program (over 400!) are more than I could possibly review here, in depth. MegaPaint Professional is a high-powered package with horsepower to spare, but easy to use and inexpensive. In closing, this program certainly lives up to its name. MegaPaint Professional is one program that does mega things (but won't cost you megabucks!) ■

RASTER vs. VECTOR:

In the final analysis, you need both for best results

A RASTER IS A PICTURE EXPRESSED IN TERMS of fixed-size "dots," arranged in an X,Y grid. Images displayed on a computer screen are represented in screen RAM as a raster (or "bitmap") of binary data, wherein each bit or group of bits relates to an on-screen dot, or pixel. Because raster images are composed of fixed-size dots, they cannot be enlarged except by turning each dot in the original image into a large "dot-shaped" group of multiple dots. When an image is enlarged in this manner, it becomes blocky - the "unit dots" forming the image becoming more and more visible as size increases. When a raster image is reduced—by turning each group of dots in the original imaging into a group of fewer dots, or a single dot—information is lost. If subsequently enlarged, a reduced raster will reveal this loss of detail. Raster graphics, moreover, require large amounts of memory for storage, even when compression techniques are employed.

The advantage of raster graphics is that they can be optimized for particular raster grids, and can be displayed on such grids using very simple, rapid non-interpretive, data-transfer operations.

Vector graphics, on the other hand, are stored as collections of formulae defining the lines and curves that outline regions of an image. Because the formulae are relative only to each other, and not to features of a particular raster grid or dot size, vector images can be used to produce rasters for display at

any desired resolution—the higher the resolution, the more detail is revealed. Far less memory is normally required to store a vector graphic than to store an equivalent bitmap at medium resolution, and certain compression techniques can be employed here, as well. The downside of vector graphics is that the formulae making them up must be interpreted when converting them into raster images for display, and this process of interpretation is usually not as rapid as the low-level data-transfer techniques used to manipulate rasters, directly. Another disadvantage shows up when working with images composed of large numbers of discontinuous dots (e.g., scanned photographs), since the large number of small, isolated image-regions cannot be stored efficiently in vector terms.

The best of both worlds is being able to combine the two types of image and convert between them. That way, you can exploit the strong points of either system, depending on the work you're doing. Conversion of vector to raster images is easy: that's what any vector-based drawing program does in order to display vector images on the screen. Converting in the opposite direction, raster to vector, is more difficult. The process involves using "smart" software to "trace" the regions of a raster image, converting each simple region to an equivalent vector expression. Naturally, the success of the conversion depends as much on the image itself as on the conversion software used. Raster "line art" usually converts better than "pointillistic" images. —P.D.

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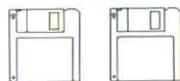
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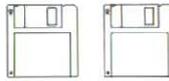
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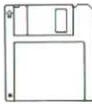
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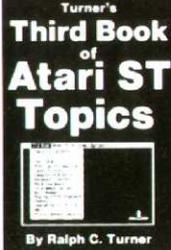


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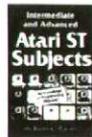
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Quick ST 3.0

by Gregg Anderson

DAREK MIHOCCA AND HIS TALENTED TEAM AT Branch Always Software have done it again. The latest release of Quick ST is far and away the fastest and most compatible to date, offering substantial improvements in the screen display speed of Atari's ST, STe, and TT computers.

Darek developed the original public domain Quick ST in response to SofTrek's TurboST. For the next several years there was a running war for first place between Darek and SofTrek as each refined and improved their products. The early versions of both products were basic text accelerators and were limited to improving the screen speed on a handful of ASCII-based word processors and the redraw speed of the ST's desktop. It wasn't long though before both began enhancing other software as well, including GDOS-based word processors like WordUp, Microsoft's Write and, to a lesser degree, even non-word processing packages such as Easy Draw, Calamus, PageStream, and others.

Since most computer work is screen intensive, and

we spend most of our time staring at that screen as it redraws itself, the gains from a screen accelerator like Quick ST are noticeable and impressive. With the release of Quick ST 3.0, Darek has again raised the stakes with the fastest, most compatible, screen accelerator on the market to date.

Quick ST 3.0 (QST3) comes on a single disk and includes three versions. The basic version is Quick-ST3.PRG and is designed for 520ST systems and for anyone trying to save memory. Version two is QUICK-STE.PRG. This version is slightly larger (on my system it uses 57K of RAM) but is designed to take advantage of accelerators (68000-, -010-, -020-, and even -030-based boards) and the STe's graphics hardware. It's also more compatible than version one and noticeably faster even on my old Mega 4 system. The final version is QUICKTT3.PRG, designed for the Atari TT system.

Installation is simple. Just copy the version designed for your system into your \AUTO folder. QST3 automatically senses what resolution is being used and adapts to it, separate monochrome and color versions are a thing of the past. If needed, you can also install QST3 from the desktop by clicking on the program—but the \AUTO folder system is just about foolproof. Installing the customizing accessory, QST3CUST.ACC, is a tad more complicated, but detailed instructions are included in the manual and installation goes quickly.

The results of installing QST3 are obvious the instant the desktop appears on the screen. Windows appear with a snap, and fill almost too fast to follow. Scrolling

✓ QUICK ST 3.0 (version 3.5 available April)

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Summary: Peerless screen accelerator with numerous options.

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FIGURE 1. QST3CUST.ACC, Quick ST's "customizer" accessory, gives full control of the program's many options.

up or down a disk directory is also much faster. Activate the ZOOM OFF option and dialog boxes don't just appear faster, they pop instantly into view! Text within WordWriter 2 scrolls much faster and even Easy Draw and PageStream redraw their displays more quickly. In short, almost anything that's displayed to the screen is faster. In most cases much faster.

Compatibility is also outstanding. So far all of my software has worked fine with QST3 and even my hard disk-based games work with the program active. A few problems have surfaced, but fixes are in the offing. For one thing, Branch Always announced that QST3 won't work with Atari's new FSM/GDOS, but promised to make the program compatible as soon as possible. Gribnif's Stalker and NeoDesk are also apparently incompatible, as is Icondesk, though exact reasons for these problems are not known.

QST Customizer

Included with QST3 is a new desk accessory, QST3CUST.ACC (see Figure 1). With this installed you can turn QST3 on or off from the desktop, activate the ZOOM OFF option for faster GEM dialog box drawing, and install custom desktop backgrounds (with fills or pictures from a wide variety of sources). It also allows you to install custom desktop fonts, modify your mouse controls, and more. Though you can run QST3 without the .ACC, you'll quickly find yourself spoiled by the full control it offers.

QST3 also comes with a host of utilities and extra 'goodies' on the disk. Numerous extra fill patterns and pictures for QSTCUST.ACC, several public domain utilities (such as Quickview), and the newest version of MonSTER. MonSTER, if used with TOS 1.4 or higher, is able to emulate a 1280 X 960 screen display, tricking your ST into thinking it's got a Moniterm monitor installed. You'll still only see 640 X 400 at a time, but using the mouse you can scroll over a much larger display area. Doing this takes some CPU time though. On

older ST models you'll see a 20% loss in overall screen speed with MonSTER active. The STe line doesn't suffer this loss as MonSTER takes advantage of the STe's hardware scrolling capability.

Benchmark Tests

To test Quick ST 3, we performed a series of benchmark tests on a Mega 4 ST (see Figure 2). All tests were done with CodeHead's G-Plus GDOS replacement installed and active, as well as Double Click's 'Shower' utilities, Atari's TOS patches, and CodeHead's Multi-Desk with several active accessories. Tests included a "scroll test" on several popular word processors, and a "screen redraw" test on several popular graphics and DTP packages.

So what do the test results tell us? First of all that Quick ST is still primarily a GEM Desktop and word processor accelerator, and here it excels without equal (WordPerfect is a puzzling exception). Second, that QST 3.0 will also improve the screen performance of GDOS-based software, including word processors and desktop publishers. This is important since the vast majority of ST owners find most of their time taken up with word processors and an increasing number use GDOS-based software. Finally, though QST 3.0 has little effect on Calamus since that program replaces much of TOS with its own custom routines, PageStream enjoys a 25% gain—good news for desktop publishers.

Though QST 3's performance is largely fault-free, the program does have a few quirks. If placed first in the \AUTO folder it has a tendency to de-install itself if Double-Click's Shower utilities load afterwards. The best cure for this is to arrange that QST be the last utility to load from the \AUTO folder. The second, and most noticeable, quirk is with the QST3CUST.ACC acces-

FIGURE 2. Software benchmark tests on Quick ST3 (all time measurements in seconds.)

TEST	QST OFF	QST ON	Gain
Word Processors, Scrolling			
5 page WordWriter 2 Scroll, cursor:	64.3	34.3	87%
5 page WordWriter 2 Scroll, GEM Bar:	11.3	8.3	36%
4 page WordUp Scroll, cursor:	36.5	30.5	19.6%
4 page WordUp Scroll, GEM Bar:	16.2	13.2	22.7%
6 page WordPerfect Scroll, cursor:	27.5	26.7	3%
6 page WordPerfect Scroll, GEM Bar:	3	2.6	15%
Graphics and DTP, Full Page Redraw			
EasyDraw 3.0, 1 Page Text & Graphics:	24.8	24.1	2.9%
Calamus 1.09, 1 Page Text & Graphics:	2.7	2.6	3.8%
PageStream 2.0, 1 Page Text & Graphics:	9.8	7.8	25.6%
TimeWorks DTP, 1 Page Text & Graphics:	5.1	4.2	21%
GEM Desktop Window Bar Scroll:	6	3.9	53.8%

((base time/test time) - 1) x 100 = %

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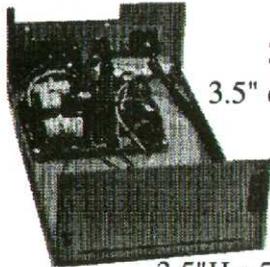
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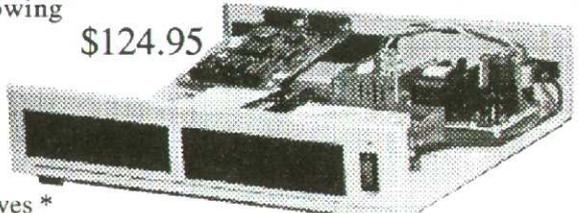
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sory. When loaded using CodeHead's MultiDesk it tends to cover the screen with the default fill pattern (Atari Fuji symbols), hiding the drive icons and directory windows. Calling the MultiDesk dialog box from the dropdown menu and hitting Return forces a screen redraw that quickly cures this problem. Other than these two minor annoyances I've found no problems with QST 3.0.

Late breaking note: with the release of Quick ST 3.0, Darek has transferred the task of marketing and upgrading Quick ST to the talented folks at CodeHead Technologies. According to Codehead, version 3.5 of Quick ST, expected in April, solves about almost all of the remaining compatibility problems, and is a few percentage points faster, into the bargain. Since John Eidsvoog and Charles Johnson (the original CodeHeads) have long specialized in creating outstanding utilities for the ST, we can count on continued support and upgrades for our favorite screen accelerator.

So what's the bottom line? If you already have QST then upgrade, the improvements are well worth the low \$15 upgrade fee. If you don't have QST yet then run, do not walk, to your nearest dealer and get this outstanding utility, you won't regret it.



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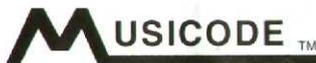
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A sophisticated Personal Information Manager debuts for ST and TT.

Make*A*Date

by Dave Plotkin

PERSONAL INFORMATION MANAGEMENT (PIM) software is supposed to help you organize your life; keeping track of phone lists, notes, schedules, and other ephemera. But where most PIM packages on the IBM PC and Mac are complex and difficult to learn, Artistik Design's Make*A*Date is simple, easy to use, and manages to do all it should without overburdening you with unnecessary complications. It is, in short, everything a PIM should be, and I cannot recommend it highly enough to users requiring this type of software.

That said, just what does Make*A*Date do? From its main screen, Make*A*Date provides access to a scheduler, phone book, note pad and ToDo list. Each of these functions is controlled by a set of VCR-like buttons that let you move, edit, and create new instances of each item. In addition to these built-in functions, you can also set up Make*A*Date to access up to 16 external programs that can be executed by clicking on their icons on the main screen.

Because Make*A*Date incorporates these program-launching facilities, it can become a place to which you constantly return between application work-sessions—an alternative “desktop” that offers scheduling, phone management, and other functions. Make*A*Date even offers a level of integration that exploits external applications to broaden its own functionality. For example, Make*A*Date's Note Pad

utility is limited to five lines of text per note. But an external file of any type may be “attached” to a note, and Make*A*Date will load an appropriate application (by reference to the file's extension) and let you access the attached file whenever that note's “Attach” button is clicked. Because any note can reference any file (hence any application), the Note Pad becomes an efficient way to centralize and organize complex projects.

Scheduling

The Scheduler brings up a month-by-month calendar, where days that have entries are marked. You can move through the months or years to schedule future appointments or review past ones. The “Now” button brings up the current month (based on the ST's clock). Clicking on any day brings up a large dialog box for entering appointments, notes, etc. Items falling in the first five lines of this dialog can be added to or removed from your ToDo list by pressing buttons—a nifty feature. In similar fashion, clicking on a dated item in the ToDo list displays the agenda for the date in question.

The ToDo list and Scheduler are thus tightly bound together. In fact, items may only be added to or removed from the ToDo list in the manner above described, and the list itself can only hold 15 items. While some may perceive this as limiting, it actually imposes several useful disciplines. Making your ToDo list contingent on the scheduler forces you to think of work in terms of time, and makes you constantly aware of deadlines. And the limited size of the ToDo list serves as a reminder that your object is to finish projects (and remove them from the list) rather than accumulate a constantly-expanding record of work-in-progress. The ToDo list offers additional features that assist in task prioritization. Items may be shuffled by dragging them to new positions, and finished items can be marked to appear disabled (“greyed out”).

✓ MAKE*A*DATE, V. 1.0

Requirements: ST or TT, color or monochrome.

Summary: Personal Information Manager with powerful and sophisticated features.

Manufacturer:

Artistik Design
P.O. Box 2224, Arvada, CO 80001
(303) 423-6805

Price: \$19.95

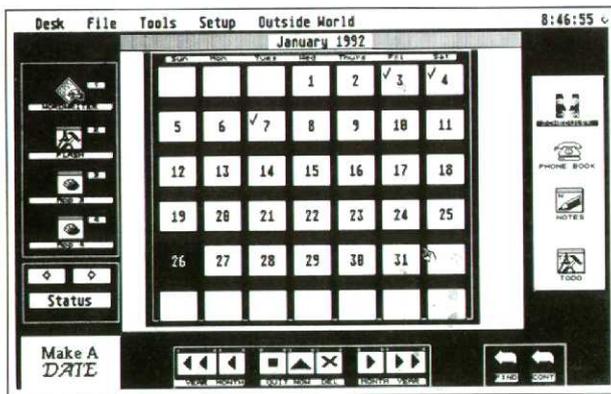


FIGURE 1. The main Scheduler's calendar display. Buttons make it easy to manage appointments at this level.

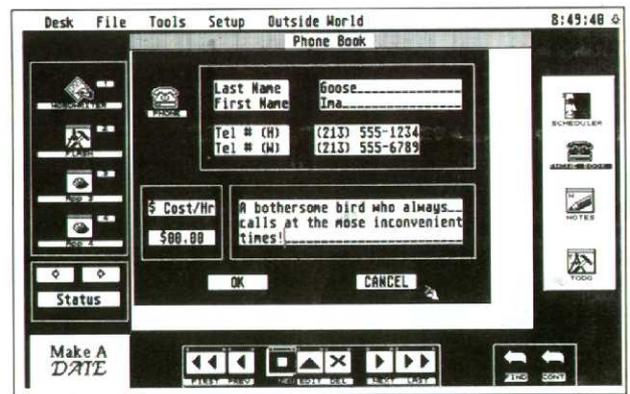


FIGURE 2. The phone book—complete with automatic dialer. Here, a new record is being entered.



FIGURE 3. The ToDo list displays finished items in grey, and unfinished items in black.



FIGURE 4. This note is attached to a file of this review, and linked to Word Writer for fast, easy access.

Phone Functions

Make*A*Date's Phone Book employs an index-card record format with space to enter a last name, first name, two phone numbers and three lines of text (for addresses or comments). Numbers may be dialed directly from the Phone Book (provided you have a Hayes-compatible modem) by clicking on the record's Phone button. You have the choice of either dialing the number as local or long distance (with 1-Area Code preceding the number). Make*A*Date can even continue to hang up and redial if the modem indicates that the number is busy.

Make*A*Date offers several kinds of search functions to help you find items in data files pertinent to any the program's sub-applications. Searches are made sensibly, depending on an application's record structure. For example, in the Phone Book, last names will be searched. You can also search outside the scope of the current utility—for example, you can search the Phone Book from the Note Pad.

