

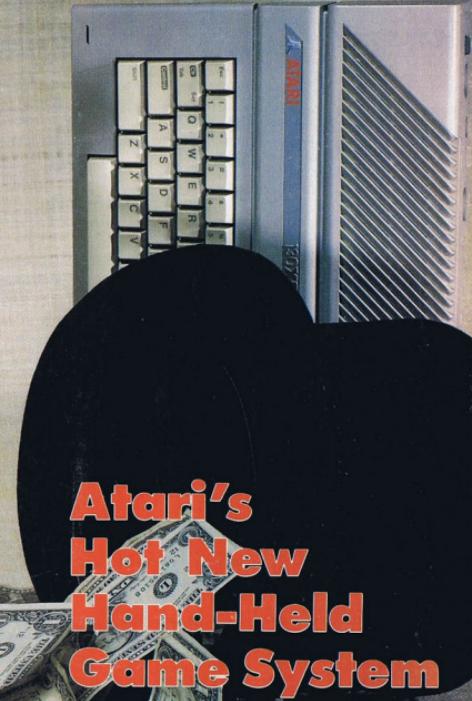
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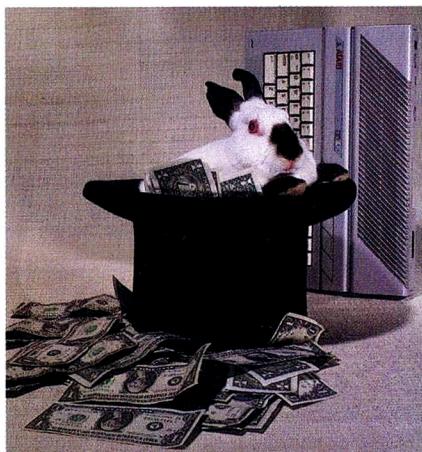
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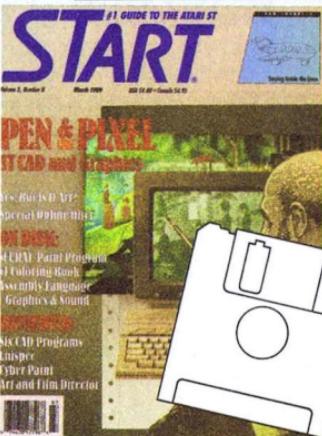
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MORE MAKEBOOT DOS

I noticed that OS/A+, a discontinued DOS once available from OSS, was required to use the program MAKEBOOT.EXE in *Customizing the Atari Operating System Device Handlers: Part II* from **Antic**, May, 1989. The section labeled "OS/A+ Version" only changes MEMLO and prints a message, which is certainly not a DOS-specific thing.

The problem is that the program does not relocate to sit on the old MEMLO, but starts instead at \$2100. When the DOS 2 DUP.SYS is loaded, MEMLO is ignored, and in this case DUP.SYS would overwrite the program. OS/A+ is completely memory-resident, loading no utility package from disk. So this is not a problem.

Also, the program does not contain a RUNAD or INITAD segment, so, if loaded from DOS 2, it would not run. OS/A will load a file with a .COM extender and begin execution at the beginning of the first segment. Once renamed, this program will work properly. The article did not mention that the program must be renamed "MAKEBOOT.COM." These are the only problems I found, and I realized that there was no reason the program should not work properly with DOS XL (another discontinued DOS once available from OSS) as well as SpartaDOS (currently available from ICD, Inc.) since these share the necessary traits.

I tested the program with SpartaDOS 3.2 and SpartaDOS X and had no problems. It should be noted that with SpartaDOS X the handler is not available from the command processor, but is available from an application. Also, users should check the value of MEMLO before loading the program to insure that it is below \$2100. Adding RAMdisk handlers and/or R: handlers could boost MEMLO above this value.

Assuming these are the only conflicts with Atari DOS 2, it should be possible to modify the program to work with DOS 2. It may already work with DOS XE with an appropriate run segment added.

Craig Thom
Rockford, IL

Mr. Thom works for ICD, but wants it understood that he is writing here on a strictly personal basis, not as a representative of ICD. Still, he certainly knows his assemblers and DOS.—ANTIC ED

CRIBBAGE HELP!

We've been hearing from readers about our game *Cribbage Atari*, which ran in the May, 1989 issue. As it turns out, the game does not run properly on an 800, nor apparently on a 1200XL. Unfortunately, the Technical Editor who worked on the program didn't know how to play cribbage, so he never played long enough on his 800 to realize there was a problem. The testers in our office used a 130XE and an 800XL and had no problems whatsoever. If anyone has been able to fix the problem, please let us know how you did it!—ANTIC ED

ERROR CODE CONFUSION

Whenever an error code comes up I have to stop, look up the code number, and try to figure out what it means. Maybe you could run some articles on error codes, what they mean and how to handle them.

Rodney Gore
Layton, Utah

For BASIC programming, Electric Charlie by Patrick Bass (Antic, February 1987) gives detailed error messages in pop-up windows, so at least you don't have to keep looking up the numbers every time. For a guide to error trapping in your own programs, see Heidi Brumbaugh's Error Trapping in Atari BASIC in the February 1989 Antic.

Figuring out what a particular error means for the program you're working on is NEVER easy. One error number can apply to several different situations, so there's no way to get a definitive analysis of an error. Also, error messages are often actually triggered by other problems occurring elsewhere in the program.—ANTIC ED

BAD KITTY

While playing *Escape From Dispozon* (March and April, 1989) I found an error. When I got to the island with the box and kitten, I couldn't get the kitten. Instead, I got the death routine you get when the crabs get you. How do I fix this?

Ethan Frolich
West Palm Beach,
Florida

There is a problem, but you don't have to fix it to play the game successfully. Touching the kitten is supposed to be fatal—you're just getting the wrong death routine. Try luring the kitten with sardines, instead.—ANTIC ED

FARMERS UNITE

I agree totally with Lee Jones' letter in the July **Antic**, calling for an Atari Farmers and Gardeners Users Group. As a farmer, I am appalled by the lack of agricultural software for Atari 8-bit computers. That's one reason I wrote my *Customer List Manager*, a simple database designed to keep yearly histories of orders. By changing the fields, this database can be used to track the performance of crops, weed and insect problems, and pesticide applications.

Thomas Andrews
Manlius, NY

Antic welcomes your feedback, but we regret that the large volume of mail makes it impossible for the Editors to reply to everyone. Although we do respond to as much reader correspondence as time permits, our highest priority must be to publish I/O answers to questions that are meaningful to a substantial number of readers.

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MANUS

(music/applications software)

John Kelleher

4400 New Jersey Street

San Diego, CA 92116

\$19.95, 48K disk, printer

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Antic, P.O. Box 1569, Martinez, CA 94553

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**CARL BARONE,
NRI PROGRAMMER/ANALYST**

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YEMACY B/4

Electronical Software
P.O. Box 1106
Taylor, MI 48180.
\$29.95

Review By Stephen Fisbein

Mention of **YEMACY B/4** in the February 1989 **Antic** review of the Star NX-1000 Rainbow printer prompted me to order a copy of this color printing utility from Electronical Software. With the latest improvements in this handy program, as well as availability of color printers at much lower prices than ever before, **YEMACY B/4** has become an essential program for color printing.

The original **YEMACY** program was released in 1986. It permitted four-color printing on ordinary printers by changing ribbons and re-positioning the paper. The method provided excellent printouts as long as the user was careful in lining up the paper for each additional printer pass.

YEMACY B/4 was later released for use with the Epson JX-80 and compatible color printers such as the Rainbow 1000. That version provided an excellent printout as well as several utilities.

However, limited color printer sales resulted in little interest in **YEMACY B/4** and Electronical Software had actually closed down. Then the **Antic** review of the NX-1000 Rainbow created a new interest in color printer dumps and encouraged programmer Michael Clayton to add major improvements which were recently completed.

Clayton concluded that existing four-color ribbons failed to print true colors. Whether it was lack of ink on the ribbons or the limited drying time allowed before additional colors were added, Clayton's solution was to al-

low up to nine additional print passes per color. In most cases two or three passes will provide very satisfactory coloring. The resulting printouts feature deep, rich colors, instead of the pale, washed-out look of single-pass prints.

The most recent revision of **YEMACY B/4** also includes a "poster" program. Color pictures may now be enlarged two or three times and printed out on as many as nine sheets.

Several utilities have also been added since the original **YEMACY** program was released three years ago. A text editor makes it possible to add text to graphics, using any of the nine-sector Atari fonts. You can design and print borders around your **YEMACY** prints, color data may be changed and the print palette may be customized. Most important, a utility is included to convert graphics to the widely used Micro-Painter format. The program and files now come on three disks, including the original **YEMACY** program.

**RAMdrive + XE-GM2,
RAM-Aid**

(For Atari XEGS)
Innovative Concepts
31172 Shawn Drive
Warren, MI 48093
(313) 293-0730

Review by Matthew Ratcliff

RAMdrive + XE-GM2 (\$34.95) is the sequel to the **XE-GM1**, reviewed in the August 1988 **Antic**. The **XE-GM2** boosts the Atari XE Game System's 64K memory to a full 192K, enough bytes to copy a single-sided double density disk (SS/DD) in a single pass. This extra memory is ideal for user group library managers who need to make a lot of disk copies at a meeting in a short period of time.

This extra RAM is automatically recognized by **PaperClip II** and the newer versions of **SynCalc** and **SynFile+**.

This memory upgrade kit comes with two 41464 dynamic RAM chips (64K by 4 bits wide), a custom integrated circuit, switch, resistor, and hook-up wire. The documentation assumes that you have already installed the **XE-GM1**. If not, you should order both kits at the same time to upgrade the **XEGS** to a full 192K in one hardware hacking session.

Installing the **XE-GM2** upgrade is a straightforward process requiring 17 steps. The new RAM chips must be soldered piggy-back on the **XE-GM1** chips, which are on top of the original pair. This stack fits snugly in the case when the **XEGS** is reassembled. A 256K upgrade probably would not fit.

If you have the **XE-GM1** upgrade already in place, adding the **XE-GM2** is very simple. Only one wire must be removed from the first upgrade to make room. I had no problems with the installation, following the step-by-step instructions to the letter. With the proper tools as described in the instructions, this upgrade should take about an hour to complete.

The "select line" that enables this additional 64K of RAM is used in the **XEGS** to control **Missile Command**. An optional switch may be wired into the project to allow use of the game. In this mode your **XEGS** has only 128K of RAM available. But if you are playing **Missile Command** the extra RAM is idle anyway. I installed the switch with no complications.

The upgrade is accompanied by a very nice RAMdisk and memory test utility disk. A brief overview of the files accompanies the instructions. RAMdisk handlers for a disk designation of D2: through D7: are included,

as well as Atari's D8: handler for DOS 2.5.

Documentation files, suitably formatted for copying to the printer, are included to help you get the most out of your 192K of RAM with SpartaDOS, MYDOS, and AtariWriter Plus. A sector copy utility called MyCopyR!, version 2.1, rounds out the utility package. This program can duplicate single, enhanced, or double-density disks in a single pass on a 192K equipped XEGS.

RAM-AID

One minor problem occurs when all that RAM is added to an XEGS. When you turn the computer off and then on again quickly, the XEGS may fail to reboot. The extra RAM tends to retain its memory, preventing the XEGS from cold starting as expected.

To get around this problem, SpartaDOS users may simply issue the COLD command. Unfortunately, this doesn't work if the computer locks up or if you are using certain applications software. When you must wait 10 to 20 seconds between turning the computer off and on again to get a reliable reboot on the XEGS, these RAM upgrades can get a bit frustrating.

Innovative Concepts has come to the rescue with their **RAM-Aid** (\$19.95). This device has been available for the 800XL and 130XE computers for a while. The instructions have been expanded to cover installation in the XEGS. The drawings for the XE-GM2 upgrade also demonstrate Ram-Aid connections.

This project will add only a few minutes to your RAM upgrade time. There are a few wires, a very small circuit, and a red pushbutton to hook up. A 1/4 inch hole must be drilled in the side of the XEGS, above the joystick ports, for the RAM-Aid reset button. I had no problems getting it installed,

following the concise 12-step instructions.

Operation is quite simple. While pressing the RAM-Aid button, you press and release the [RESET] console key. Then release the RAM-Aid button to get a picture-perfect cold start, every time.