Make*A*Date offers a variety of report formats for printing phone lists, notes, agendas, and other information. You can set up these reports to print various

portions in italics, bold, different-sized fonts, etc., and report-style definitions can be saved to disk. Naturally, you must provide appropriate control codes for your printer if it isn't one of those Make*A*Date already knows about (HP Deskjet, Epson, and a few others are presently supported).

All of Make*A*Date's button icons have menu equivalents and most have keyboard equivalents as well. There are even menu and keyboard equivalents that are more efficient than using the buttons. A good example is when you want to add new records to the Phone Book. Normally, this would require that you first activate the Phone Book, then click on the "NEW" button. But the "New Phone Book Entry" menu item will take care of this in one click. Make*A*Date can import and export ASCII files, as well as files in Atari Portfolio format.

Overall, Make*A*Date is one of the most well-written and useful programs that this reviewer has run across in a very long time. And while Make*A*Date is ideal for use on a desktop system, it will be a dream come true for ST Book owners—offering comprehensive PIM facilities on a truly portable platform. My recommendation is to call Artistik Design and order Make*A*Date just as soon as you can. ■

No worries, mate! It's a non-trivial value!

Fair Dinkum Puzzle Pack

by John B. Jainschigg

CROSSWORD PUZZLES HAVE ALWAYS FASCINATED me—not so much the process of their solving as the process of their creation. Puzzle makers for major venues like The New York Times typically spend three months or even longer revising and testing a single puzzle, prior to submission. While much of this time is surely spent dreaming up new and ever-more-clever clues, the majority of time seems to be spent in the awesome exercise of pattern-recognition—fitting obligatory words ever more densely together, finding new words to fill interstices of the emerging grid.

John Hutchinson of Fair Dinkum Technologies understands the mechanics of fitting words together. He's applied his knowledge in two marvelous little programs: Crossword Creator II and Word Search Creator, combined on one disk in Fair Dinkum's new Puzzle Pack collection.

The programs are entirely straightforward to use, and are quite similar in several respects. Notably, they share aspects of a sophisticated user-interface that renders control virtually transparent, and input rapid and error-free. Crossword Creator II presents you with a simple grid, which can be resized freely up to the size of

the workspace, permitting the creation of puzzles up to 30 characters wide by 20 high (see Figure 1).

The program is driven by buttons placed on the left-hand side of the display—a peculiar location when you consider that most ST users are right-handed. But you'll swiftly discover that clicking on the "SELECT OPTION" bar at the bottom of the screen will pop your mouse pointer instantly into the vicinity of the controls. And then you'll also discover that as you begin playing with the program's options, move over to adjust items in the grid, then draw the mouse pointer down to the SELECT OPTION bar in order to pop! it into the control region again, your hand will be describing a gentle, clockwise circle that feels exactly right.

The functions of Crossword Creator are essentially simple. Puzzles may be created from scratch, either from word lists in ASCII format, or by manual word entry. Words may be deleted or moved manually into any position and any orientation, and puzzles may be re-sized freely, provided that enough room is left to display all words entered. Templates (regular patterns of those little black squares that fill "null" cells in a crossword grid) can be created freehand, or rendered symmetrically under the control of Degas-like "mirror draw" tools.

When entering words by hand in AUTO mode, the program automatically (and rapidly!) fits them into the grid in the most opportune way possible, remaining always consistent with standard crossword-puzzle practice. At this level, or when allowing CC II to generate a puzzle automatically from a supplied word list, the creation of workmanlike crosswords literally becomes a no-brainer. The ability to generate puzzles from word lists is a very nice touch, moreover, and should broaden the applicability of CC II as a tool for education, language instruction, and the like.

Those who wish to create inspired crosswords may

✓ CROSSWORD CREATOR II & WORD SEARCH CREATOR

Requirements: Atari ST, STe, TT, color or monochrome.

Summary: Two beautifully-designed utilities for word puzzle fans.

Manufacturer:

Fair Dinkum Technologies
P.O. Box 2, Los Alamos, NM 87544
(505) 662-7236

Price: \$39.95

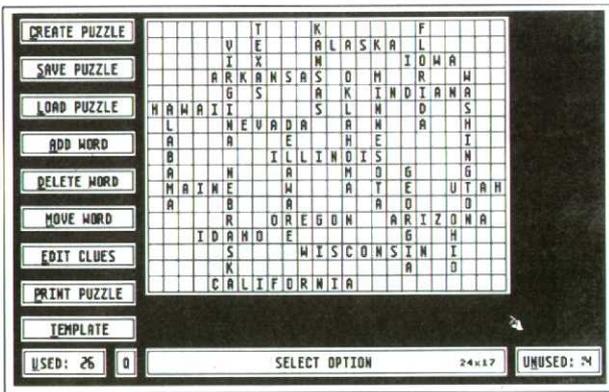


FIGURE 1. Crossword Creator II has generated this puzzle automatically from a list of state names.

prefer entering words from the keyboard in MANUAL mode, where you, not the machine, make all the calls. Nevertheless, if you juxtapose words in such a way that CC II thinks a nonsense word may have been formed in the process, it will notify you and request that you exercise editorial judgement.

Editing clues is equally easy, and puzzles and clue-sets can be saved, loaded, and printed out on any printer.

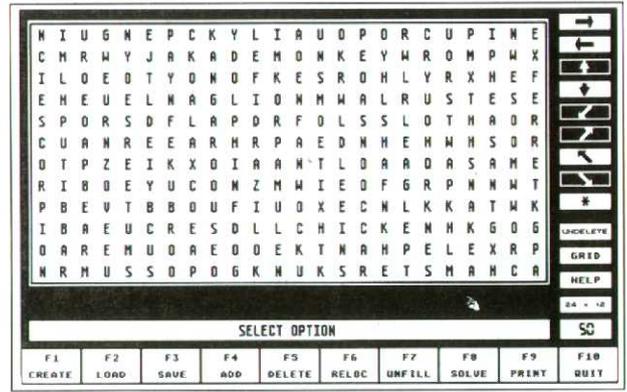


FIGURE 2. Word Search Creator has embedded 50 animal names in this puzzle. Can you find them all?

Word Search Creator

Perhaps more sophisticated than Crossword Creator II, Word Search Creator allows the Fair Dinkum "word-fitting" engine to function at peak capacity (see Figure 2). While crossword-puzzle words can only go "across" and "down," word-search words can head off in any direction, including diagonally and backwards.

As with Crossword Creator II, Word Search Creator employs a completely resizable grid, in this case, up to 24 characters wide by 13 characters high. In AUTO mode, the engine will fit words into the grid only in the directions (right, left, up, down, etc.) indicated by arrow buttons selected at the right of the screen. The '*' or "wildcard" button causes all arrows to be selected, making the program as opportunistic and random in its fittings as possible.

Manual entry, editing, and relocation of words is also possible, as is the automatic generation of puzzles from ASCII word lists, and auto-solving. The program can list, alphabetically, all words that have been entered, and find selective instances of any word chosen. Printouts can be created on any printer. Function key equivalents are provided for major program functions, and a full Help facility is available.

Neither program in Puzzle Pack is copy-protected, and separate, clearly-written manuals are provided for each (README files, sample puzzles, and demonstration word lists are also provided on the distribution disk). Installation is simple, requiring only that you unlock and register your copies with an enclosed utility. Fair Dinkum offers free bug fixes to registered users, and minor feature upgrades cost only \$5.00.

It's rare enough, in this age of super-complex productivity packages, to find simple and elegant little programs like these—programs that simply do what they're supposed to do, and do it very well. I would not hesitate to offer either of these programs to any child old enough to enjoy a good puzzle, nor to the most hardened and computerphobic word-puzzle veteran. ■

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Further enhancements add value to this popular ST CADD package.

GFA Draft Plus 3.2

by Peter Donoso

ONE OF THE GREAT ADVANTAGES COMPUTERS have is their ability to allow any number of changes and revisions to a work-in-progress, resulting in final copy that's guaranteed to look professional, each and every time. Word processing is probably the most often-cited example of this, but drawing and graphic design can also benefit when drafts evolve on a monitor screen. Though CADD (Computer-Aided Design and Drafting) programs are widely used by architectural, engineering, and design firms, a good drafting program can come in handy for average home-owners, as well.

Planning a new room treatment or getting a perspective on that outdoor deck you'd like to have in place by summer can go a lot more smoothly if you have a way of trying out different ideas before committing to build. Even if you intend to hire an architect or designer,

a drafting program can help you communicate your ideas to a professional in easy-to-discuss graphic terms.

Then again, you don't necessarily have to embark on an expensive project to realize the benefits of using a CADD program. Even weekend carpentry or cabinet projects can take less time and be completed with less waste if you start out with a drawing that includes dimensions and materials. Let's face it, no matter what the job, it pays to have a plan.

Draft Plus 3.2, from GFA Software Technologies (of GFA Basic fame), is the latest update of this popular drafting program. Though introduced by MichTron as GFA Draft, GFA's recently-established U.S. division has now assumed all future sales and distribution of the product, as well as customer and technical support. An aggressive ad campaign is spear-heading what would seem to be a concerted effort on GFA's part to reassure a devoted user base of its continuing commitment to the Atari market. I speak for all those avid Draft Plus users out there in applauding GFA's decision to maintain the same high level of standards that have won them so many loyal fans.

The program comes on two double-sided disks and is not copy-protected, making it easy to install on a hard drive. The program has been completely re-written in Modula 2 (a modular programming language similar to Pascal), and a good number of the bugs that have inter-

✓ GFA DRAFT PLUS 3.2

Requirements: 1040ST/STe or Mega ST/STe Mono or Color. 1 MB RAM Minimum.

Summary: Powerful CADD, but easy-to-use.

Distributor:

GFA Software Technologies, Inc.
27 Congress Street, Salem, MA 01970
(508) 744-0201

Price: \$199

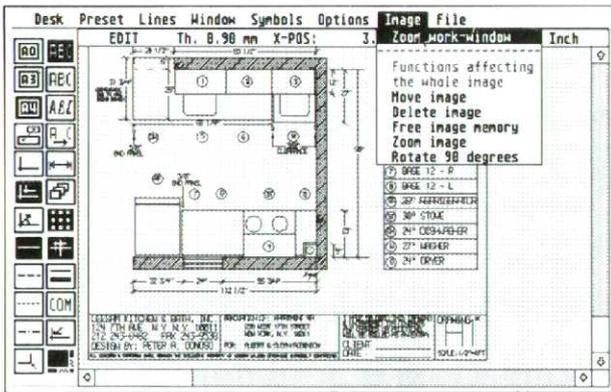


FIGURE 1. An icon bar provides quick access to often-used features and functions.

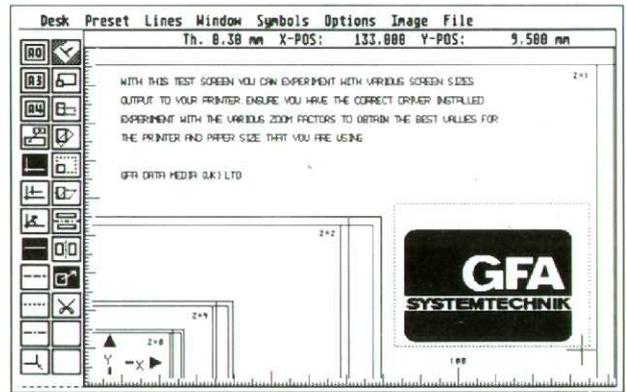


FIGURE 2. You can remove the scroll bars ...

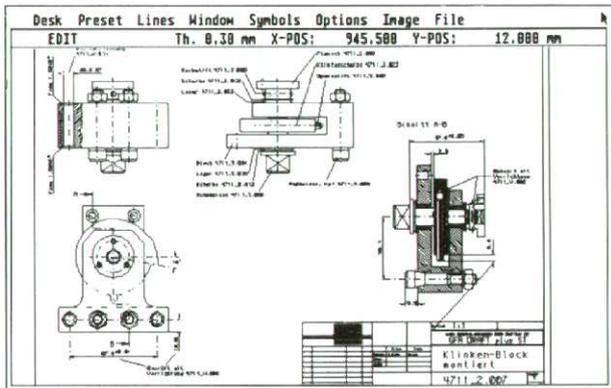


FIGURE 3. ... and the icon bar as well, giving you a view of the total screen.

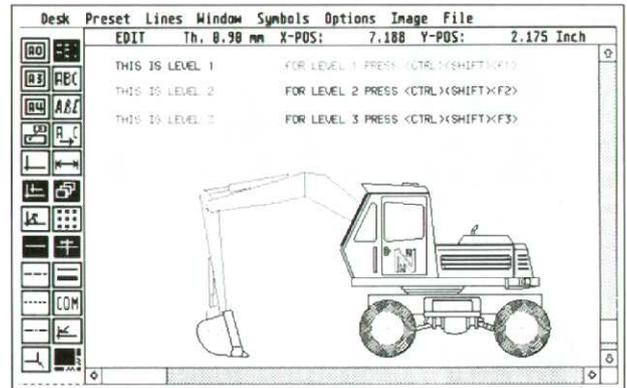


FIGURE 4. Draw on different levels, and switch from one to another using function keys.

mittently plagued earlier versions have been ironed out in the process.

Advanced Features

Originally developed for the European market, Draft Plus 3.2 can also be configured for use with American drawing scales and measurements. The main work window features the familiar GEM set of scroll bars and arrows, and a menu bar at the top of the screen. Although the window itself is fixed and cannot be resized, it can be scrolled over a larger work area of nearly 46.5" x 33" (referred to in architectural terminology as a DIN A0 paper size). Alternately, the scale can be reduced from the median point of a 1:1 ratio of magnification (showing roughly one quarter of an 8 1/2" x 11" page) to a 1:8 ratio (accommodating a view of the entire work area), or enlarged to an 8:1 ratio, facilitating control of sections as small as 1/2" x 1/2".

An A0 drawing is well-suited for large professional plotters, and drivers for supporting most popular plotters are included with the program. But if you don't mind having your drawing printed out in a series of tiled 8 1/2" x 11" pages, GFA Draft can produce drawings as large as a yard square on a regular dot-matrix printer.

Drivers for most popular dot-matrix printers are also supplied, supporting resolutions beginning at "draft" 60 x 72 dpi to 120 x 216 and even further, if your printer is equal to the task. Though the program does not yet support the Atari Laser Printer directly, excellent results can be obtained by installing an Epson driver and vectoring output through one of several available SLM/Epson emulators, such as the popular LaserBrain. This setup will let you produce output at the program's maximum 240 x 216 dpi resolution.

Improvements Galore!

The capabilities of GFA Draft Plus go far beyond most comparable CADD packages in its price category, and the program is a real bargain at a mere \$199.00. Version 3.2 brings some added features to the approach defined by version 2.0, but because I suspect that many are still using version 1.5, I will start by pointing out that the greatest improvement immediately evident is the addition of a double-row of function icons, mounted vertically along the left side of the screen.

These icons greatly improve the speed with which you can access, switch on and off, or toggle between a number of the program's most often-used modes and

features. A second icon panel gives access to "windowed" functions used for cutting, extracting, copying, moving, deleting, rotating, reflecting, stretching, compressing, zooming, or skewing any object or group of objects. Function icons added since version 2.0 can toggle proportional spacing for text, update all dimensions with the zoom function, access the Command mode, and move the cursor to a "zero point," or home position.

Convenience features include the ability to define mouse and cursor increments, grid and hatch spacing, and zoom ratios to suit the size and needs of a particular project. Three fonts are available. The thickness of one of these fonts can be adjusted, and the third font can be replaced by a GDOS font of your preference.

Ten overlay levels are provided, each of which can be assigned to a different color. Splines let you connect up to 132 points, in open or closed configurations. Auto-dimensioning lets you measure between any two points in predefined units (metric or inches). A macro language lets you write complex commands within the program, which also provides "hooks" for external programs written in GFA Basic. Techniques for using the latter feature are demonstrated on the Draft Plus Companion disk, available with manual from E. Arthur Brown.

GFA Draft 3.2 can import drawings created with

other CADD programs, such as Auto-CAD, as well as export drawings for display on other systems that employ the DFX file conversion program. Draft Plus drawings may also be output as .IMG or .GEM (Metafile) format files and imported into desktop publishing programs, using the Metafile conversion program.

A large symbol library is provided, containing well over 100 architectural, engineering, electronic circuitry, and even drafting templates and forms. Any object drawn can be saved as a symbol and can be assigned to any function key, allowing quick and easy placement, on screen.