I did find that, when in the "128K mode", RAM-Aid had a minor problem. Mark Elliott of Innovative Concepts explained that there was a conflict with the operating system software that handles the [RESET] key, Missile Command, and the self test software. I did find that power cycling right after the unsuccessful restart with Ram-Aid would generally result in a proper cold start. Normally the XE-GM2 switch will be in the 192K mode, where the Ram-Aid functions properly.

Ram-Aid and the SpartaDOS X cartridge do not cooperate well. When the Ram-Aid reset is initiated, it seems that the SpartaDOS X cartridge becomes completely disabled, and the disk-based DOS will boot.

SpartaDOS X is a very sophisticated "smart" bank-switching cartridge, but seems to become disabled by certain software when [RESET] is pressed. I have had this problem with quite a few programs that do not exit gracefully to DOS. This seems to be associated with SpartaDOS X and not Ram-Aid. If you are a SpartaDOS X user, you may find using the [RESET] key and the SpartaDOS X "COLD" command to be more reliable.

The XE-GM1, XE-GM2, and RAM-Aid upgrades have given my XE Game System more power than an Atari 130XE. The instructions are well-written, and the memory test and RAMdisk utilities put that new memory to work right away. But remember, you are on your own when "hacking hardware". Open the XEGS

and start soldering, and your six-month Atari warranty is null and void. But if you are up to the challenge, Innovative Concepts has the products to pump up the power of your Atari XEGS.

P.O.S. NET SYSTEM

Xenia Research
P.O. Box 4675
Federal Way, WA 98003
CompuServe ID: 71310,605
\$189, 128K disk

Review by Matthew Ratcliff

P.O.S. Net stands for Point of Sale Network, a computer-based sales system designed to help run a small business by combining elements of a cash register with inventory and accounting. The complete P.O.S. Net package (\$189) includes two software products and a bar code reader for data entry. However, the elements of the package are available in various combinations from manufacturer Scot McGowan's Xenia Research.

In its simplest \$69 form, P.O.S. can be used as a cash register. One of the pins on an Atari joystick port can be used with the software to control a cash drawer that's also available from Xenia Research.

We were not able to fully set up a business to test run the software in depth, but the demonstration program that came with our review copy was quite impressive. The documentation is a little difficult to follow, presented in a set of five small booklets. A single volume with table of contents and index would have been preferable.

The software includes a pre-configured database with fields for a four-digit item number, product description, quantity, and cost per

item. Sales tax may be specified by the user, after which it is calculated automatically for all sales. Some items may be designated as tax-free, such as newspapers or medicine. Tax laws vary from state to state, and the ability to control this automatically from P.O.S. Net is a very useful feature.

If you do not recall an item's product number, P.O.S. Net will search its database for the name you specify. After the sale, quantity is automatically updated.

With the bar code handler/reader you can print your own descriptive labels for your products along with a bar code and product number. Then you just run the bar code reader across the label to enter the sale in an instant. I found that the bar code reader worked quite well, even on bar codes made with a faded printer ribbon.

An Atari CX-85 keypad comes with the package. It serves to enhance the speed of data entry, and also as copy protection for the software. You can back up the program disks, but P.O.S. Net will not run unless the keypad is plugged into the machine.

The customer's name, address, and phone may also be entered as part of the sale. The customer information is not part of the database, however.

A report generator is available from the management menu. Here all out-of-stock or low-stock items may be listed or printed, resulting in a complete order summary. The report generator may also be used to print a catalog of your product line, by item number or alphabetized item names.

The reports may be used to track the sales rate of a particular item or even the sales performance of an employee, since an employee number may be associated with each sale if desired. These reports are protected by a security code access, so the boss

can protect sensitive data.

P.O.S. Net supports up to seven additional terminals which are connected to the host computer through the Micronet adapter from Supra (not included with P.O.S. Net). This box allows multiple Atari computers to share the same set of peripherals automatically (no manual switching required).

XR-100 SOFTWARE

The XR-100 software enables you to develop your own applications with the bar code reader. Extensive BASIC program examples are provided in the manual.

The XR-100 software loads a special handler into the K: device driver of your computer. It constantly monitors the bar code reader in joystick port 1. When the reader is passed over a "modified code 39" bar code, the software deciphers the black stripes into their proper values.

This data is then presented to the computer as if it were typed from the keyboard. This allows you to use the bar code for data entry at any place a program expects keyboard input from the K: device. The codes can be from one to four digits (or characters) long.

However, this device cannot read UPC (universal price code) symbols like those you find on all your groceries. The UPC code format is far more complicated to read than the "modified code 39". The bar code reader has a simple LED for data detection, while grocery store scanners must use lasers for reading.

OTHER USES

What good is the XR-100 software and bar code reader? It can be used to help organize just about any collection. You could write a program to maintain a database of a book or rec-

ord collection, for example. Xenia Research provides a Contest Bar Code program with the XR-100 package. Bar codes may be printed as "tickets" for a contest entry, for your user group's monthly door prize, for example. The contestants have their bar codes read on the way out of the meeting, and the winner will be detected automatically.

The bar code reader that came with P.O.S. Net is made by Radio Shack. The part number is 26-1183. It was made for the Tandy Model 102 laptop computer. Its connector is a DB9 joystick type, compatible with the Atari 8-bit. If you purchase a bar code reader from Xenia, it comes preconfigured for the Atari.

However, you may wish to purchase your own bar code reader from Radio Shack. Some wires must be moved, but the connector is easily disassembled so the black wire can be moved to ground, pin 8. The red wire goes to +5 volts, pin 7. The white wire goes to the trigger input, pin 6.

P.O.S. Net requires a lot of Atari power to run. It seems well-suited to a small business operation. The user interface is very well done, for all components of the software. The documentation is rather brief, and it does seem to concentrate more on the technical aspects than the basics of operation. If this specific application is not for you, then the XR-100 package will provide the tools to create your own custom bar code application.