Conclusions

I've used GFA Draft for a number of years with great success on kitchen designs and other projects. Seeing what a project will look like from a number of different perspectives helps me to catch oversights that can be corrected without added cost or time. Diagrams, moreover, take my clients a step beyond discussion and bring them that much closer to understanding the final design. When all is said and done, that's what makes this program an invaluable tool to anyone who wants to put their imagination on the drawing board. ■

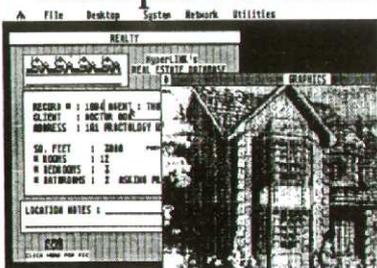
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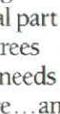
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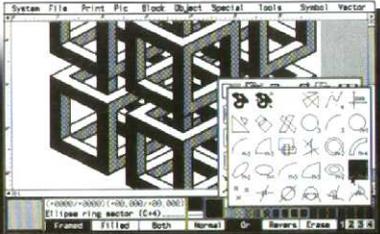
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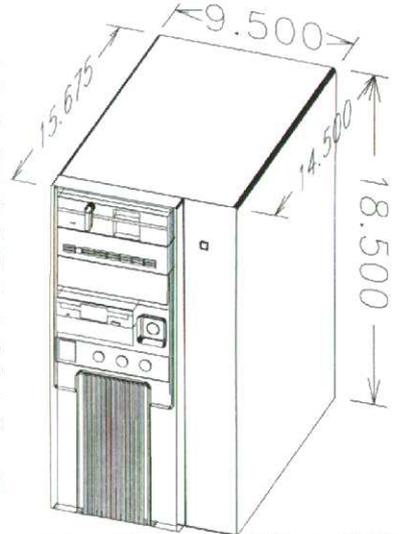
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AUTO Folder Tips, TOS Versions, and More

Q: Friends tell me, "put this in your \AUTO folder. Trust me." What is an \AUTO folder?

A: The \AUTO folder is a mechanism (one of several) by which your ST can configure itself on startup (or reset). While the ST's operating system, TOS (containing the graphic management system (GEM) and Desktop) is built in, opportunities exist to modify, enhance, and define particular characteristics of the ST "environment" so that it can better serve the needs of individual users.

When starting up, TOS determines how much memory is available and other such details, then looks for a folder named "\AUTO" on your "boot disk"—drive C:, if you have a hard disk, drive A:, if you don't. TOS runs any programs it finds in the \AUTO folder, one after another, before your ST is completely initialized. This last point is important; some programs, like GDOS, need to run early in the TOS initialization sequence.

\AUTO folder programs can perform numerous different functions: installing new "operating system" features (e.g., RAMdisks, disk-caching systems, GDOS, etc.), installing drivers for particular devices and peripherals (e.g., the Diablo 630 emulator for Atari laser printers). Some \AUTO folder programs perform "housekeeping" tasks, such as building directory structures, copying files to a RAMdisk, etc., then simply exit after their work is done. Other \AUTO programs install "terminate-stay-resident" code that hangs around to provide subtle enhancements to system functions. Mouse accelerators change the "feel" of the mouse pointer on the screen. When your computer sits idle, a screen saver changes the display so an image-trace doesn't burn into your monitor. Many other enhancements and options can be installed this way.

Q: I don't have an \AUTO folder on my boot disk. How do I create one?

A: Like you create any other folder. Just open a window to the root directory of your boot disk, access the "New Folder..." or "Create Folder ..." menu item, enter the

name "AUTO," and click "OK." Remember: your \AUTO folder must be in the root directory of your boot disk in order to be recognized by TOS during the boot cycle.

Q: What can I put in my \AUTO folder? Can I put applications, like Word Perfect, in the \AUTO folder so my ST will automatically run them?

A: Programs that run from the \AUTO folder execute prior to full system initialization. To function correctly, such programs must not call upon uninitialized features of the OS. Because it is difficult to tell what features a program depends on, only programs designed to run from the \AUTO folder should reside there. GEM applications, like Word Perfect or Easy Draw, can't successfully run from the \AUTO folder because they depend on TOS and GEM being fully initialized.

In versions beginning with "Rainbow TOS," you can set this kind of application to automatically run once TOS is ready. From the Desktop, select the application, then choose the "Install Application..." menu item. Click the "Auto" button next to "Boot Status:", then click "Install." Then choose "Save Desktop" so this change takes effect the next time you start up.

Q: I just copied a new program into my \AUTO folder, and nothing happened. What's should I do?

A: Reboot your computer. The \AUTO folder is only searched when you turn your ST on or reset it, so you must do so to activate the program you just copied.

Q: I've tried rebooting, and it still doesn't work correctly. I know it's supposed to go in the \AUTO folder. What should I do?

A: It's sometimes important that one \AUTO folder program run before another. You can determine this by trial and error, but the best method is to read the documentation that came with the program or ask that friend where in your \AUTO folder you should put it.

TOS executes \AUTO folder programs in the order in which they were copied into the folder. If you



view \AUTO folder contents using the desktop's standard sort options ("Sort by Name/Size/Type"), the order in which filenames appear may not correspond to actual file order, making it somewhat difficult to diagnose "order of execution" problems. New versions of TOS (TOS 2.01 and higher) offer a "No sort" option that displays directory contents in actual file order. Alternatively, several \AUTO-folder management utilities, such as AUTSRT (available free on CompuServe and BBS's), also allow unsorted viewing of \AUTO folder contents.

To change the order, start by copying (or moving) the contents of your \AUTO folder to another disk or directory. Delete the contents of the \AUTO folder, then individually copy the files back into it, in exactly the order in which you wish them to execute. Alternatively, you can employ a utility, such as AUTSRT, designed for this purpose.

A subtle problem sometimes occurs when you delete a program from your \AUTO folder, then copy something else in. The next program copied in takes the last directory slot vacated, so if you deleted the first program in the folder, the next program copied in becomes the first one executed. Fortunately, not many programs are sensitive to where they live in the \AUTO folder.

Q: I've tried rearranging the contents of my \AUTO folder, but the program still doesn't work. What's next?

A: If a program still doesn't run correctly from the \AUTO folder, it may beg your pardon and print a polite error message, or it may cause unpredictable confusion. In the worst case, it runs and stops the machine cold, "hanging" the ST. This is puzzling, because you turn on your ST, the rogue program stops it cold, you reset your machine, the program stops it cold, and so on—it runs each time, causing the same problem.

If your boot disk is in drive A:, just put a different disk in the drive next time, then remove the bad program from your boot disk.

If your boot disk is drive C:, your hard disk, you can usually prevent TOS from searching the \AUTO folder. When you turn the computer on, the floppy drive A: light will blink on, then off, then come on again—now's your chance. Hold down the "Alternate" key until you arrive at the Desktop. Put your hard disk utilities disk in drive A:, and run AHDI.PRG—it's usually in the \AUTO folder on the floppy. Then on the Desktop, select drive A: and click "Install Disk Drive" or "Install Devices."

If you clicked "Install Disk Drive," you'll have to change the drive letter in the resulting dialog box from A: to C:, then click "OK." An icon for drive C: appears.

If you chose "Install Devices," the hard drive icons appear automatically. Now open drive C:, open the \AUTO folder, and remove the offending program.

Q: What does the well-equipped \AUTO folder contain? Which programs do I need?

A: Several \AUTO folder programs may have come with your Atari. Others, you can get from your dealer or user group, or download them from an information service or BBS. Read the instructions that come with the programs, or ask fellow ST users, to determine if you need them.

Some \AUTO folder programs go with particular TOS versions, or are only beneficial for newer versions.

Q: How do I tell what TOS version I have?

A: Your TOS version roughly depends on the age and model of your ST, and whether you've upgraded the ROMs. If you have the new Atari Extensible Control

Panel, you can find your TOS version number directly.

Call up the Control Panel, click on "General Setup," then click "Status" to see your TOS version number.

Otherwise, from the Desk-

top, click on the "Desktop Info ..." item on the "Desk" menu. The resulting alert box shows the copyright dates for that version of TOS—you can ascertain from the latest date what version you have.

Early STs with TOS in ROM will show their latest copyright date as 1985, and have a TOS version number of 1.00; this is called "ROM TOS." Early MEGA computers show their latest copyright date as 1987, and have a TOS version number of 1.02; this is "MEGA TOS." More recent STs or Megas, STacys, or upgraded STs show a most recent copyright date of 1989, and have a TOS version number of 1.04; this is "Rainbow TOS." STes show their latest copyright date as 1989 or later, and have a TOS version number of either 1.06 or 1.62; this is "STe TOS." If you have a MEGA STe or TT030, you should definitely have the Extensible Control Panel, and should use it to determine your TOS version.

Q: Which programs go with my TOS version?

A: Check the quick reference table on the next page. From the original ROM TOS on up, if you're using a hard disk, use FOLDRXXX.PRG. It increases the number of folders and memory allocations TOS can manage.

For Rainbow TOS users, TOS14FX2.PRG and POOLFIX3.PRG are "must haves." Hard disk users will also benefit from FOLDRXXX.PRG and CACHEN-NN.PRG.

All STe TOS users need POOLFIX3.PRG, and

Not many programs are sensitive to where they live in the \AUTO folder.

those with version 1.06 should install STE_FIX.PRG; it isn't necessary with version 1.62. Hard disk users need FOLDRXXX.PRG and CACHENNN.PRG, too.

MEGA STe and TT TOS users need SERPTCH2.PRG, and those with hard disks need FOLDRXXX.PRG and CACHENNN.PRG.

Q: What do those programs do?

A: FOLDRXXX.PRG expands the "OS Pool," a portion of memory TOS uses to store information about folders and memory allocation. The OS Pool can fill up, a problem exacerbated by hard disks with their many folders, but newer TOS versions make this much less likely. When the OS Pool does fill up, ROM TOS becomes confused and may exhibit strange behavior. Rainbow TOS and later versions politely explain their condition, saying, "OUT OF INTERNAL MEMORY: USE FOLDR100.PRG TO GET MORE. SYSTEM HALTED." At that point, you can only reboot.

If you're a hard disk user, use FOLDRXXX.PRG regardless of your TOS version—it's actually more important with older TOS, because newer versions manage the OS Pool more efficiently.

To use FOLDRXXX.PRG, copy it into the \AUTO folder on C:, your boot disk. FOLDRXXX.PRG

expands the OS Pool by XXX folders; change the "XXX" in its name to whatever number you need. Select it and use "Show Info ..." from the Desktop to edit its name; try "FOLDR100.PRG" to start. If you still see odd behavior or the "OUT OF INTERNAL MEMORY:" message, change the 100 to a larger number. The only tradeoff is your available memory; the bigger the number for "XXX," the more memory is used for OS Pool, and the less is available for your applications.

TOS14FX2.PRG fixes two bugs in Rainbow TOS, one involving high speed modems and serial printers, and the other with loading resource ("RSC") files. Copy this program into your \AUTO folder, and your worries are over.

POOLFIX3.PRG fixes an obscure bug where Rainbow and STe TOS can improperly manage the OS Pool; this bug is so rare you've probably never experienced it, and if you copy POOLFIX3.PRG into your \AUTO folder, you never will. 'Nuff said.

CACHENNN.PRG improves disk performance beginning with Rainbow TOS by allocating more space for TOS disk buffers. These buffers hold directory information in memory, which saves time accessing the disk; the more space you allocate for these buffers, the less time TOS spends accessing the disk for directory infor-

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TOS 2.06

\AUTO FOLDER PROGRAMS

A Quick-reference table of \AUTO folder programs used to enhance or patch various Atari ST TOS versions. (Research: John Townsend.)

TOS version	Suggested Patches
ROM TOS (1.00)	FOLDRXXX.PRG
MEGA TOS (1.02)	FOLDRXXX.PRG
Rainbow TOS (1.04)	FOLDRXXX.PRG, CACHENNN.PRG, TOS14FX2.PRG, POOLFIX3.PRG
STe TOS (1.06)	FOLDRXXX.PRG, CACHENNN.PRG, POOLFIX3.PRG, STE_FIX.PRG
STe TOS (1.62)	FOLDRXXX.PRG, CACHENNN.PRG, POOLFIX3.PRG
MEGA STe TOS (Through 2.05)	FOLDRXXX.PRG, CACHENNN.PRG, SERPTCH2.PRG
MEGA STe TOS (Beyond 2.05)	FOLDRXXX.PRG, CACHENNN.PRG
TT TOS (Up through 3.05)	FOLDRXXX.PRG, CACHENNN.PRG, SERPTCH2.PRG (3.05 and earlier.)
TT TOS (Beyond 3.05)	FOLDRXXX.PRG, CACHENNN.PRG

mation. CACHENNN.PRG gives you control over one of the eternal computing tradeoffs, Speed vs. Space; up to a point, more buffers means faster access, but at the cost of memory.

Copy CACHENNN.PRG into your \AUTO folder, select it, and use "Show Info..." to change its name. Try changing it to "CACHE090.PRG" to start, and watch your disk performance - the improvement you'll see depends what work you do. If you have memory to spare, try a larger number and see if disk speed improves.

STE_FIX.PRG allows machines with STe TOS, version 1.06, to start up in medium resolution. Without it, TOS stubbornly insists on low resolution. Copy STE_FIX.PRG into your \AUTO folder and enjoy the luxury.

MEGA STe TOS through 2.05 and TT TOS through 3.05 suffer from bugs in the code that manages their serial ports. Copy SERPTCH2.PRG into your \AUTO folder and the problems are solved. If you have newer versions of MEGA STe or TT TOS, you don't need this program.

MACCEL3.PRG contains a mouse accelerator and screen saver. The mouse accelerator adjusts how fast the mouse pointer moves when you move the mouse (harder to explain than experience). The screen saver prevents monitor "burn-in," where an image left onscreen for long periods can permanently leave that image on the monitor. You can adjust how much MACCEL3 accelerates the mouse to your preferences; the highest speed is especially handy for those with large screens or preternaturally-keen reflexes.

The screen saver watches your computer for activity. If there are no keystrokes or mouse movements for a period of time, it changes the display, either by turning it off (color monitors) or swapping black for white and back again (monochrome monitors). To return the screen to normal, hit a key or move the mouse. You set how long the screen saver should wait before engaging, and whether it should pay attention to data coming in over

the serial (modem) port. This is handy for passively watching data from your modem scroll by, onscreen.

Copy MACCEL3.PRG into your \AUTO folder. You configure it by double-clicking on it from the Desktop. It presents you with a dialog box which allows you to adjust the level of mouse acceleration (the buttons on the left), whether the screen saver is enabled (the little monitor icon), how long the screen saver waits, in minutes, before it engages (the slider control), and whether it pays attention to data coming in on the serial port (the telephone).

RAMNNNNX.PRG is a RAMdisk, a program that sets aside an area of memory, and makes it look to all the world like a very fast disk drive. If your work involves a great deal of disk access, especially of "temporary" files, a RAMdisk will make a dramatic difference in speed, even over a hard disk. One word of caution: Unlike real disks, the contents of a RAMdisk are lost when you reboot the computer or the power goes out. Be very sure you save all important, irreplaceable files to disk, not just the RAMdisk.

Copy RAMNNNNX.PRG into your \AUTO folder, select it, and use "Show Info ..." from the Desktop to change its name. "NNNN" is the amount of memory, in 1024 byte increments, to allocate for the RAMdisk, and "X" is the drive letter to which the RAMdisk should answer. For example, if you want drive "L" to be a 96K RAMdisk, change the name to RAM0096L.PRG. You'll need to judge how much space you can afford for a RAMdisk. If you normally have 300K (about 300,000 bytes) of memory free, you can't have a 512K RAMdisk; 64K would be more reasonable in that case. ■

Mark Jansen, long a mainstay of Atari's Customer Relations division, now works in Technical Documentation, producing lucid and witty manuals for Atari's next generation of products.

Entertainment program, or graphics toolkit?
Either way, Mug Shot really builds caricature!

Mug Shot!

by John B. Jainschigg

FIRST RELEASED IN 1990, WIZWORK'S MUG Shot! swiftly became an ST favorite. Though based on the same premise as "Facemaker" and other "mix 'n match" face-making programs, Mug Shot! redefined the state of the art by adding a wide variety of fine-tuning, freehand-drawing, and animation features. So powerfully do these features work together that in the two years since Mug Shot!'s release, law enforcement agencies—including the FBI—have begun to sit up and take notice, experimenting with the software as a fast, reliable tool for producing composite drawings for identification. Now, recently enhanced with the addition of several new data disks, we felt that WizWork's Mug Shot! deserved a fresh look.

Object-Orientation

Mug Shot! lets you piece together faces from a wide variety of parts drawn from loadable libraries. Parts include eyes, eyebrows, ears, noses, lips, hair, chins, facial hair, glasses, and a wide variety of wrinkles, smile lines, "plewds," and other specialized

cartoon elements. Parts can then be moved, flopped, resized, stretched, or compressed along any axis. Symmetrical "parts pairs," such as sets of eyes and ears, can be "split," moved separately, and skewed in relation to one another (actually all parts can be split, though the feature is pretty moot in relation to lips, for example).

Once placed, double-clicking on any part will reselect it, allowing infinite fine-tuning of position, independent of other objects or drawn elements. In this ability to "keep track of" independent portions of an image even after they have been made part of an evolving drawing, Mug Shot! almost qualifies as an "object oriented" graphics system.