SYSTEM REQUIREMENTS:

128K or larger XL/XE computer (64K XL/XE computer may be used as terminal 2-8)

Supra Micronet, if more than one terminal is desired

Double density disk drive (XF551 or doubled density 1050)

Epson-compatible printer
Optional 1020 printer

XR-100 & BAR CODE REQUIREMENTS:

48K Atari computer
Atari 810, 1050, or XF551 disk
drive
Epson-compatible printer

PRICES:

P.O.S. Net software \$69
XR-100 software & manuals \$69
P.O.S. Net, bar code handler \$99
P.O.S. Net, bar code handler, XR-100
software & manuals \$125
XR-100 software & manuals, bar-
code reader \$179
P.O.S. Net, barcode handler/reader,
XR-100 software & manuals \$189

THE CONVERTER

No Frills Software
800 East 23rd Street
Kearney, NE 68847
(308) 234-6250
\$21.95, 48K disk
Reviewed by Chester Cox

Atarians have so many choices when it comes to printing utilities—and we're still not satisfied. We want to use Print Shop icons in Print Power or Newsroom. News Station lets us use KoalaPad or Print Shop pictures, but we want to include Print Power or Newsroom pictures also. *Newsroom Converter* in the December 1988 *Antic* lets us put Graphics 8 or Print Shop pictures in Newsroom, but it still doesn't go far enough.

The folks at No Frills Software evidently felt the same. **The Converter** by Chris Wareham connects Newsroom with Print Shop with Print Power with AwardWare. In so doing, it also provides utilities which the

original programs lack.

Primarily, the Converter will read pictures (Let's call them all pictures, and dispense with "icons," "clip-art," or what have you.) from Print Shop, Print Power, or AwardWare, and saves it in either Newsroom photo, AwardWare graphic, or AwardWare seal format.

It will permit you to format a disk in Newsroom format if you have a 1050 or compatible drive. It'll let you view the directory of any of the above-mentioned formats, and let you view the pictures on the disks. It will even let you use more than one drive—an obvious requirement which too many programs omit.

For Print Power users, the Converter opens up a large range of possibilities. The Converter will convert AwardWare graphics or seals (those *little* pictures) quickly, as well as convert Print Shop icons, to Print Power. Even better, the Converter's editing features permit us to finally create our own Print Power pictures, or to edit existing ones. Print Shop owners might find the editing features useful—it's more powerful than Print Shop's own drawing feature.

Fortunately, the Converter is extremely easy to use. I say "fortunately" because the documentation is extremely difficult to read. When they call themselves "No Frills," they aren't joking. The documentation is faded photocopying. No Frills offers extremely low prices (their disks start at \$2) and large royalty percentages to their authors—one tradeoff is inexpensive manuals.

No Frills also offers many, many disks of Print Shop graphics, fonts, and borders. My newsletters, notices, and signs have become locally famous around the Denver area. This is especially remarkable when I reveal that my ability to draw a straight line is nil.

Does the Converter do everything? Not quite. I still want to convert some Newsroom pictures to Print Power or Print Shop, and would like to convert Print Power to Print Shop icons easily. The freedom this would allow me when using News Station (which accepts Koala pictures and Print Shop icons) would be thrilling. No Frills anticipates a "Converter Companion" in February which will enable exactly these options, so it's merely a matter of waiting.

With the Converter, many of my complaints about Newsroom fall by the wayside. You now can produce drawings far superior to any of Springboard's Clip Art disks. And the one failure of Print Power is overcome—we can draw Print Power or AwardWare pictures quickly and simply, or use a Print Shop drawing program then convert.

Any program which did any *one* of the above deeds would be considered a good buy at \$20. This is a bargain—at a "No Frills" price.

PS USER'S UTILITY DISK

No Frills Software
800 East 23rd Street
Kearney, NE 68847
(308) 234-6250
\$31.95, 48K disk
Reviewed by Chester Cox

There are several public domain programs for users of Broderbund's classic Print Shop software. But nothing combines so many simple-to-use utilities like No Frills Software's new **PS Users Utility Disk**.

This disk lets you view all your Print Shop icons, catalog them in alphabetical order and print them 70 to a page. It will let you do the same thing with borders and fonts. You can

transfer icons from disk to disk as quickly as any DOS would a normal file. You might even consider this a quick DOS for Print Shop, since in addition to all the above the Utility Disk will also delete, undelete and rename icons.

More? You bet! The disk has utilities to print coupons or bookmarks with Print Shop icons, borders, and fonts—or using those good old nine-sector fonts. Using those same icons, borders, etc., we can create hundreds of labels and auto-number them. I just finished over 200 labels for a local doctor's mailing list using this utility. The auto-numbering feature kept me from having to use a separate database.

It also helped that PS Users' Utility Disk let me select the size of label, because these were non-standard labels.

The manual is No Frills' usual photocopied cheapie, but it's complete and conversational. Pay close attention to the Addendum. It lets you know that you can use two of eight drives at once, and that you can save your design even after printing. And the company's reputation for friendliness continues with their offer to instruct any person with a non-standard printer how to use control codes. (SASE required.)

I use Print Shop icons on a regular basis and make labels for friends at least once a month. To me, this util-

ity disk is worth the \$31.95 price for its friendly interface alone. It really is easier to use than Print Shop itself.

The program also converts icons to PS Companion format (which most icon-using programs want), while cataloging, a bonus I never thought I'd find as handy as I now do. It all depends on your use of icons.

If you use Print Shop icons with other programs, you'll want this program. If you use PS borders or fonts, you *need* this program. Each Atari user can make a significant difference by supporting the really useful 8-bit products which come our way. The PS User's Utility Disk is one such product. □

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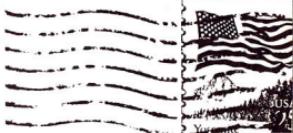
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Mapping the Atari

Exclusive!



Classic 8-bit reference book returns.

By Ian Chadwick

Antic continues the exclusive serialization of key excerpts from the revised second edition of Ian Chadwick's "Mapping the Atari." Virtually impossible to obtain today, this book has been one of the key reference sources for intermediate and advanced Atari 8-bit programmers since 1983. This exclusive **Antic** serialization began in the August 1989 issue.

112,113 70,71 ROWAC 116,117 74,75 ENDPT

ROWAC and COLAC (below) are both working accumulators for the control of row and column point plotting and the increment and decrement functions.

114,115 72,73 COLAC

Controls column point plotting.

End point of the line to be drawn. Contains the larger value of either DELTAR or DELTAC (locations 118 and 119, below) to be used in conjunction with ROWAC/COLAC (locations 112 and 114, above) to control the plotting of line points.

118 76 DELTAR

Delta row; contains the absolute value of NEWROW (location 96; \$60) minus ROWCRS (location 84; \$54).