The program is enabled by running an installation program, a method of copy-protection that is becoming increasingly popular. Mug Shot!'s "INSTALL!.PRG" (which must be run from drive A) lets you define a default parts library (two are included with the program, and more are available from WizWorks), choose a printer driver, and set the program's "mouse-delay" factor (an aid in cursor-positioning), before it saves initial settings to disk and "liberates" the software for further use. The procedure is simple and the install program is quite well-designed, featuring full help screens, warning dialogs, and other "foolproofing" elements. Still, according to the manual, the install program can only be run once, meaning (we assume, since we installed it correctly) that if one makes a mistake, one's disk will immediately be rendered useless. A secondary issue is that if you wish to use the program with an Atari laser printer, you must inform the program from within INSTALL!.PRG, since a special printer driver is required. Drivers for other printers, however, may be installed at any time, from within the main program.

✓ MUG SHOT! Plus 1.5a

Requirements: Any ST/STe/TT computer. 1 MB RAM recommended.

Summary: Create amusing (or vivid) portraits with this fun and flexible program.

Manufacturer:

WizWorks, Inc.
P.O. Box 45, Girard, OH 44420
(216) 539-5623

Price: \$39.95 (Additional data disks from \$14.95 to \$19.95)

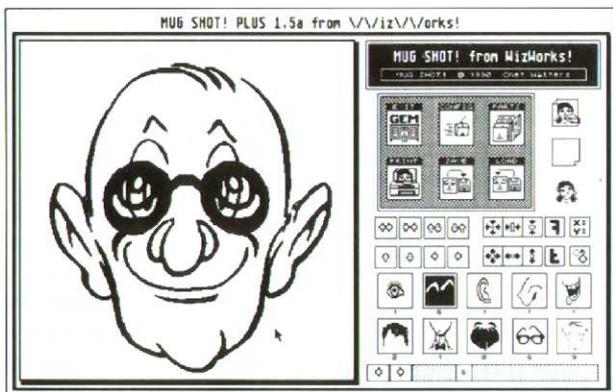


FIGURE 1. Mug Shot's main screen, showing "part" icons to lower right, movement and deformation icons above.

Controls

Control of Mug Shot! is entirely iconic, the right side of the screen being taken up with a collection of buttons used to elicit program features. The GEM menu bar is absent, though since Mug Shot! might be called a "kid-oriented" program, this is not a severe flaw. At the bottom of the control panel are ten "parts-bin" icons, for selecting eyes, ears, etc. Clicking on one of these icons selects it. Thereafter, parts of the selected type can be displayed in forward or reverse order, using the left and right mouse buttons. Additional commands and controls allow a part to be chosen from the active parts-bin at random, or by part-number.

As each part is chosen, it appears on the left side of the screen in an appropriate default location with respect to the growing caricature. One can, therefore, swiftly build a competently-drawn face simply by selecting one of each part at random. Mug Shot!'s real strength, however, is in its ability to move, modify, and fine-tune parts on-screen, so that the resulting drawing comes to seem uniform, instead of being composed of essentially discrete components.

Any object-part of the evolving drawing can be selected with the mouse and manipulated in a wide variety of ways. At the simplest level, four "move" arrows let you center a nose, raise a chin, or perform other rudimentary adjustments. Thereafter, "split icons" can be used to divide any part in two along a predefined (and unalterable) midline, then bring the halves closer together, push them further apart, or move them up and down in opposite directions (great for eyes and ears!). "Expand" and "contract" icons allow parts to be proportionately sized; linear "compression" and "stretch" icons let you squeeze or stretch parts along any axis; and "Flip" and "flop" buttons invert the current part, vertically or horizontally. If you prefer entirely manual control of part position, you can also "click and drag" parts around, freely.

Though it's not easy to get lost when moving parts

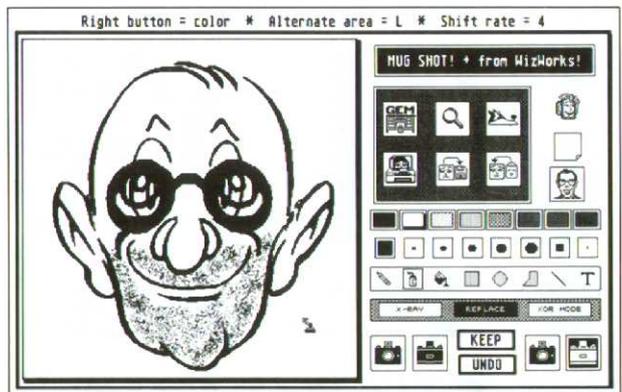


FIGURE 2. The Drawing screen, just after using the "airbrush" to apply a five-o'clock shadow to our caricature.

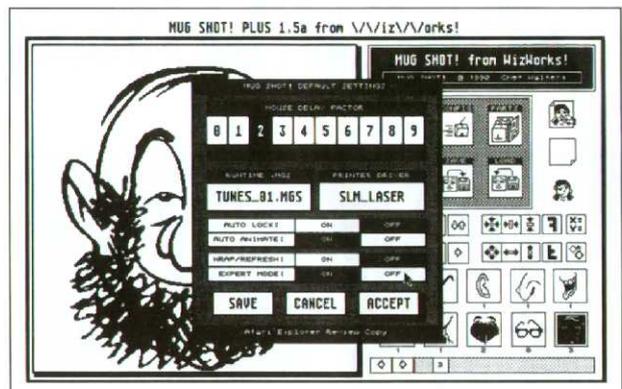


FIGURE 3. Mug Shot offers a wide variety of configuration options, including a mouse decelerator for detailed drawing.

around in Mug Shot! (after all, everybody knows where the parts of a face are supposed to go), the program even offers controls that will normalize placement of the selected feature, or all features. Conversely, though parts normally appear in an "ideal" position, the system can be set to preserve a desired part location, when exchanging parts.

Interestingly, though Mug Shot!'s iconic controls are more than adequate for an "entertainment" package, the designers of the program were generous and energetic enough to include keyboard and function-key equivalents for virtually every program feature, as well. If you ever reach a point, therefore, where you're using Mug Shot! as a serious tool for caricature (or for identifying felons!), you'll find a more "productive" user interface built right in.

Drawing and More

Mug Shot! offers a complete "draw mode," for fine-tuning of portraits. Essentially all the features of a standard "paint" program are available. Multiple brush sizes make detailed drawing easy. A well-designed "magnify" mode permits pixel-by-pixel drawing, and the

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magnification window can be scrolled over the face of the drawing without exiting and reselecting the feature. When drawing with the "pencil" icon, the mouse cursor is replaced by a tiny pencil whose eraser, engaged by pressing a mouse button, really works. In similar fashion, Mug Shot!'s "airbrush" feature is exceptionally realistic—like a real airbrush, you have to hold it a certain distance "away from" (i.e., below and to the left of) your work in order to obtain proper rate of flow. Filled and bordered polygons and geometric figures are but a click away, and text is available in a wide variety of point sizes. Externally-generated bitmap images can be loaded and imposed on a drawing. One of the most impressive drawing features is the "rework" tool, which thins out and neatens up the borders of bitmap regions, algorithmically. A little creative "reworking" can really improve the quality of an otherwise well-thought-out, but somewhat "hatchy" drawing. Last but not least, when you enter "draw" mode, Mug Shot! saves a copy of your "unretouched" drawing, which can later be restored intact by pressing UNDO.

Two snapshot buttons let you save and restore images created or modified in draw mode. In mug mode, mugs can be loaded or saved to disk in proprietary format (600 bytes per .MUG file, since only part numbers and positions are stored), or in .IMG or Degas .PI? format, depending on resolution. Mugs can be printed in any of four sizes, and a "quick print" feature is offered for printing out a thumbnail rendition of a work-in-progress.

One of the subtlest features in Mug Shot! was apparently suggested by Dorothy Brumleve, well-known author of children's software (and a featured author in this issue). Since the program may occasionally end up being used by real children (as opposed to adults who are still in touch with their childish side), the software can be "locked" so that no I/O can be performed. With Mug Shot! locked up tight, your child can play for hours without you having to worry that your hard drive may accidentally get reformatted.

As noted above, two libraries of parts are included with the program. Additional libraries now include Mad Toons and Spud Heads, Stereo Types and Clowns, and three Puzzle Disks which employ Mug Shot!'s "part-manipulation" features to present picture puzzles! In release by the time you read this will be two additional data disks: Ladies! (Perdee & Uglee), and Wanted by the FBI—the latter a collection of 100 actual FBI mug shots, created with the program. Data disks range from \$14.95 to \$19.95, and a package containing all three Puzzle disks (which range from easy to very difficult) can be purchased together for \$30.00.

Mug Shot! is a marvelous program, combining a charming theme with superb design. Considered as a "toy," it has enormous play value. As a "tool," it may catch some bad guys and save some lives. In either case, Mug Shot! really builds caricature. ■

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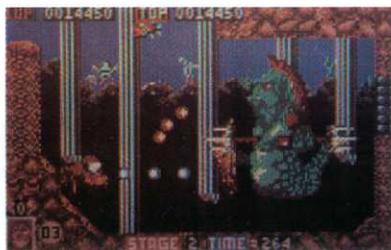
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Toki



THE THEME IS CLASSICALLY JAPANESE: BEAUTIFUL Princess Miho has been kidnapped by Vookimedio, an evil wizard king; and Toki the Warrior is the only one who can save her. But the wizard has sought to pre-empt Miho's rescue by turning Toki into a diminutive ape. Robbed of his true form, Toki must defeat Vookimedio's followers using only simian agility and ... bad breath.

This isn't as ridiculous as it first appears, partly because the monkey is an important hero-figure in Japanese literature, and partly because that ape-breath is really deadly. And it's a good thing, too, since Vookimedio's menagerie of monsters and deathtraps is pretty intimidating; reminiscent of those in Slime World. As if this weren't enough, lethal Master Guards provide further challenges to Toki's progress.

Movement is simple, but a high level of coordination is required if you wish to survive even the first few levels. The joystick makes Toki walk, climb, and duck; button A makes him jump; and button B fires his ape-breath. (If you prefer, these functions can be swapped by pressing Option 1 before the game begins.) Additional power-ups can be found at various points in each level, though these enhancements fade swiftly.

Because this is such a challenging game, Toki's designers have mercifully seen fit to give Toki four lives and to permit two continuations (12 lives in all), though all points are lost when a continuation is requested. Still, this largesse makes real progress possible, even for younger and less-capable players. Graphics in Toki are colorful, engaging, and sharply-detailed, and animation is fast and clean. A bouncy score and wide variety of digitized sound effects add further "surrealism" to play. In short, Toki is a well-executed, beautifully-designed, and challenging platform game—one that takes its place alongside Viking Child and Todd's Adventures in Slime World as a Lynx classic.

System: Lynx Portable Entertainment System

Summary: Numerous levels and bizarre enemies make this platform game a winner!

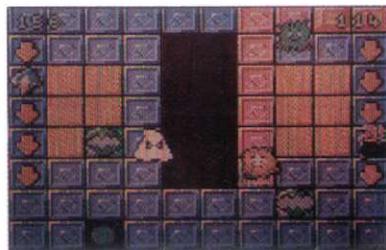
Manufacturer:

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Super Skweek



ORIGINALLY DESIGNED BY THE FRENCH FIRM Loricels, Super Skweek is a little gem of a game that combines strategy and fast action in a fanciful scenario. As Skweek, the alien warrior, you must follow your king's instructions to rid five islands of monsters, while performing various missions. In most cases, part of your mandate is to paint the blue landscape a nice, healthy shade of pink. But the king may also order you to locate and retrieve a valuable object, free prisoners, or perform other special tasks.

The terrain of each island is represented as a grid of "tiles," around which Skweek can move in four directions. When Skweek passes over a paintable tile, it changes to pink. But only rarely does poor Skweek have the luxury of concentrating only on his painting, for he's menaced by monsters, traps, and other perils at every turn. Special tiles include elevators, "push" tiles that force Skweek to move in a certain direction, exploding "mine" tiles, and other helps and hindrances. To complete each mission in the time allotted, Skweek must develop an effective strategy that turns aspects of the maze to his advantage.

Skweek's capabilities can be enhanced with a wide variety of weapons and power-ups, found either in the grid or purchased with Zarg coins in one of many shops. Shop sequences are particularly well-done, with amusing graphics and funny shopkeeper dialogue. Unfortunately, the clock keeps running while you browse—so the object of shopping is to quickly purchase what you need, then get back to your all-important mission.

Graphics in Super Skweek are excellent. Loricels' talented *graphistes* have expended considerable energy making Skweek and the other characters as cute as possible. And Atari's software engineers have provided an equally-well-designed and highly "playable" user interface. The result is a game that is exceptionally pleasant, both to look at and to play.

System: Lynx Portable Entertainment System

Summary: Cute, fast-action grid-game with a French twist!

Manufacturer:

Atari Corporation

1196 Borregas Ave., Sunnyvale, CA 94089

Price: \$39.99



ILLUSTRATION: JEFF CLAPP

by Drew Reid Kerr

Welcome to Captain Midnight's Game Room—the section of Atari Explorer that asks the burning question: “After you’ve spent all day converting graphic files, banging out reports, and filling-in spreadsheets, how ya gonna let off some steam?” Well, in our philosophy, while the Atari ST is great for music, desktop publishing, business, and education, it’s still a heck of a good games machine!

Some of you may know that I started Captain Midnight's Game Room as an on-line newsletter; and an ASCII version of CMGR will continue to be made available on GENie, Delphi, and CompuServe. But I couldn't resist Explorer's invitation to offer the Game Room to a wider readership of Atari users in full, luscious, living color! (And after all, there's something to be said for fame.)

Since I'm about to become famous, let me tell you a little about myself. Compared to some of the Atari diehards I know, I came to the computer late in the game—1986, to be exact. I decided to take a deep breath, cast away my fears, and buy a real computer for my home recording studio. I saw the built-in MIDI ports of the 1040 ST and knew it was for me.

But within a week, I had walked into a store and bought my first three ST games: Batman (Data East), Corruption (Magnetic Scrolls), and MicroLeague Baseball. After that, a landslide. Falcon, Zak McCracken, Space Quest III, Leisure Suit Larry, and on and on. Nowadays, I'm attached at the hip to Railroad Tycoon. My girlfriend says that it's a love triangle—me, her and the Atari—and sooner or later, she adds, menacingly, it's only going to be one of them. "What do you mean you were railroading until 4 in the morning?" she inquires, sweetly. Vainly, I try to plead Railroad Tycoon's educational value: "I'm learning all about supply and demand! You know, oil converts to steel, and then I buy stock in the other guy's railroad. You always wanted me to learn more about personal finance!" But I know it's a losing battle.

Midnight's Mission

I felt that Captain Midnight had to offer more than just the usual mix of news and reviews. I wanted to run exciting contests, promote sophisticated inquiry, and make a little trouble, too! Let's face it, unless somebody pushes a few industry buttons, I don't expect to see Wing Commander brought over from the PC in my lifetime. And when games like Railroad Tycoon, SimCity, and F-19 Stealth get released with bugs, somebody has to raise a stink!

After all, it's not as if gaming doesn't have its provocative side. For example, lately I've noticed a number of messages posted on-line about the morality of war-games and flight simulations. While it's true that all games have a competitive aspect, this type of game is modeled—either in the general and paradigmatic sense, or in the specific—after the all-too-familiar reality of human conflict. When you're shooting down Russian MIG's in F-19 Stealth Fighter, spraying bullets on Vietnamese troops in Gunship, or rifling down hot air balloons in Midwinter II: Flames of Freedom, are you unconsciously advocating vicious warfare or legitimately learning about strategy? Is there a place for "strategic knowledge" in the modern world, at least as it pertains to warfare—real or not?

What do you think about when you play war games? Do you play them for the sheer escapist joys of bright color and fast action, for the kill-thrill, or for the simulation value? Share your thoughts with Captain Midnight, c/o Atari Explorer Magazine, 29-05 Broadway, Astoria, NY 11106. Or leave me a message on GENie (D.KERR1), Delphi (DRKERR), or CompuServe (70372,3036).

Announcing...

The SimCity Master Builder CONTEST!

Thousands of you have been playing SimCity from Maxis—one of the best-selling ST simulation games of 1991! So we figure there must be more than a few of you, out there, who have gotten pretty good at city design.

Think you've got what it takes to be a SimCity Master Builder? Well, put your best city forward! Send your city, on disk, to Captain Midnight, along with a full description of your city and your explanation of why it works (preferably in hardcopy form or as an ASCII file on disk. If you're as good as you think you are, maybe we'll put your city on the map, as well as give you one of the fabulous prizes shown below!

Master Populous by Clayton Walnum
Master SimCity/SimEarth by Dan and Dennis Derrick
Night Shift (Lucasfilm)
Wolfpack (Mirrorsoft)
Armour Geddon (Psygnosis)
Cybercon III (US Gold)
The Killing Cloud (Imageworks)
Iron Lord (UBI Soft)
Federation (Cinemaware)
Greg Norman's Ultimate Golf (Gremlin)
Puzznic (Ocean)
Imperium (Electronic Arts)
Advanced Destroyer Simulation—ADS (Futura)

Entries should include your name, address, and daytime and evening phone numbers, and must be postmarked on or before April 1, 1992. Send diskettes to Captain Midnight's SimCity Contest, c/o Four Corners Communications, 160 Fifth Ave., New York, NY 10003. Alternatively, entries may be submitted as files and to one of my Emailbox on GENie (D.KERR1), Delphi (DRKERR), or CompuServe (70372,3036). So, get building!