119,120 77,78 DELTAC

Delta column; contains the absolute value of NEWCOL (location 97; \$61) minus the value in COLCRS (location 85; \$55). These delta register values, along with locations 121 and 122 below, are used to define the slope of the line to be drawn.

121 79 ROWINC

The row increment or decrement value (plus or minus one).

122 7A COLINC

The column increment or decrement value (plus or minus one). ROWINC and COLINC control the direction of the line drawing routine. The values represent the signs derived from the value in NEWROW (location 96; \$60) minus the value in ROWCRS

(location 84; \$54) and the value in NEWCOL (locations 97,98; \$61,\$62) minus the value in COLCRS (locations 85,86; \$55,\$56).

123 7B SWPFLG

Split-screen cursor control. Equal to 255 (\$FF) if the text window RAM and regular RAM are swapped; otherwise, it is equal to zero. In split-screen modes, the graphics cursor data and the text window data are frequently swapped in order to get the values associated with the area being accessed into the OS data base locations 84 to 95 (\$54 to \$5F).

124 7C HOLDCH

A character value is moved here before the control and shift logic are processed for it.

125 7D INSDAT

Temporary storage byte used by the display handler for the character under the cursor and end of line detection.

126,127 7E,7F COUNTR

Starts out containing the larger value of either DELTAR (location 118; \$76) or DELTAC (location 119; \$77). This is the number of iterations required to draw a line. As each point on a line is drawn, this value is decremented. When the byte equals zero, the line is complete (drawn).

USER PAGE ZERO RAM

User and/or BASIC page zero RAM begins here. Locations 128 to 145 (\$80 to \$91) are for BASIC program pointers; 146 to 202 (\$92 to \$CA) are for miscellaneous BASIC RAM; 203 to 209 (\$CB to \$D1) are unused by BASIC, and 210 to 255 (\$D2 to \$FF) are the floating point routine work area.

128,129 80,81 LOMEM

Pointer to BASIC's low memory (at the high end of OS RAM space). The first 256 bytes of the memory pointed to are the token output buffer, which is used by BASIC to convert BASIC statements into numeric representation (tokens; see locations 136, 137; \$88, \$89). This value is loaded from MEMLO (locations 743,744; \$2E7,2E8) on initialization or the execution of a NEW command (not on RESET!). Remember to update this value when changing MEMLO to reserve space for drivers or buffers.

130,131 82,83 VNTP

Beginning address of the variable name table. Variable names are stored in the order input into your program, in ATASCII format. You can have up to 128 variable names. These are stored as tokens representing the variable number in the tokenized BASIC program, numbered from 128 to 255 (\$80 to \$FF).

The table continues to store variable names, even those no longer used

in your program and those used in direct mode entry. It is not cleared by SAVEing your program. LOADing a new program replaces the current VNT with the one it retrieves from the file. You must LIST the program to tape or disk to save your program without these unwanted variables from the table. LIST does not SAVE the variable name or variable value tables with your program. It stores the program in ATASCII, not tokenized form, and requires an ENTER command to retrieve it. You would use a NEW statement to clear the VNT in memory once you have LISTed your program.

Each variable name is stored in the order it was entered, not the ATASCII order. With numeric (scalar) variables, the MSB is set on the last character in a name. With string variables, the last character is a '\$' with the MSB (BIT 7) set. With array variables, the last character is a '(' with the MSB set.

132,133 84,85 VNTD

Pointer to the ending address of the variable name table plus one byte. When fewer than 128 variables are present, it points to a dummy zero byte. When 128 variables are present, this points to the last byte of the last variable name, plus one.

134,135 86,87 VVTP

Address for the variable value table. Eight bytes are allocated for each variable in the name table as follows:

Byte Variable	1	2	3 4	5 6	7 8
Scalar	00	var#		— six byte BCD constant —	
Array:DIMed	65	var#	offset	first	second
unDIMed	64		from	DIM + 1	DIM + 1
			STARP		
String:DIMed	129	var#	offset	length	DIM
unDIMed	128		from		
			STARP		

In scalar (undimensioned numeric) variables, bytes three to eight are the FP number; byte three is the exponent; byte four contains the least significant two decimal digits, and byte eight contains the most significant two decimal digits.

In array variables, bytes five and six contain the size plus one of the first dimension of the array (DIM + 1; LSB/MSB), and bytes seven and eight contain the size plus one of the second dimension (the second DIM + 1; LSB/MSB).

In string variables, bytes five and six contain the current length of the variable (LSB/MSB), and bytes seven and eight contain the actual dimension (up to 32767).

136,137 88,89 STM TAB

The address of the statement table (which is the beginning of the user's BASIC program), containing all the tokenized lines of code plus the immediate mode lines entered by the user. Line numbers are stored as two-byte integers, and immediate mode lines are given the default value of line 32768 (\$8000). The first two bytes of a tokenized line are the line number, and the next is a dummy byte reserved for the byte count (or offset) from the start of this line to the start of the next line.

Following that is another count byte for the start of this line to the start of the next statement. These count values are set only when tokenization for the line and statement are complete.

Tokenization takes place in a 256 byte (\$100) buffer that resides at the end of the reserved OS RAM (pointed to by locations 128,129; \$80,\$81).

138,139 8A,8B STM CUR

Current BASIC statement pointer, used to access the tokens being currently processed within a line of the statement table. When BASIC is awaiting input, this pointer is set to the be-

ginning of the immediate mode (line 32768).

140,141 8C,8D STARP

The address for the string and array table and a pointer to the end of your BASIC program. Arrays are stored as six-byte binary coded decimal numbers (BCD) while string characters use one byte each. The address of the strings in the table are the same as those returned by the BASIC ADR function. Always use this function under program control, since the addresses in the table change according to your program size.

142,143 8E,8F RUNSTK

Address of the runtime stack which holds the GOSUB entries (four bytes each) and the FOR-NEXT entries (16 bytes each). The POP command in BASIC affects this stack, pulling entries off it one at a time for each POP executed. The stack expands and contracts as necessary while the program is running.

Each GOSUB entry consists of four bytes in this order: a zero to indicate a GOSUB, a two-byte integer line number on which the call occurred, and an offset into that line so the RETURN can come back and execute the next statement.

Each FOR-NEXT entry contains 16 bytes in this order: first, the limit the counter variable can reach; second, the step or counter increment. These two are allocated six bytes each in BCD format (12 bytes total). The 13th byte is the counter variable number with the MSB set; the 14th and 15th are the line number and the 16th is the line offset to the FOR statement.