Atari ST Gaming World: The Inside Scoop

IN AN INTRIGUING MOVE TO COMBAT PIRACY, Ocean is releasing their license of Robocop 3 with a dongle that plugs into the joystick port. Other game manufacturers are standing by to see the results, before making a commitment to the technology. It's interesting to note, however, that dongles have the advantage of permitting legal backups, and should improve the reliability of disk-based games by replacing copy-protection schemes based on non-standard disk formats.

Incidentally, because of all the slagging companies have been taking lately about inferior licensed games, Ocean has handed the programming duties for Robocop 3 to a firm that normally doesn't handle shoot-'em-ups, hoping for a fresh take. Sounds like a smart move and we can hardly wait to play the results.

More sequels on the way: B.A.T. II (wonder if they'll use the same plug-in musical device?), Mega-Lo-Mania Data Disk, Mega-Lo-Mania II. MicroProse's forthcoming Special Forces is a virtual sequel to Airborne Ranger ... MicroProse is now distributing all of Spectrum Holobyte's UK releases ... Talk about the flight simulator that tried to outdo the others—Electronic Arts' upcoming Birds of Prey features 40 different aircraft!

I'm seeing posts that Mindscape's Knightmare, programmed by Captive's Tony Crowther, can only be played on 1 MB machines ... Sigh.

Ever wonder what Atari games sell the most in the US? According to a spanking new fax from Pacific Software Supply, some of their current bestsellers: Mega Lo Mania, Teenage Mutant Ninja Turtles, Gods, Robozone, Devious Designs, Lemmings, Oh No! More Lemmings!, Barbarian II, Shadow of The Beast II, Killing Game Show, Silent Service II, Smash TV, The Simpsons, Hudson Hawk, Wild Wheels, Addicted To Fun, Suspicious Cargo, 4-Wheel Drive, Utopia, Hero Quest, and Lotus Turbo Challenge II.

Sierra-On-Line is blowing out many of their Atari games. The choices: Kings Quest I and III, Mixed Up Mother Goose, Space Quest I, II and III, Black Cauldron, Gold Rush, Leisure Suit Larry I, Manhunter NY, Manhunter San Francisco, Police Quest II, Conquests of Camelot, Colonel's Bequest, and Codename: Iceman. One game is \$19.95, two for \$29.95, three for \$39.95, four for \$49.95, etc. Order toll-free, (800)326-6654. ●



Lemmings is now a big best-seller.

Read All About It!

Games publications
make playing more fun!

IF YOU CAN'T GET ENOUGH OF READING ABOUT games, particularly wargaming, there are numerous publications to quench your thirst.

One of them, as a matter of fact, can be found online. I've seen it in GENie's Games RT, but I know it's traveled around on the BBS circuit. Simulations On-Line is quite lengthy, easily over 30 pages per issue, but very thorough! One recent issue discussed copyright issues pertaining to maps, and detailed legal problems arising from one game company's latest release. Editor Peter Szymonik covers everything from game design and playtesting to history and its relation to gaming.

Here are three more home-grown game newsletters I've tracked down on the information services. All are produced by clubs whose members are thoroughly versed in the arcana of strategy gaming.

Phoenix Historical Gamers Journal. Published by the Phoenix Historical Simulations Group, Phoenix, AZ. Contact: Chris LeFevre (send Email to GENie (C.LEFEVRE3)).

The Outpost. Published by the Davis Games Club, Davis, CA. Contact: Dana Leighton (send Email to GENie (D.LEIGHTON1)).

Le Marshalate. By the well-known Game Club Le Marshalate. The newsletter is free to dues-paying club members. For further information or subscriptions, please contact Game Club Le Marshalate, 1222 Calle Las Trancas, Thousand Oaks, CA 91360, or send Email to CompuServe (75176,2506). ●

◆ HIT POINT ◆

Den Wagner is looking for ST versions of any of the classic Infocom text adventure games. He's got a few already and just wants one of each (ah ... just like the old analog synthesizers, the old stuff still sounds sweet). Ken has already found Enchanter, Wishbringer, Beyond Zork, and Hollywood Hijinx. So that leaves Leather Goddesses of Phobos, Hitchiker's Guide to the Galaxy, Planetfall, Zork, etc. Contact Ken at (604) 986-3658 in Vancouver, BC, or send GEmail to CHERRY.FONTS.

Captain Midnight's Demolition Derby

Where we line up new games, run 'em into the dirt, and see what happens!

REALMS

Graftgold/Virgin
5070 Santa Fe St.
San Diego, CA 92109
(800) 874-4607, Price: \$59.95

EVERY OTHER GAME THESE DAYS SEEM TO BE related to Populous one way or another, but nothing quite beats the original. Even Bullfrog's own Powermonger was a cousin of the brilliant god game. MegaLo-Mania was a virtual Powermonger clone and Utopia borrowed the look of Populous for its playing field.

Now comes another contender, programmed by the Graftgold team (Simulcra), that adds some unique new twists to the "god game" theme. Realms comes on two disks, is not installable on hard drive, and is completely mouse-driven.

The cursory introductory story sets you up as a young heir to the throne of a country divided by famine, poverty, and war. The god Wotan sends "a bolt of living energy shot from the heavens" into your body and now it's time for you to raise hell.

Ah, but this is no walk through the lilies. You've got temperamental tribes to contend with. From the manual: "There's only one thing Orcs hate more than Dwarves—and that's Elves." You don't even want to know what happens when you add Amazons, Humans, Barbarians, and Vikings into the mix! This is no melting pot of heterogeneous harmony!

You tax your cities to raise money for weapons (swords, axes, etc.), grain, land, health, and new armies, then click on neighboring cities and kick some Orc derriere! The options here are quite creative: Loot City, Ravage City, Raze City, or Annex City. (Sounds like another day in New York.) Successful conquering means expert management of troop formations and movements, and keeping up the morale of your soldiers.

Action on the

playfield, which resembles the Populous/Powermonger 3-D view, moves very fast, maybe too fast. Before you know it, opponents are knocking at your city walls while you, meanwhile, are trying to get your boys into their armor and send them off to slice and dice.

Note: the manual says to back up your disks, but all the files are hidden, making this task rather difficult.

FINAL VERDICT: I thought this was quite fun, but expect some manic mouse action. And I don't think it will stand a chance in Populous II's shadow.

DEUTEROS

Activision, Inc.
11440 San Vicente Blvd., Ste. 300
Los Angeles, CA 90049
(310) 207-4500, Price: \$59.95

ONE OF THE BETTER SPACE-COLONIZATION games to come down the pike in the last few years was Millennium 2.2, in which you had to repopulate a planet of Earth refugees while fending off the incredibly-arrogant Martians. M2.2 was really like a jigsaw puzzle and balancing act in which you kept the population growing at the right rate while space ships and bringing back materials to colonize even further.

In this fine sequel, Ian Bird, the programmer of Millennium 2.2, decided to bring the whole idea back with a few good twists.

You're in control of a city on the newly-repopulated earth, and are aiming to construct a new city on the moon. Meanwhile, a little space opera is taking place: hostile Hydroids and intellectual Methanoids are up in arms over an incident involving an interplanetary classical concert!

Animation is kept to a minimum. The crux of Deuterus involves figuring out how to expand your colonies without stepping on too many alien toes. You manipulate icons representing Production, Stores (storage for raw materials), Resource centres (mining rigs), Training, Research, and Service Bays. When your exploratory ships are launched, you set their destinations, hoping you can find a motherlode of the right materials.

FINAL VERDICT: A game that takes a little prodding to get into, but once you're rolling, it's totally absorbing. One of the best space colonization games around, on par with Utopia. ●

◆ HIT POINT ◆

We've been trying to compile a complete list of games that are still showing incompatibilities with Atari's high-end computers, the Mega STe and TT. Get on these manufacturers to bring this software up to spec!

Falcon (Spectrum Holobyte)
M1 Tank Platoon (MicroProse)
F-19 Stealth Fighter (MicroProse)
Dungeon Master (FTL)
Chaos Strikes Back (FTL)
Populous (Bullfrog/Electronic Arts)
Masterblazer (Rainbow Arts)
Gods (Bitmap Brothers/Mindscape)
Lemmings (Psygnosis)
Test Drive II (Accolade)
Team Suzuki (Knomi)
Midwinter II (MicroProse)
Panza Kickboxing (Gremlin)
Future Wars (Delphine)

Manual Dexterity

LAST FALL, I WAS FLYING TO THE CHICAGO AtariFest, when I whipped out my Portfolio in a flash of energy and began writing notes to myself: why have I seen so many terrible game manuals lately?

Electronic gaming has been around for eons, yet it seems many software developers just can't get it right. My first eye-opening experience was on a trip to London in 1989. I attended the annual Atari Show at the Alexandria Palace and came home with so many games that I thought customs was going to tax away my life savings.

But thumbing through some of the manuals to games like Psygnosis' Nevermind and Operation Neptune, the same word kept coming to mind: "Huhhh?"

It seems the Brits, God bless them for pumping out these ST games, have a bad habit of writing awful manuals. As serious as they take gaming (including stickers, maps, posters, books, and stories to enhance the play experience), the guides themselves were consistently atrocious.

I have a good theory about bad manuals, in both the gaming as well as the application worlds: the programmers have been so absorbed in creating their wunderkind that they have totally lost any objectivity in explaining how to use their product clearly and sensibly.

Of course, the solution (in my opinion, anyway) is to take several average Atari users, plop them in front of their computers, give them beta products and manuals, and let them loose. If anybody gets lost in the process of installing, figuring out, and then playing the game, then obviously some vital piece of information is not getting across and the situation should be remedied.

After all these years, somehow, there are companies that just never learn. There are small goofs: Spectrum Holobyte's Flight Of The Intruder is a superb simulation and I heartily recommend it to any flight fan. But the manual got its order of priorities wrong—the flight tutorials are in the front of the book while the explanations of how to control your planes and play the game come later. The first tutorial on the A-6 Intruder (pages 41-49) omits mention of the DIANE navigation device, crucial to bombing. The mention is only made much later.

Then there are total blunders: Psygnosis is famous for horridly-incomplete

What makes a good game manual?

- 1) Manuals should be written in plain, clear English with a minimum of technical jargon, unless such terminology is absolutely imperative to the program.
- 2) Right up front, let's see an explanation of the object of the game.
- 3) Right behind that, an overall explanation of how that object is achieved.
- 4) Detailed descriptions of game functions are needed. Terms should be explained immediately instead of forcing the player to search elsewhere for a definition.
- 5) Manuals should provide reasonably-sized diagrams of icons, buttons, screens, keyboard maps, and other symbols. Tiny artwork leads to eyestrain.
- 6) If the game is, at minimum, mildly complex, its manual should contain an index.
- 7) If the game is a simulation, the manual should contain some historical background, separate large maps, a keyboard overlay (if necessary), a crystal-clear reproduction of any controls, and an explanation of what each gauge, meter, light, number, sign, color, dial, and symbol means.
- 8) An explanation of how you know you won the game should be offered.
- 9) All simulation and strategy games should have a step-by-step, hand-holding tutorial.

manuals. Its futuristic flight game, Armour-Geddon, is a perfect example. After a story about pieces of a bomb and a neutron cannon, there follows a perfectly-good explanation of most screens in the game. But for some reason, documentation of the Headquarters Screen—while it offers a grid map of the playfield—omits explanation of its symbols. Then there are some lovely drawings and charts showing what each vehicle does and how to use your mouse/joystick to control them. But there's

no explanation of how to use these vehicles to accomplish your goals. Neither is there any mention of how to switch between missions. The Ground Vehicle Cockpit diagram says there is (among other things) a weapon sight, a missile lock indicator, and a target lock indicator—but good luck finding out what they do!

On the other hand,



Armour-Geddon: Great game, but the manual is a different story!

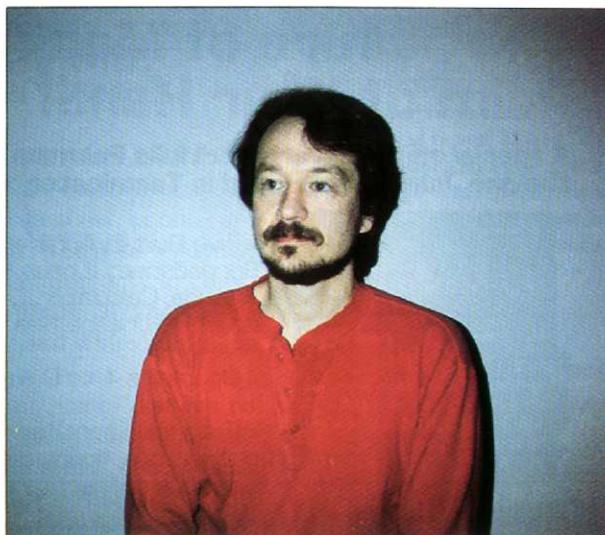
when I think of tip-top manuals, a few companies really stand out—MicroProse among them. The folks at MicroProse are famous for tomes of biblical length, featuring complete historical backgrounds for simulations, as well as excellent instructions for basic gameplay and strategy. Their products may be complex, but they leave no stone unturned trying to insure that players reap full enjoyment from their purchase. The manuals are at least part of the reason why such products as *Red Storm Rising*, *Gunship*, *F-19 Stealth Fighter*, *Railroad Tycoon*, *Midwinter*, *Midwinter II: Flames of Freedom*, *Silent Service I and II*, and *M1 Tank Platoon* get such raves.

Through "Quentin," MicroProse's online customer-service rep, I asked one of their team members to explain how the company creates its manuals. Here, Jim Day, designer of soon-to-be-released *Gunship 2000*, describes how MicroProse goes about researching and writing a computer game manual.

"At MicroProse, the manual is viewed as one of the most important components in a game package," Day says. "Unfortunately, some companies do not give manuals the the consideration or attention they deserve. This is partially because players, more often than not, only look to the manual to solve a perceived problem or to answer a question concerning the myriad of game controls. Players want to get in there and tackle the game without having to read through an endless number of potentially-boring pages of prose. But so goes the nature of the business.

"At MicroProse, the manual is really looked upon as a research project. It is an extension of the game and must not only convey the hows and whys, but should also capture the essence of the game's subject matter. It should not appear as an alien life-form growing out of the game box—it needs to match the product. It's not enough just to explain the game; a manual should also provide an overview of the subject and offer as much background data as is reasonable. There needs to be more than enough supporting data to grab the player's attention, but this background material should be cut off somewhere short of a dissertation.

"Support documenta-



Jim Day of MicroProse

tion is generally developed in advance of the final product, as it is not dependent on game functionality for accuracy. Typically, we describe the setting, explain tactics or real-life situations, and explain the nature of the military or civilian components included in the game. This information is easily assembled in the early months of the project. People inside the company, and outsiders as well, are solicited early on to determine their likes and dislikes. This information is used to lay out and outline the data for inclusion.

We also work very closely with

the Marketing department when developing the 'look' of the manual, since it is, for all intents and purposes, a marketing tool. For us, the manual has a role beyond the pure conveyance of information.

"The actual gameplay portion of the manual is not developed until later in the software development cycle. This is to assure accuracy in game control and functionality instructions. While the actual product functions have been identified for some time, we try to make very sure everything is set before writing about it.

"Even the best-written document can be extremely ineffective if its appearance is wanting. Realizing where manual-reading falls in the player's hierarchy of priorities, the manual is constructed in such a way to limit the amount of data that must be digested before a player can get started. A quick-and-dirty tutorial is essential.

"Traces of subjectivity always seep into a document of this type. But is that necessarily bad? Manual writers must place themselves in the shoes (or, rather, seat) of the player, and try to perceive the data as he or she would, at first glance. Game presentation always employs a certain degree of hype, and that is the real rub.

"References to real-life situations, an especially-important insight with military sims, greatly help the player understand the data or why certain things must work a particular way. The writer needs to keep the simple aspects in mind. This can be a bit of a challenge. Success is ultimately a matter of capturing the necessary elements. The subject matter naturally has a great impact on what can be captured accurately and what can't. Some subjects are just easier

◆ HIT POINT ◆

If you're a fan of Jeff Minter's *Llmatron PD* game, you'll get a kick out of his new *Revenge of the Mutant Camels*, an ST conversion of an old 8-bit game. I uploaded it recently to all on-line services (on GENie's ST Rountable Library, it's file #22411), so enjoy!



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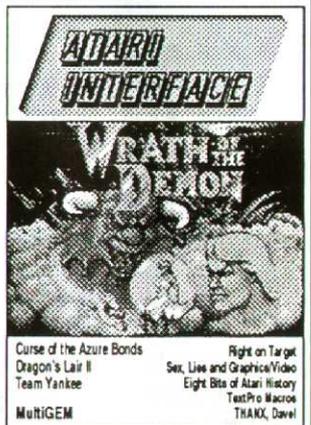
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Mono-Nucleosis!