144,145 90,91 MEMTOP

Pointer to the top of BASIC memory, the end of the space the program takes up. There may still be space between this address and the display list, the size of which may be retrieved by

the FRE(0) command (which actually subtracts the MEMTOP value that is at locations 741 and 742; \$2E5, \$2E6). Not to be confused with locations 741 and 742, which have the same name but are an OS variable. MEMTOP is also called TOPSTK; it points to the top of the stack space pointed to by RUNSTK above.

186,187 BA,BB STOPLN

The line where a program was stopped either due to an error or the use of the BREAK key, or a STOP or a TRAP statement occurred. You can use PEEK (186) + PEEK (187) * 256 in a GOTO or GOSUB statement.

195 C3 ERRSAVE

The number of the error code that caused the stop or the TRAP. You can use this location in a program in a line such as:

10 IF PEEK (195) < > 144 THEN 100

201 C9 PTABW

This location specifies the number of columns between TAB stops. The first tab will be at PEEK (201). The default is ten. This is the value between items separated in a PRINT statement by commas—such as PRINT A\$,LOOPC(12)—not by the TAB key spacing.

The minimum number of spaces between TABS is three. If you POKE 201,2, it will be treated as four spaces, and POKE 201,1 is treated as three spaces. POKE 201,0 will cause the system to hang when it encounters a PRINT statement with commas. To change the TAB key settings, see TABMAP (locations 675 to 689; \$2A3—\$2B1). PTABW is not reset to the default value by pressing RESET or changing GRAPHICS modes (unlike TABMAP). PTABW works in all GRAPHICS modes, not merely in text modes. The size of the spaces between items depends on the pixel size in the GRAPHICS mode in use. For ex-

ample, in GR.0, each space is one character wide, while in GR.8 each space is one-half color clock (one dot) wide.

203-207 CB-CF ****

Unused by either BASIC or Assembler.

208-209 D0-D1 ****

Unused by BASIC.

210-211 D2-D3 ****

Reserved for BASIC use.

Locations 212 to 255 (\$D4 to \$FF) are reserved for the floating point package use. The FP routines are in ROM, from locations 55296 to 57393 (\$D800 to \$E031). These page zero locations may be used if the FP package is not called by the user's program. However, do not use any of

these locations for an interrupt routine, since such routines might occur during an FP routine called by BASIC, causing the system to crash.

212-217 D4-D9 FR0

Floating point register zero; holds a six byte internal form of the FP number. The value at locations 212 and 213 are used to return a two byte hexadecimal value in the range of zero to 65536 (\$FFFF) to the BASIC program (low byte in 212, high byte in 213). The floating point package, if used, requires all locations from 212 to 255. All six bytes of FR0 can be used by a machine language routine, provided FR0 isn't used and no FP functions are used by that routine. To use 16 bit values in FP, you would place the two bytes of the number into the least two bytes of FR0 (212,213; \$D4,\$D5), and then do a JSR to \$D9AA (55722), which will convert the integer to its

FP representation, leaving the result in FR0. To reverse this operation, do a JSR to \$D9D2 (55762).

218-223 DA-DF FRE

FP extra register (?)

224-229 E0-E5 FR1

Floating point register one; holds a six-byte internal form of the FP number as does FR0. The FP package frequently transfers data between these two registers and uses both for two-number arithmetic operations.

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MAPPING THE ATARI

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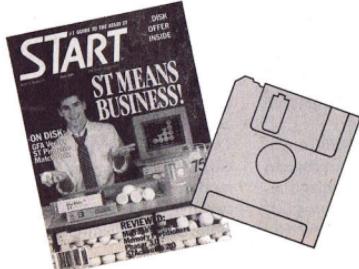
Ian Chadwick is a Toronto-based freelance writer. ▲

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Budgetizer

Be prepared for those annual savings chompers

By Lee Brilliant, M.D.

Plan your monthly spending with the Budgetizer, so those annual big bills don't catch you unprepared. This BASIC program works on 8-bit Atari computers with at least 48K memory and disk drive.

Surprise! You won the lottery!

Nice surprise, huh? Too bad most surprises sound more like this:

"Uh-Oh. Property tax bill due next month. Where are we going to get the money?"

Surprise! Well, that's what it used to be like around my house every month. I was always getting big surprise bills that I knew were coming, but just didn't think about ahead of time. Especially upsetting were those annual or twice-yearly biggies like property taxes or insurance premiums.

So when I learned about the Budgetizer method, I wrote a program to

use it and since then have had no big surprises besides automobile repairs.

Budgetizer is not just a different budget program, but a different way of budgeting. A typical budget program sets goals for various areas and simply tells you how much above or below you are in any month. Budgetizer lets you set up a chart of all your bills for the year and then calculates how much you'll need to put aside for the future to meet those expenses.

Most people avoid the shock of making large payments by making monthly payments instead of periodic ones on such expenses as heating, mortgage and insurance. However, if

you have an escrow account as part of your mortgage (to pay insurance and taxes) you should figure what you lose each year.

If your property taxes are \$1,000 each year and home insurance is \$500, then the interest which the escrow company earns on this money is over \$100—which you will probably not get back. Budgetizer essentially turns your irregular expenses into monthly payments to your own account, eliminating unpleasant surprise and saving you money.

GETTING STARTED

Type in Listing 1, BUDGET.BAS, check it with TYPO II, and SAVE a copy to disk. When you first RUN Budgetizer, it will ask whether your system is using one drive or two. If you tell the program you are using two drives, you need to have your data disk in drive two.

Antic disk users will find a sample data file, BUDGET.DAT, on the disk. Budgetizer will look for this file, and if you choose EDIT from the main menu you will see the expense categories already on disk.

BUDGETIZING SYSTEM

Budgetizer allows you to list all your expenses for a whole year, then assigns them to one of two groups. If the amount of an expense is the same for every month the program considers it a fixed expense. If the amount differs from one month to the next it is considered periodic.

Fixed expenses are stored as positive numbers and periodic ones as negatives. When you print the budget, the fixed and periodic expenses are totaled separately for each month and also as grand totals.

The periodic expenses divided by twelve gives you the monthly cost of all the irregular bills. Each month, the program adds the fixed costs and the average periodic cost, then subtracts the monthly periodic expense.

You wind up with twelve numbers labeled RESERVE. MIN. MONTHLY INCOME is the minimum amount of income which you need to deposit into your checking account each month to cover all the expenses. RESERVE represents the amount of money that must be left in your checking account at the end of each month to meet upcoming bills.

There are four levels to the pro-

gram. The main menu allows you to select Print, Edit, Save, and Quit. Print Save and Quit are pretty self-explanatory, but Edit is more complex.

USING BUDGETIZER

When you choose Edit, the program will work with the data file, BUDGET.DAT. If you are using two drives, the program looks on drive 2 for this file. Otherwise it looks on drive 1. If a BUDGET.DAT file is found, the program loads the information automatically.

Once you choose Edit, the next level is CATEGORIES. You can have up to six categories of expense, such as Loans, Utilities or Credit Cards.

Choose a category, then go to FIELDS. You can have up to ten fields per category. Under Loans, for example, you might have House and Car. Finally, there are twelve RECORDS (monthly payment amounts) per field.

Use the [CONTROL][ARROW] keys to highlight your choice, then press [SELECT] to go to the next level. The [ESC] key takes you back to the previous level. The arrow keys also allow you to move around within the window and [RETURN] causes the pro-

gram to read the data as it appears in the window.

To eliminate a category or field, simply make its name all blanks and press [RETURN]. If you change a name, only the name changes, the data stays intact.

New fields and categories are added to the end of the list. Only uppercase letters and numbers are acceptable as categories and fields. Records must be entered as numbers only.

You can change the number of fields, record size, or the length of names if you want. But the numbers I used were selected because of formatting considerations with the printer. All the printer codes are in one line at the end of the program and may need to be adjusted to fit your printer.

EQUIVALENCING HELPS

Much of the credit for this program goes to Doug White and his article, *Equivalence*, in the February, 1989 issue of *ANTIC*. His article inspired me with a better way to manipulate data fields.

Although Doug White did not specifically mention this technique, I first dimension my data array (ARRAY 11,39) then a string (ARRAY\$) to the length of one byte. Later I change the pointers of ARRAY\$ to match the location and size of ARRAY. Now I can clear sections of the array by blanking strings instead of slower FOR-NEXT loops. I can also move data around the array with fast string manipulations. My hat's off to Doug for a fascinating and useful concept.

I have used BUDGETIZER for two years now and during this time I have had no unpleasant major surprises. Now if I could only win the lottery. . .

BUDGET PRINTED JUNE 19, 1989												
HOME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
RENT	240	240	240	240	240	240	240	240	240	240	240	240
AGE	18	18	18	18	18	18	18	18	18	18	18	18
PERIOD	10	12	15	10	14	12	10	19	12	15	12	20
PERSONAL												
FOOD	140	140	160	160	160	160	160	140	140	140	160	200
CLOTHES	20	20	20	20	20	20	20	20	20	20	20	20
COMICS	80	80	80	80	80	80	80	80	80	80	80	80
BILLS	20	20	20	20	20	20	20	20	20	20	20	20
MEC	40	40	40	40	40	40	40	40	40	40	40	40
TRANSPORTATION												
AC PASS	54	54	54	54	54	54	54	54	54	54	54	54
MEC	10	10	10	10	10	10	10	10	10	10	10	10
RESERVE												
TOTAL	757	754	757	752	754	752	752	754	754	754	754	892
RESERVE	25	40	60	94	115	130	167	189	212	1	24	0
MIN. MONTHLY INCOME	=777.25											
BALANCE												
BILLS DUE												
BILLS OUT												
RESERVE												
AVAIL. BALANCE												

Lee Brilliant is a physician in Southern California and a longtime Atari 8-bit programmer-writer. His work has often appeared in Antic.

Listing on page 38

NEW ATARI HAND-HELD COLOR GAME SYSTEM



Portable arcade quality at \$149.95

By Andrew Reese, START Editor

A Atari's new \$149.95 handheld color game machine was unveiled at the Consumer Electronics show in June. The one-pound unit, powered by six AA batteries, is titled the Atari Portable Color Entertainment System. I tested several of the units and found the games easy to use and quite playable.

The Portable Color Entertainment System competes with Nintendo's recently announced GameBoy which is to retail at only \$89.95, but does not have color. The PCES has a 3.5-inch (diagonal) LCD color screen with 160 X 102 resolution and a 4,096-color palette. It uses a 65C02 microprocessor running at a blazing 16 mHz clock speed. The 64K Portable Color Entertainment System can access credit-

card-sized "game cards" with as much as 16 megabits of ROM, allowing the system to run highly complex games. Four sound channels are included and there is a built-in headphone jack for private listening.

A unique feature of the Portable Color Entertainment System is its ability to network with as many as seven additional units for multi-player games. A communications cable



California Games

comes with each unit. The package also includes an AC adaptor, a carrying pouch and Epyx's California Games card.

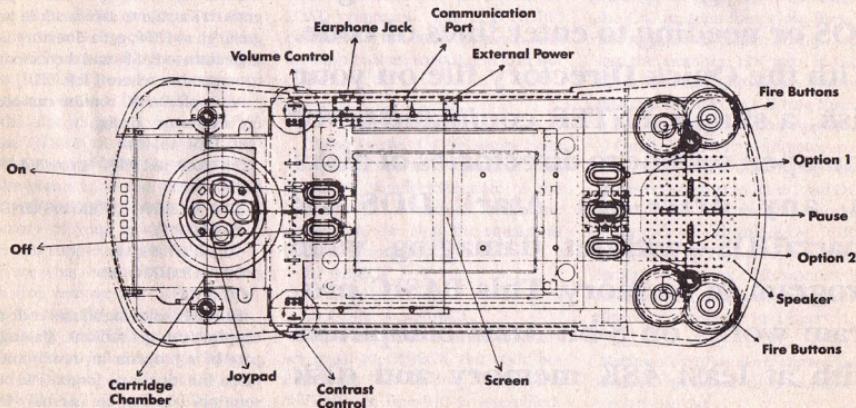
The Portable Color Entertainment System was developed in conjunction with Epyx. It is controlled by an 8-way joypad, plus two fire buttons and five function buttons. The screen image can be turned upside down to make the controls more comfortable to left-handed players.