Put color in your day with these mono masterpieces!

THOUGH MOST ST OWNERS HAVE A COLOR monitor, as many as 70% also have a monochrome display used for word processing, productivity, or other applications that require monochrome's easy-to-read high resolution. While most games function only in color, you mono-users out there will be pleased to know there are more than a handful of black and white games, as well.

Appropriately, almost all the games that can be played on mono monitors don't involve fancy graphics. They tap into another room in your mind—the one that deduces, contemplates, and calculates. And these aren't shoddy games either, so don't think you're being shortchanged.

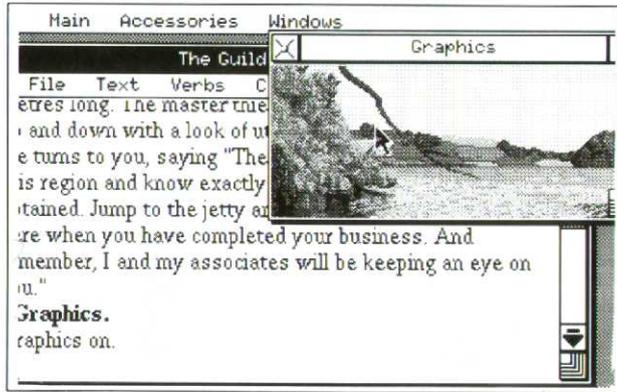
A few of these games are not produced anymore, but if you go to enough swap meets, flea markets, and user's group gatherings, you'll be bound to run across them. Why not trade for 'em with your old copies of Test Drive and Road Raider?

Logically, most text adventures can be played on mono monitors. Although they're not much in fashion anymore, there are many who still love the word-only challenge. In older games, you can make a sure bet on products from Infocom (Planetfall, Leather Goddesses of Phobos, Zork, etc.), Magnetic Scrolls (The Pawn, Corruption, etc.), and Level 9 (Scapeghost).

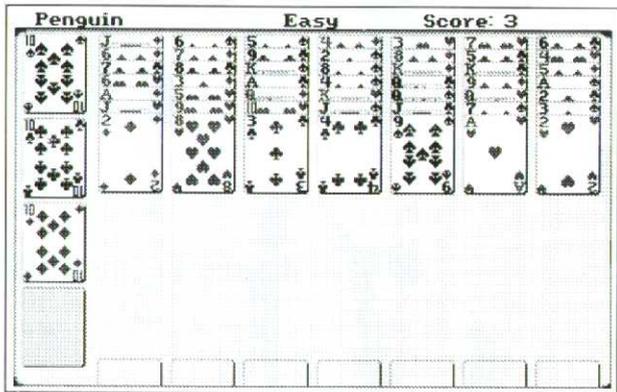
As a matter of fact, Virgin Mastertronic has brought out two excellent games that take the text adventure one step further—can be played on your SM124. Wonderland is a lengthy retelling of Lewis Carroll's "Alice" fantasy in which you follow the rabbit down the hole into a crazy world of much-loved characters. The other is a compilation of vintage Magnetic Scrolls games called The Magnetic Scrolls Collection, in which you can choose from Corruption (a business political thriller), The Guild of Thieves (more espionage), and Fish (you're a goldfish secret agent!). Not only do you have the standard text-adventure parser, but one click in the menu brings up a nicely-done graphic that changes with the action. All of the games in the Magnetic Scrolls Collection feature built-in help and map modes, so frustration levels are kept at a minimum.

Similar to text adventure is strategy. Electronic Arts' Imperium is a highly-complex space colonization affair in which you recruit armies and scientists, tax your people and go on the trail of interplanetary diplomacy. It's kind of stiff compared to Chris Crawford's Balance of Power '90 (Mindscape), a much better global power simulation, but offers a fine challenge to patient gamers of diplomatic bent.

Speaking of simulation, SubLogic's detailed aircraft sim Flight Simulator 2, and its cousin, Jet, are



Guild of Thieves, from Magnetic Scrolls:



Hoyle's Book of Games, Vol. II: Solitaire, by Sierra.

perfectly mono-compatible. If wargaming is your cup of tea, the original Universal Military Simulator (UMS) is the top of the class.

Although all of Sierra's games are enhanced beautifully by their colors, they can also be played on monochrome monitors. (Strange to consider, in light of this fact, that Sierra begged off developing for the Macintosh until this year, citing the fact that "most Macintoshes are monochrome systems." Could it be that Macs are just ... slow and hard to program?) I searched my Sierra collection and you should have no problem with Manhunter New York, Manhunter San Francisco, the Space Quest series, the Leisure Suit Larry series, the Police Quest series, the Kings Quest series, Conquests of Camelot, Hero's Quest I (Quest for Glory I), and The Colonel's Bequest.

A recent issue of the UK magazine ST Applications has more suggestions for you mono maniacs. You'll have to go digging, but you may find the results rewarding:

- Backgammon Royale** (Oxford Softworks)
- Bridge Master** (Atari)
- Chessmaster 2000** (Mindscape)
- ProFlight** (HiSoft)
- Starglider 2** (MicroProse)

PGC 10 Graphics

Part 2 of a series / by BJ Gleason

Unless otherwise indicated, all programs and files mentioned in this article may be downloaded from the Atari Portfolio Forum on CompuServe Information Service (GO APORTFOLIO from any CompuServe '! prompt). The Portfolio Forum is an official Atari support site.

ABOUT ONE YEAR AGO, DON Messerli created a set of file standards for storing Portfolio graphic screens. The first version of Messerli's standard was called Portfolio Graphic File format, abbreviated as PGF. Shortly afterward, Messerli introduced PGC (Portfolio Graphic Compressed), a more compact screen file standard produced by run-length encoding.

Since then, PGC support has been incorporated into a number of different applications. PBASIC supports the display of PGC graphics, and graphic screens pop up on a number of Atari ROM cards, including the File Manager.

In this second installment of Programming Portfolio, we are going to show you how to include PGC graphics in your own applications, whether those programs are written in PBASIC, PowerBASIC, Turbo Pascal or C. Though the compression scheme used in PGC files will be discussed below, a more complete discussion of the PGF and PGC standards can be found in the text file PGSPEC.ZIP.

The Portfolio Screen

The Portfolio screen is 240 pixels wide and 64 pixels high. The upper left-hand corner is considered the home position, and has coordinates 0,0 or 1,1, depending on which programming language you're using (see Figure 1). Each row of 240 pixels maps to 30 bytes of screen RAM, wherein each bit represents one pixel. If a bit is set to 0, the corresponding pixel is clear. To set a pixel, the corresponding bit is set to 1. The screen as a whole occupies 1920 bytes of memory (64 rows x 30 bytes per row), and a PGF file is simply a byte-for-byte copy of this memory into a file. PGC files are created slightly differently: the standard specifies a format for combining groups of bytes with the same value into more compact expressions (run-length encoding), reducing file size significantly, in most cases.

The compression scheme employed in PGC files is not unlike that used to compress Degas .PC? im-

ages into their .PC? equivalents. The first byte read from a PGC file is considered a count byte, and may have a value greater or less than 128 (eighth bit set). Runs of identical bytes are represented by a count byte with value N + 128 (where N denotes the number of identical bytes in the run), followed by a single data byte. Sequences of dissimilar bytes are denoted by a count byte with value N less than or equal to 128, followed by N bytes of literal data.

The basic procedure for displaying a PGF or PGC file is fairly simple: read the file, uncompress it as required, store its contents in video RAM, then call the Portfolio's REFRESH command to update the LCD display. This last step is necessitated by the Portfolio's power-saving architecture, which does not refresh the display from RAM at the same constant pace as desktop systems. Note, however, that some programming languages automatically include refresh-handling code in executable modules, making explicit calls unnecessary.

More rapid methods of addressing the Portfolio screen do exist, and are employed by advanced applications to permit animation and other high-speed graphics trickery. These methods include direct programming of the LCD driver, a complex and highly system-specific process whose details lie beyond the scope of the present article.

FIGURE 2. Example of PBASIC's PGSHOW command.

```
10 Input "Enter Filename";f$
if f$="" then end
pgshow f$,0
goto 10
```

FIGURE 3. PBASIC program to perform animation with screen images supplied in file ADEMO.ZIP, available on CompuServe.

```
os = screen
screen 6
1 for x=1 to 18
pgload "D"+str$(x)
if inkey$<>"" then screen os:end
next x
goto 1
: ' save old screen mode
: ' enter graphics mode
: ' 18 images
: ' load Dxx.PGC
: ' press any key to end
: ' display next image
: ' loop until keypress
```

PBASIC and PGC

PBASIC (PBAS49.ZIP) was one of the first languages to support the PGC standard. It offers several commands for displaying, loading, saving and modifying PGC images. These commands write directly to the Portfolio's LCD screen controller, and can display screens rapidly enough for animation. The individual commands are discussed below.

▲ PGSHOW filename, delay

This command will load a PGC image and display it. Thereafter, it will wait for delay seconds, before proceeding (or until a key is pressed, if delay is set to zero). The screen need not be in graphics mode before PGSHOW is executed. For an example of usage, see Figure 2.

▲ PGLoad filename

This command will load a display a PGC file. The screen must be in graphics mode before this command is executed.

▲ PGSAVE filename

Saves the image currently displayed on screen to a PGC file.

▲ INVERT

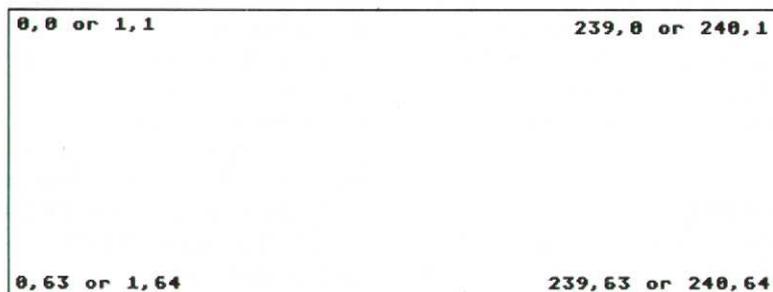
Inverts the current screen, turning white pixels to black, and vice-versa.

Figure 3 shows a sample program in PBASIC that animates graphic images found in the download file ADEMO.ZIP. The program shown here is much faster than the one included with the download.

PowerBASIC

PowerBASIC, despite being a compiler for the Portfolio, does not include built-in support for PGC graphics, nor for certain Portfolio-only features such as menus. To help PowerBASIC programmers, I have developed a complete library of subroutines that allow you to include PGF or PGC support in your PowerBASIC programs, and access most of the more commonly-used Portfolio-only features (see sidebar). Since PowerBASIC does not allow for compilation of multiple source files, you must embed

FIGURE 1. The Portfolio graphic screen.



needed routines in your source code.

Turbo Pascal

If you are programming in Turbo Pascal 6.0, you will want to download two Pascal units now available on CompuServe. The first is the Portfolio Unit (TPU6.ZIP) which allow for easy access to many Portfolio-only features. The second is David E. Stewart's PGC Unit (PGCUNI.ZIP). This unit will allow you to display PGC graphics from a Turbo Pascal program. Figure 5 shows a simple program in Turbo Pascal that employs features of these units to display a PGC image and wait for a keypress.

Turbo/Microsoft C

Don Messerli, the creator of the PGC graphic standard and president of the Software Vineyard, has release a library of routines for PGC graphics for Turbo C 2.0 and Microsoft C, version 5.0 and later. Included in the package (PGLIB.ZIP) are two "small memory model" libraries for either compiler.

The libraries include routines for loading and saving PGC images, as well as general graphic routines. Functions are listed in Figure 6. The package also includes several example programs and complete documentation.

Utilities

To help you create your own PGC images, there are a number of different utilities available. All mentioned here may be downloaded from the Portfolio Forum on CompuServe.

▲ PGCAP

This program (PGCAP.ZIP) will allow you to capture text and graphics screens on the Portfolio. These are saved in either PGT (Portfolio Graphics Text) or PGF formats.

FIGURE 4. PowerBASIC program to display PGC images. Requires inclusion of subroutines "rfsh" and "pgcl" from the PowerBASIC graphics library (see sidebar).

```
1 input "Enter Filename";f$
if f$="" then end f$=f$+".PGC"
screen 1
call pgcl(f$)
a$=input$(1)
screen 0
goto 1
end
```

FIGURE 5. Turbo Pascal 6.0 program to display a PGC image. Employs features of the Portfolio and PGC units, available for download from CompuServe.

```
program PGCDemo;
uses LCD;
var pgname : string;
begin
  write('Filename : ');
  readln(pgname);
  pgshow(pgname+".PGC");
  readln;
end.
```

FIGURE 6. Functions included in Don Messerli's Turbo C 2.0/Microsoft C 5.0 Portfolio graphics libraries, available for download from CompuServe.

GENERAL

PG_Init	Check for a Portfolio
PG_GoGraphic	Set for Graphics mode
PG_GoText	Set for Text Mode
PG_ClearScreen	Clear the text or graphics screen
PG_Refresh	Copy video memory to the LCD

DRAWING

PG_Plot	Plot a point on the screen
PG_QPlot	Plot point, wait for refresh to display
PG_GetPixel	Return the value of a point
PG_Line	Draw a line on the screen

PGC SUPPORT

PG_Show	Display a PGC file and wait
PG_Load	Copy PGC from disk to Video Memory
PG_Move	Move the PGC to a buffer
PG_Save	Save Video Memory to a PGC file

▲ PGCONV

This program (PGCONV.ZIP) will allow you to convert PGT and PGF files to PGC as well as IMG and WPG files.

▲ SNATCH

You can capture graphic images from a PC with this terminate and stay resident program (SNATCH.ZIP). It will capture a screen image and save it to a PGF file.

▲ PGEDIT

Don Messerli has written an editor for the PC that will allow you to create and edit PGC files on a PC

▲ PGF_MAKR

Artisan Software's Don Thomas has written this handy program (PGF_MAKR.ARC) to allow display of PGF files on the ST, and their conversion to Degas monochrome images.

B.J. Gleason is an instructor of Computer Science at The American University in Washington D.C. and has been programming for a decade. Gleason is author of over four dozen utilities and programs for the Portfolio, including PBASIC 4.9, the "freeware" BASIC interpreter. His CompuServe ID is 75300,2517.

Gleason's PowerBASIC Library

POWERBASIC, THE BASIC compiler for the Portfolio, is a very nice product, but doesn't give programmers turnkey access to some of the Portfolio's unique features. This collection of routines is designed to overcome this limitation, allowing access to the most commonly-used built-in features, such as Menus, Screen Saving, Boxes, etc. The library also includes support for PGC and PGF graphics.

Since PowerBASIC does not support libraries, the code for these routines will have to be appended onto your source code. Most of these routines are independent of each other, however, so you need only include those you are using in the program in order to keep source code as compact as possible. The only routine that will always have to be included is the FNsigned% function, which is used to create an integer from a real number. However, if you forget to include it, the compiler will generate an error

message to remind you.

The only routines that need additional explanation are the PGC/PGF routines. These routines load PGC and PGF files and copy them to video memory—but do not display them. Files are displayed by refreshing the LCD; done by calling the "rfs" subroutine. The load and save routines also expect the screen to be in graphics mode (SCREEN 1) before they are called.

Here is an example program showing the calling sequence for PGCL:

```
1 input "Enter Filename";f$
if f$="" then end
f$=f$+".PGC"
screen 1
call pgcl(f$)
call rfs
a$=input$(1)
screen 0
goto 1
end
```

PowerBASIC Editor

Since PowerBASIC does not have built-in editor, an editor has been developed to allow for quick and easy program development on a desktop PC system. The PowerBASIC Editor 1.0 [POWERED.ZIP] is a full-screen text editor, very similar to that of Turbo Pascal 3.0. But it has a couple of built-in additions. By pressing ALT-C, you can save your file and invoke the PowerBASIC compiler. While you can compile the file, you cannot run it. The editor gives you the advantage of an 80 x 25 screen, and will automatically point to a line where a compile error appears.

To use POWERED, you need to copy PB.RUN from the PowerBASIC ROM card to your PC and rename it PB.COM. Invoke POWERED with the name of the file, and then press ALT-C to compile. When the compile is complete, you will have a .COM file that can be copied to the Portfolio. To speed things up, the <F7> key will invoke FT.COM and send over the file that you just compiled.

Finally, here is the complete listing of the library routines. Please feel free to include these in your programs. If you implement any of the other functions, please send them to me, and I will include them in future releases.

Functions provided in Gleason's PowerBASIC Library.

box	Display a Box
cmode	Set Cursor Mode
errwin	Display an Error Window
FNcmode%	Get Cursor Mode
FNdsize%	Return Size of RAM Disk (C:)
FNlssize%	Get Logical Screen Size
FNmenu%	Create/Display/Return Menu Item
FNpssize%	Get Physical Screen Size
FNsigned%	Convert a Real to an Integer
FNsmode%	Return Screen Mode
FNspeed%	Get the CPU Speed
FNvspos%	Get Virtual Screen Position
init	Initialize Portfolio Services
meswin	Display a Message Window
noise	Make Noise (Key Click, Beep, Alarm)
off	Turn the Portfolio Off
pgcl	Load a PGC file to Video Memory
pgcs	Save Video Memory as a PGC file
pgfl	Load a PGF file to Video Memory
pgfs	Save Video Memory as a PGF file
rfs	Refresh the Screen
savres	Save and Restore areas of the screen
smode	Set Screen Mode
speed	Set the CPU Speed
vmove	Move Virtual Screen Position
vspos	Set Virtual Screen Position

```
def fnsigned%(unsigned!)
if unsigned!>32767 then
fsigned%=unsigned!-65536
else
fsigned%=unsigned!
end if
end def
.....
sub rfs shared
' copy video memory to LCD screen
reg 1, 4608
call interrupt 97
end sub
.....
```

```

sub pgfl (f$) shared
' copy .PGF file to video memory

def seg=45056
pg$=""
open "b",1,f$
get$ 1, 1920, pg$
close 1
for i%= 0 to 1919
poke i%,asc(mid$(pg$,i%+1,1))
next i%
end sub

```



```

sub pgfs (f$) shared
' save video memory to .PGF file

def seg=45056
pg$=""
for i%= 0 to 1919
pg$=pg$+chr$(peek(i%))
next i%
open "b",1,f$
put$ 1, pg$
close 1
end sub

```



```

sub pgcl (f$) shared
' copy .PGC file to video memory

def seg=45056
offs%=0
c$=""
pg$=""
open "b",1,f$
get$ 1, lof(1), pg$
close 1
fp%=4
do
cnt%=asc(mid$(pg$,fp%,1))
fp%=fp%+1
if cnt% > 128 then
cnt% = cnt% - 128
c%=asc(mid$(pg$,fp%,1))
fp%=fp%+1
for i%=1 to cnt%
poke offs%,c%
offs% = offs% + 1
next i%
else
for i%=1 to cnt%
c%=asc(mid$(pg$,fp%,1))
fp% = fp% + 1%
poke offs%,c%
offs% = offs% + 1
next i%
end if
loop until offs% > 1919
end sub

```



```

sub pgcs (f$) shared
' copy video memory to .PGC file

def seg=45056
offs%=0
c$=""
pg$="PG"+chr$(1)

```

```

in$=""
run% = 0
unique% = 0

do
do
run% = 0
do while ((peek(offs%+run%)
= peek(offs%+run%+1)) and (run% <
126) and (offs%+run% < 1919))
run% = run% + 1
loop
if (run% > 0) then
if(unique%<>0) then
pg$=pg$+chr$(unique
%)

pg$=pg$+in$
unique% = 0
in$=""
end if
pg$=pg$+chr$(run%+129)
pg$=pg$+chr$(peek(offs%
+run%))
offs% = offs% + run% + 1
else
in$=in$+chr$(peek(offs%))
unique% = unique% + 1
offs% = offs% + 1
end if
loop while((unique% < 127) and
(offs% < 1920))
if(unique%<>0) then
pg$=pg$+chr$(unique% and
127)

pg$=pg$+in$
in$=""
unique%=0
end if
loop while(offs% < 1920)
if(unique%) then
pg$=pg$+chr$(unique% and 127)
pg$=pg$+in$
end if
open "b",1,f$
put$ 1, pg$
close 1
end sub

```



```

sub box (x1%, y1%, x2%, y2%, bt%)
shared
' display a box on the screen.
' x1, y1 : upper left corner
' x2, y2 : lower right corner
' bt=1 : double line box
' bt=0 : single line box

reg 2,0
reg 3,x2%*256+y2%
reg 4,x1%*256+y1%
reg 1,2304+bt%
call interrupt 96
end sub

```



```

sub savres (x1%, y1%, x2%, y2%, ser%,
bs%, bo%) shared
' screen save/restore
' x1, y1 : upper left corner, 0 based
' x2, y2 : lower right corner, 0 based
' ser : service
' 0 - Save characters only
' 1 - Save characters and Attributes

```

```

' 2 - Restore characters only
' 3 - Restore characters and
Attributes
' bs : segment to buffer to save/restore
screen
' bo : offset to buffer
'
' ss$=string$(350,0) : ' make sure there
is enough room
' bs%=fsigned%(strseg(ss$))
' bo%=fsigned%(strptr(ss$))
'
reg 2,0
reg 3,x2%*256+y2%
reg 4,x1%*256+y1%
reg 5,bo%
reg 8,bs%
reg 1,2048+ser%
call interrupt 96
end sub

```



```

sub meswin (x%, y%, ms%, mo%)
shared
' display a box on the screen.
' x, y : upper left corner, 0 based
' ms : segment to message text
' mo : offset to message text
' Each line is terminated with a 0
' text has to be terminated with 00
' First element is the title
'
m$="Title"+chr$(0)+"Message"+chr$(0)+
chr$(0)
' ms%=fsigned%(strseg(m$))
' mo%=fsigned%(strptr(m$))
'
reg 2,0
reg 4,x%*256+y%
reg 5,mo%
reg 8,ms%
reg 1,4608
call interrupt 96
end sub

```



```

sub errwin (x%, y%, ms%, mo%) shared
' display a box on the screen.
' x, y : upper left corner, 0 based
' ms : segment to message text
' mo : offset to message text
' text has to be terminated with 00
'
m$="Test"+chr$(0)+chr$(0)
' ms%=fsigned%(strseg(m$))
' mo%=fsigned%(strptr(m$))
'
reg 2,0
reg 3,1
reg 4,x%*256+y%
reg 5,mo%
reg 8,ms%
reg 1,5120
call interrupt 96
end sub

```



```

def FNmenu(x%, y%, top%, las%,
bt%, ms%, mo%)
' display a box on the screen.
' x, y : upper left corner, 0 based

```

```

' top : last top line
' las : last selected item
' bt : border (0 single, 1 double)
' ms : segment to menu text
' mo : offset to menu text
' Each element is terminated with a 0
' text has to be terminated with 00
' First element is the title
'
m$="Again?"+chr$(0)+"Yes"+chr$(0)+"N
o"+chr$(0)+chr$(0)
' ms%=fsigned%(strseg(m$))
' mo%=fsigned%(strptr(m$))
'
' returned value
' -1 - escape pressed
' int(mc% / 256) = top line
' mc% mod 256 = selected line
'
reg 2,0
reg 4,x%*256+y%
reg 3,top%*256+las%
reg 5,mo%
reg 6,-1
reg 8,ms%
reg 9,mo%
reg 1,3840+bt%
call interrupt 96
FNmenu% = reg(1)
end def
'
sub init shared
'
' Portfolio Service Initialization
' Use once at beginning of program
'
reg 1, 0
call interrupt 97
end sub
'
def FNdsize%
'
' get the size of the RAM Disk
'
reg 1,2048
call interrupt 97
FNdsize% = reg(2)
end def
'
def FNsmode%
'
' get screen mode
' returns
' 0 : 80 x 25 Static
' 1 : 40 x 8
' 2 : 80 x 25 Tracked
' 128 : Graphics
'
reg 1,3584
call interrupt 97
FNsmode% = reg(4)
end def
'
sub smode(m%) shared
'
' set screen mode
' m =
' 0 : 80 x 25 Static
' 1 : 40 x 8
' 2 : 80 x 25 Tracked

```

```

' 128 : Graphics
'
reg 1,3585
reg 4,m%
call interrupt 97
end sub
'
def FNcmode%
'
' get cursor mode
' returns
' 0 : cursor off
' 1 : Underline
' 2 : block
'
reg 1,3840
call interrupt 97
FNcmode% = reg(2)
end def
'
sub cmode(m%) shared
'
' set cursor mode
' m =
' 0 : cursor off
' 1 : Underline
' 2 : block
'
reg 1,3841
reg 2,m%
call interrupt 97
end sub
'
def FNpssize%
'
' get physical screen size
' rows = int(result / 256)
' cols = result mod 256
'
reg 1,3328
call interrupt 97
FNpssize% = reg(1)
end def
'
def FNlssize%
'
' get logical screen size
' rows = int(result / 256)
' cols = result mod 256
'
reg 1,3328
call interrupt 97
FNlssize% = reg(4)
end def
'
def FNvspos%
'
' get virtual screen position
' row = int(result / 256)
' col = result mod 256
'
reg 1,4096
call interrupt 97
FNvspos% = reg(4)
end def
'
sub vspos(x%, y%) shared
'
' set virtual screen position

```

```

' x = row
' y = col
'
reg 1,4097
reg 4,x%*256+y%
call interrupt 97
end sub
'
sub vmove(dir%, dis%) shared
'
' move virtual screen position
' dir = direction
' 1 : up
' 2 : down
' 3 : left
' 4 : right
' dis = distance in characters
'
reg 1,4352+dis%
reg 4,dir%
call interrupt 97
end sub
'
sub noise(ty%) shared
'
' make noise
' ty =
' 0 : Key Click
' 1 : Beep
' 2 : Alarm
'
reg 1,5376+ty%
call interrupt 97
end sub
'
def FNspeed%
'
' get clock tick speed
' returns
' 0 : slow - 1 tick 128 seconds
' 1 : fast - 1 tick per second
'
reg 1,7680
call interrupt 97
FNspeed% = reg(2)
end def
'
sub speed(m%) shared
'
' set clock tick speed
' m =
' 0 : slow - 1 tick 128 seconds
' 1 : fast - 1 tick per second
'
reg 1,7681
reg 2,m%
call interrupt 97
end sub
'
sub off shared
'
' turn the portfolio off
'
reg 1,11520
call interrupt 97
end sub
'

```

Serial Port Configuration:

THE BASICS

Part 2 of a series / by Steve Yelvington

LAST ISSUE, WE LEARNED SOME of the fundamentals of ST serial programming, concluding with the presentation of a (very) dumb terminal program. But though we were exposed to our first taste of BIOS- and GEMDOS-level serial functions, we didn't approach the larger question of modem management.

The Real World Intrudes

The problem with BIOS- and GEMDOS-level serial I/O is that these functions—in and of themselves—have only a limited ability to detect events in the real world: a busy signal on the line, or your cat pulling out your phone cord. About the best any TOS-level function can do is tell you whether your modem is alive or dead, by returning an appropriate status code. In fact, it's dangerous to use TOS functions in a naive way, since the output functions can even "hang"—perhaps forever—if something suddenly goes wrong with the

serial line.

In the real world, to summarize, there's more to worry about than input and output. Imagine you're writing a BBS program. If your caller falls asleep at the keyboard or abruptly hangs up, the above functions won't worry about a thing. In your program, in addition to polling the port to see if data is available, you'll need to check frequently to see if the modem's carrier-detect signal is still active. You'll need to keep track of how long it's been since anything interesting happened (i.e., input), so you can detect a caller who's nodded off or a modem that's gone haywire.

Once you detect such an error, you'll need to respond appropriately. There are many ways to do it, depending on the programming language you use. In C, you might want to use the `setjmp()` and `longjmp()` functions to "bail out" and restart your program. Assuming you have set up a jump buffer called "panic," you might write a low-level aux port input function

that looks like Figure 1.

The code in Figure 1 uses a couple of very useful functions that aren't in the standard library and bear some explaining. Figure 2 shows the function `rs232cd()`, whose purpose is to check the carrier-detect status of the aux port by examining a hardware register. Some programming languages might let you use a "peek" function to get the data we just fetched. The address is expressed here as a hex number, `$FFFFFFA00`. Bit 2 of the value returned from this address will be set if the RS232C carrier-detect line is active.

Figure 3 shows a function that hangs up the phone line by dropping the DTR (Data Terminal Ready) signal. Note that most modems are shipped from the factory with DTR sensitivity disabled. You should be able to turn it back on by toggling a DIP switch or with a command from the keyboard. Use of this function supersedes the

FIGURE 2. Function to check carrier-detect status (must be done in 68000 Supervisor Mode).

```
#include <osbind.h>

int rs232cd() /* state of rs232 carrier detect line */
{
    register long ssp;
    register int *mfp,status;

    mfp = ((int *) 0xFFFFFA00L); /* base address of MFP status register */
    ssp = Super(0L); /* enter supervisor mode */
    status = *mfp; /* get MFP status */
    Super(ssp); /* return to user mode */
    return(!(status & 0x0002)); /* check for carrier */
}
```

more chancy approach of resetting the modem and sending a "Hangup" command sequence. The latter alternative is accomplished, under the Hayes protocol, by slowly sending three '+' (plus) signs (placing the modem in command mode), then issuing by an "ATH" (for Hangup).

More Chars from AUX

Now, what about getting a string from the modem port? Figure 4 shows a custom function, modified from the public-domain dLlibs `getln()`. Note that it uses a function `auxput()` for output, which you can rewrite or #define to mirror the BIOS- or GEMDOS-level routine you used for input.

The modem itself can introduce new programming challenges. For example, some modems don't like to accept commands at full speed. Many refuse to capture any command input while the modem is busy responding to a previous command (for example, a dial command that immediately follows a command to reset the modem's configuration).

QuickCIS, a program by Jim Ness that makes navigating through CompuServe a little less painful, includes an option that lets you slow down the speed at which the program sends commands to the modem. You might want to add such a feature to your own program, using a timer loop to vary the output speed of a modem-write-string function.

Configuring the Serial Port

In order to communicate with another machine over the serial port, speed, flow-control, and other

FIGURE 1. Aux port input function with bailout provisions.

```
#include <time.h>
#include <osbind.h>

#define TIMEOUT 120 /* 120-second timeout */

int auxin()
{
    clock_t time1,elapsed;
    if (!rs232cd())
    {
        hangup();
        longjmp(panic);
    }
    time1 = clock(); /* get tick time */
    /* loop for up to TIMEOUT seconds, waiting for aux input */
    for(;;)
    {
        if (Cauxis()) /* these could just as well be BIOS calls */
            return Cauxin();
        /* no activity yet, so ... get new tick time and convert to seconds */
        elapsed = (clock() - time1) / CLK_TCK;
        /* if too much time has elapsed, restart */
        if (elapsed > TIMEOUT)
        {
            hangup();
            longjmp(panic);
        }
    } /* continue the loop */
}
```

FIGURE 3. Function to hang up phone through modem by bringing DTR signal low.

```
#include <osbind.h>

void hangup()
{
    Ongibit(0x10); /* dtr off */
    sleep(1);      /* wait one second */
    Offgibit(0xEF); /* dtr on */
}
```

FIGURE 5. Defines for baud rates, values used by function Rsconf(). Values commented as standard are commonly used in modem communications.

```
#define BPS_19200 0 /* standard */
#define BPS_9600  1 /* standard */
#define BPS_4800  2 /* standard */
#define BPS_3600  3
#define BPS_2400  4 /* standard */
#define BPS_2000  5
#define BPS_1800  6
#define BPS_1200  7 /* standard */
#define BPS_600   8
#define BPS_300   9 /* standard */
#define BPS_200  10
#define BPS_150  11
#define BPS_134  12
#define BPS_110  13
#define BPS_75   14
#define BPS_50   15
```

parameter settings may need to be altered. Atari's XBIOS (Extended BIOS) provides a function, Rsconf(), that configures the serial port by writing six integer arguments to the MFP's control registers. Speed (bits per second, often incorrectly called baud rate) can be set to any of 16 values, as shown in Figure 5. Flow-control (see Figure 6) is set in accordance with the second integer argument. The third argument is an integer bitmap, composed of values that determine parity, start and stop bits, and word size (see Figure 7). The remaining three integer arguments are used to control low-level

FIGURE 4. Function to retrieve a string from the serial port. Modified from a public-domain version of the standard library function, getln().

```
#define KEY_CR 0x0D /* carriage return */
#define KEY_LF 0x0A /* linefeed */
#define KEY_BS 0x08 /* backspace */
#define KEY_DEL 0x7F /* delete */

char *auxgets(buffer, limit)
char *buffer; /* where keystrokes will be stored */
register int limit; /* size of the buffer */
{
    register char *bp = buffer;
    register int c, i = 0;

    for(;;){
        c = auxin() & 0xFF; /* mask off high bits, just in case */

        /* end of line */

        if((c == KEY_CR) || (c == KEY_LF)){
            *bp = '\0';
            break;
        }

        /* backspace or delete */

        else if(((c == KEY_BS) || (c == KEY_DEL)) && (bp != buffer)){
            --bp;
            auxput('\b');
            auxput(' ');
            auxput('\b');
            --i;
        }

        else if((c >= ' ') && (i < limit)){
            auxput(*bp++ = c);
            ++i;
        }
    }
    return(buffer);
}
```

aspects of synchronous communications. These will, for present purposes, be ignored, except to mention that in using the Rsconf() function, the fourth, fifth, and sixth arguments should, for the time being, be set to -1, causing their default values to remain unchanged when the function is executed.

Using Rsconf() is problematic in only one respect. Because the operating system does not provide direct means for determining current serial port settings, it is impossible for a program operating at the TOS level to be a "good neighbor" about the serial port. Ideally, a program should, when

first executed, preserve any parameters found in place and reinstate these, prior to exit. Unfortunately, this is impractical unless the hardware is accessed directly.

For the same reason, it is impossible for a TOS-level program to selectively alter serial parameters during execution unless it retains its own record of current settings. Besides simply being good programming practice, this approach will minimize the effect of a feature common to early versions of TOS, which sends a "delete" character out the serial line whenever the speed parameter is al-

tered, whether or not speed has actually been changed. The ST system provides two methods of flow-control at the hardware level. The first, XON/XOFF, is a data-level protocol supported by the operating system, whereby data flow is stopped (output is blocked) when a CTRL-S character is received, and resumes when a CTRL-Q character is received. Neither the CTRL-S nor the CTRL-Q are made available for input. This method of flow-control is sometimes used in modem-to-modem communications, though it can easily be emulated in higher-level software. It should be noted that binary file transmissions, which require 8 significant bits per word, cannot be carried out conventionally under XON/XOFF flow control, since the system cannot distinguish between data and flow-control information, though bit-packing methods can

FIGURE 6. Defines for flow-control, values for use with Rsconf().

```
#define FLOW_NONE      0    /* default */
#define FLOW_XONXOFF  1    /* control-s, control-q software */
#define FLOW_RTSTCTS  2    /* hardware */
#define FLOW_BOTH     3    /* both hardware and software */
```

overcome this problem.

The second method of flow-control, RTS/CTS, is used in machine-to-machine connections, and is of particular relevance to high-speed (9,600 baud and higher) modem communications. We will not yet be discussing RTS/CTS, except to mention that the option is not serviced in a completely consistent manner by early versions of TOS. Several patches have been developed that solve the problem, however, and these are widely available on information services such as GENie.

Parity, Stop Bits, Word Size

Parity is not commonly used in communicating with personal computers, but is occasionally relevant in communicating with mainframes and on-line systems. Parity is a form of error-checking in which an additional bit is added to each transmitted word, conditioned according to the value of data. In "even parity," the parity bit is set to 0 for even word-values and set for 1 for odd values (making the total value of each received word always even). "Odd parity" is the

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reverse. Parity bits are supplied by the hardware on transmission and are tested and removed from incoming data on reception, so handling parity is transparent except when errors occur. Error responses must be arbitrated in software, and may involve requesting retransmission of defective characters or blocks, or discarding erroneous characters.

Start and stop bits are used by hardware to denote the beginning and end of transmitted words. One start bit is a uniform standard in asynch communications. Standard microcomputer communications have settled on one stop bit as the standard, also, though the hardware supports 1.5 stop bits and two stops, as well.

Size denotes the number of bits of data carried by a single word. ST Hardware supports word sizes of between 5 and 8 bits, inclusive, though in microcomputer communications, only 7- and 8-bit words are commonly used (the latter most frequently). A 7-bit word is sufficiently wide to carry any value in the normal ASCII character set (values of 0-127 decimal), while an 8-bit word is wide enough to carry an entire byte (values of 0-255 decimal) of binary information.

Figure 8 shows a sample usage of `Rscnf()`, employing defines from Figures 5, 6, and 7.

Resizing the Serial Buffers

When a character arrives at the serial port, TOS interrupts what it's doing, grabs the character before it disappears, and records it in an input buffer. When your program wishes to write to the serial port, TOS buffers the output so that your program can proceed with other chores without having to wait for a slow modem to transmit.

The input and output buffers are 256 bytes each, but as noted in our last installment, you can change them. Why would you want to do so? Consider this example:

You're using Xmodem and

FIGURE 7. Defines for controlling parity, stop bits, and word size. Values can be added together, and the result passed as `Rscnf()`'s third parameter.

```
#define PARITY_NONE    0
#define PARITY_ODD     4
#define PARITY_EVEN    6

#define ST0_STP0       0 /* No start, no stop */
#define ST1_STP1       8 /* 1 start, 1 stop (standard) */
#define ST1_STP15      16 /* 1 start, 1.5 stops */
#define ST1_STP2       24 /* 1 start, 2 stops */

#define WS_8           0 /* 8-bit word size */
#define WS_7           32 /* 7-bit word size */
#define WS_6           64 /* 6-bit word size */
#define WS_5           96 /* 5-bit word size */
```

FIGURE 8. Use of `Rscnf()` to configure serial port to the standard settings of 2,400 baud, no flow control, no parity, 1 start bit/1 stop bit, and 8-bit words, using defines in Figures 5, 6, and 7.

```
Rscnf(BPS_2400, FLOW_NONE, PARITY_NONE + ST1_STP1 + WS_8, -1, -1);
```

FIGURE 9. Sample #define of `Iorec` function, which calls `xbios` function 14 to return a pointer to a device's `Iorec` structure. The serial port's device number is 0.

```
#define Iorec(dev) (void*)xbios(14, (short)(dev))
```

you have a slow floppy drive. Your Xmodem acknowledges (ACKS) a block, then proceeds to write it to disk while the sender sends the next block. So far, so good. But if you switch to Ymodem's 1K blocks and a very fast modem, the TOS default buffer might overflow while you're writing the previous block to that slow floppy drive. Solution: Use a bigger input buffer.

Another scenario: You're running a BBS. The caller is reading a long message and decides it's boring. The caller pushes the cancel key (control-C, or S, or whatever you've decided makes sense.) The BBS stops sending, but that big output buffer is full of data—and it just keeps sending, and sending ... Solution: Use small I/O buffers for interacting with humans.

XBIOS function 14 returns a pointer to the input buffer record corresponding to a particular device. In C, the raw call is usually made as `xbios(14, (int)dev)`, where `dev` is an integer denoting the device for which the request is

being made (0 = serial port, 1 = keyboard, 2 = MIDI port). If you prefer, you can define a macro, `Iorec`, as shown in Figure 9. (This macro is already defined in the `xbios` header file of many C-language implementations. To perform the equivalent call in assembly, you begin by pushing the device number onto the stack, followed by the `xbios` function number (14), and the vector number for the `xbios` trap (also 14), before executing the `TRAP` instruction. The pointer is returned in `d0`.)

In the case of the ST's serial port, the pointer retrieved by this function references the input buffer record. The output buffer record, identical in structure, resides just after the input `iorec`, 14 bytes higher in memory.

A Structured Approach

We defined the structure of the `iorecs` themselves in our last article (the structure is defined as well in Figure 10, to the right). To

review, an iorec is 14 bytes long, beginning with a long (four-byte) character pointer to its buffer. The buffer pointer is trailed by short integer (two-byte) values. These values define, in sequence, the buffer size in bytes, the head index, the tail index, the "low-water mark," and the "high water mark."

It is understood that iorec buffers are handled by the operating system as rings. Data is delivered to a ring buffer at the offset denoted by its head pointer, which is then incremented. When the head pointer threatens to increase past the upper boundary of the buffer (as determined by the bufsiz value), it is reset to zero, "wrapping around" to the bottom of the buffer again (hence "ring buffer"). Data is removed, meanwhile, at the tail pointer, which "chases" the head around the ring in similar fashion.

As should be obvious, if the head pointer wraps around and catches up with the tail, data will be overwritten. To prevent this from happening, the high water mark is accessed and compared to the modulo differential between the head and tail pointer positions. If too much data has been placed in the buffer, further transfer will be blocked until the buffer is emptied. Similarly, if the amount of data in the buffer falls below the low water mark, further input is enabled.

Different applications may wish to resize buffers and adjust parameters in an attempt to optimize performance.

Caveat Programmer

Before you go poking around inside these records, keep in mind that they are internal to TOS, and they are shared by all processes that run on your system. You can change the buffers and even bypass GEMDOS and BIOS for reading and writing, if you so desire, but you must be prepared to live with the consequences. In particular, be very careful to restore the original

FIGURE 10. Function set for serial iorec reconfiguration.

```
typedef struct {                               /* Basic iorec definition */
    char *io_buff;
    int io_bufsiz;
    int io_head;
    int io_tail;
    int io_low;
    int io_high;
} iorec;

typedef struct {                               /* Storage structure */
    struct iorec in;                          /* Input iorec */
    struct iorec out;                         /* followed by output iorec */
} SER_IOREC;

#define IBUFSIZ 4096                          /* Size of new input buffer */
#define OBUFSIZ2                               /* Size of new output buffer */

char st_ibuf[IBUFSIZ];                       /* our own input buffer */
char st_obuf[OBUFSIZ2];                     /* and our own output buffer */

SER_IOREC *st_sysr;                          /* ptr to system rs232 record */
SER_IOREC st_savr;                          /* declare storage structure */

SER_IOREC st_myiorec =                      /* we define our storage structure */
{
    /* first, an input record */
    st_ibuf, IBUFSIZ, 0, 0, (IBUFSIZ/4), (3*(IBUFSIZ/4)),
    /* then an output record */
    st_obuf, OBUFSIZ, 0, 0, 0, 1
};

void openaux()                               /* set up our own rs232 input and output buffers */
{
    while(Bconstat(AUX))                    /* flush existing buffer */
        Bconin(AUX);
    st_sysr = (SER_IOREC *)iorec(0);
    st_savr = *st_sysr;                     /* Save system buffer */
    *st_sysr = st_myiorec;                 /* Set my io buffer */
}

void closeaux()                             /* restore system i/o buffer */
{
    *st_sysr = st_savr;
}
```

record when your program terminates (unless you're writing a TSR with the express purpose of enlarging a buffer). Unless meaningful data is left behind, your system could bomb the next time an event is fielded by the OS.

With those cautions in mind, Figure 10 shows some code, originally lifted from an early ST communications program written by Dale Schumacher, that resizes and reconfigures serial iorecs. The code defines a "double" iorec

buffer structure (type SER_IOREC), instances of which are used both to store information contained in the system's original serial iorecs, and for serving as the replacement iorecs. Standard C's ability to assign structures of the same type is used to good effect in moving iorec contents into and out of storage. Next issue, we'll write some interrupt-handling code, learn more about the serial hardware, and develop a multipurpose phone dialer! ■

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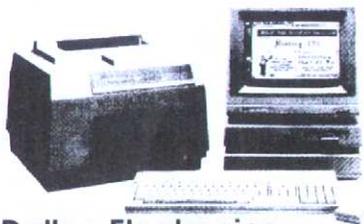
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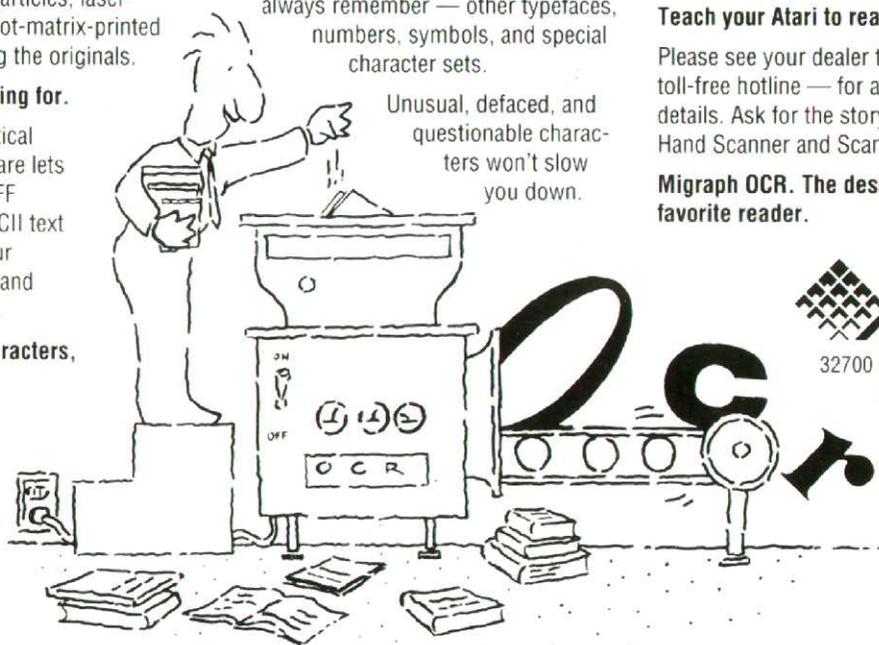
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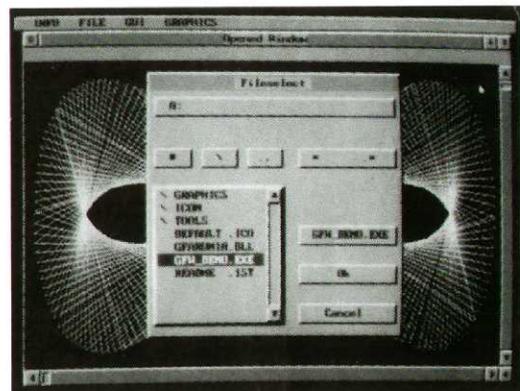
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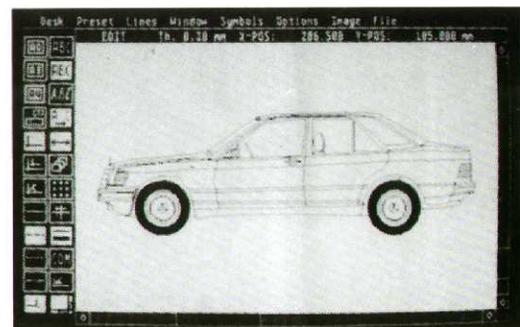
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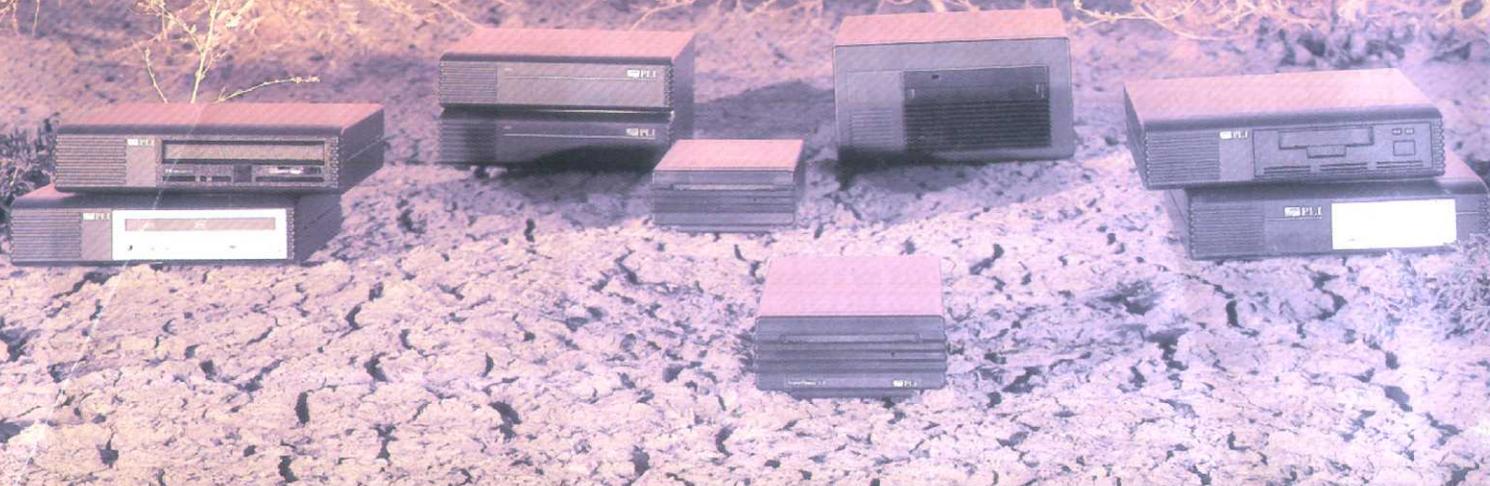
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If you need to get data from one Atari computer to another and you aren't networked, PLI's Infinity 40 Turbo or Infinity 88 Turbo is your answer. These removable Winchester hard disk cartridge drives give you hard disk performance with the economy and versatility of removable cartridges. Depending on the drive you choose, each cartridge provides 44MB or 88MB of storage. The drives carry a two-year warranty and cartridges have warranties of up to five years.

Cartridges can be easily carried from place to place and the drives are standard at service bureaus. They are also ideal for backups, archiving your music or graphic files, or for storing your typefaces or game collection off-line.

Black Light

Lasers are the way of the future in data storage, and PLI has great magneto-optical drives for your Atari computer. The Infinity Optical 3.5" drive offers 120MB of storage on compact 3.5" cartridges. Features include 40ms seek times, excellent reliability and ISO/ANSI standard formats for easy data exchange. If 88MB cartridges aren't enough for you, or if you want the ultimate in reliability and long-term data archiving, the Infinity Optical 3.5" is for you. Infinity Optical 3.5" drives and cartridges carry one-year warranties.

In The Black

PLI is more than just a drive company with a lot of black boxes. We offer complete support, full manufacturer warranties, extensive burn-in and testing prior to shipment, quick repairs when you need them and the security of dealing with a company that's been in the business for years. Best of all, we offer all this at affordable prices.