According to Atari president Sam Tramiel, the unit has already passed FCC testing and goes on sale in early Autumn. Five additional games are also to be available—Blitz Lightning, Time Quests, Treasure Chests, Gates of Zendon, Impossible Mission and Monster Demolition. Each game will retail for \$34.99.

A

ATARI PORTABLE COLOR ENTERTAINMENT SYSTEM

TOP VIEW



By Matthew Ratcliff

Easiest access to
your disk contents

Quick Directory

Access the directories of your disks while using BASIC, without exiting to DOS or needing to enter lines of code. With the Quick Directory file on your disk, a simple ENTER command gives you open sesame to directories of disks in any drive—in Atari DOS or SpartaDOS—without damaging your program in memory. This BASIC program works on 8-bit Atari computers with at least 48K memory and disk drive.



Time and time again I lose track of important filenames while in the middle of writing a BASIC program. It's a pain to save work in progress, go to DOS, get a directory listing, return to BASIC and then attempt to remember where I left off.

A simple BASIC routine can present a directory listing:

```
10 DIM A$(40)
20 TRAP 30:OPEN #1,6,0,"DL:.*"
GOTO 40
30 ? "ERROR ",PEEK(195):END
40 TRAP 70
50 INPUT #1,A$
60 ? A$:GOTO 50
70 END
```

However, entering all this code every time can get tedious. Making it part of a program in development helps, but it's easy to forget. The best solution is to run an assembly language utility from BASIC. But, this im-

plies a USR routine because Atari BASIC will not allow us to make calls to DOS directly.

Quick Directory makes accessing a current directory listing quite simple. It will have no adverse effects on the BASIC program currently in memory.

GETTING STARTED

Type in Listing 1, QDIRMAK.BAS, check it with TYPO II, and SAVE a copy to disk before you RUN it.

Listing 2 contains the MAC/65 source code for assembly programmers and requires the MAC/65 cartridge. You do not need to type Listing 2 to use Quick Directory.

QDIRMAK.BAS is a BASIC Quick Directory maker. RUN it and the program prompts you to get a disk ready in drive 1. Some special text and data will be written to your disk in a file named D:QDIR.

The D:QDIR file contains two lines of BASIC code with an embedded assembly USR routine, without line numbers. Try the command:

ENTER "D:QDIR"

Or try the Atari BASIC abbreviated version:

E."D:QDIR

Almost immediately, the program will request you to specify the directory you want to see. Enter D8:#.BAS to see all the BASIC programs on the disk in drive 8, for example. Unlike Atari DOS command A, you can't just press [RETURN] to see a directory of the disk in drive 1. To see all the files on the disk in drive 1, type D:#.#.

Use QDIRMAK.BAS to write the Quick Directory QDIR file to any disk you're planning to use with BASIC, and you'll always be able to see a directory of your files from BASIC with this simple command.

To see what these two lines of code look like, remove the "REM" from lines 90 and 150 in QDIRMAK.BAS (Listing 1), and RUN the program again. (You may also wish to change the filename in line 70 to "D:QDIR.LST"). Type the NEW command, ENTER the new file, and LIST

the program. All the odd control characters in the string assignment for A\$ make up an assembly language USR routine. With these two lines of code in a program, a directory listing is as simple as "A=USR(ADR(A\$))".

SpartaDOS users might notice that Quick Directory file listings are in the

placing in a BASIC USR routine.

While developing Quick Directory, it was much easier to test the program from DOS. To make a version that is loaded and executed from DOS, simply change line 60 to:

60 CODE = COM

When CODE is set to COM,

Quick Directory eliminates time-consuming commutes between Atari BASIC and DOS.

long format. This makes it easy to keep track of file size and date stamps, as well as names.

Now, whenever you forget an important filename, simply type E."D:QDIR" to see a directory listing, in immediate mode. Note that you can get subsequent directory lists by entering A=USR(ADR(A\$)) while still in immediate mode. However, this could be dangerous if you make a typographical error, or inadvertently zap the variable A\$ with a NEW or LOAD command. The E."D:QDIR" command is the safest approach, and far simpler than trekking in and out of DOS.

PROGRAM NOTES

Listing 2 is the MAC/65 source code for Quick Directory. Assembly programmers should take note of the "conditional assembly" technique employed here. Note the equates in lines 40 through 60:

- 40 OBJECT = 1
- 50 COM = 2
- 60 CODE = OBJECT

When the variable name CODE is set equal to OBJECT, the code between the ".IF" in line 790 and the ".ENDIF" in line 910 is assembled. This creates an object file suitable for

MAC/65 ignores all the code enclosed in the first ".IF", ".ENDIF" sequence noted above. The code between lines 1630 and 1660 is assembled, however. These lines generate the proper header to execute Quick Directory from DOS. This technique is a valuable debugging tool, especially when developing USR routines that require conversion to some BASIC-compatible format before testing.

The rest of the MAC/65 program is made up of straightforward calls to the CIO to open files, close files, input strings, and display strings. Stuffing the number 128 into ICAUX2 (lines 1310 and 1320) starts the SpartaDOS long directory listing format. It has no side effects on Atari DOS.

Quick Directory eliminates many frustrating, time-consuming commutes between Atari BASIC and DOS. Since it runs in immediate mode, it consumes no valuable RAM. It does not gobble up Page 6 or 4, common hangouts of many USR routines. Enter QDIR the next time you require directory assistance in a hurry. ▲

Matthew Ratcliff regularly answers users' technical questions on CompuServe's ANTIC ONLINE.

Listing on page 41

Capture The Flag!

Two-player madness at machine language speed

By Brad Timmins

Armed with disintegration pistols, you and your opponent race through giant mazes in a mad dash to Capture the Flag! This month's *Antic* Super Disk Bonus is programmed entirely in speedy machine language. It's a challenging two-player game that requires two joysticks and at least 48K memory.

It's the year 2044. Ultra-violent TV game shows are at the height of their popularity. The most popular game on the airwaves is Capture the Flag! which is played in a giant maze.

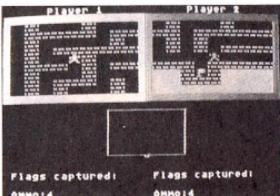
The two home bases are placed in the upper left and right corners of the maze. A flag is placed at the very bottom of the maze. Two contestants enter with their disintegration pistols. The player who captures the flag and successfully returns it to home base wins the round. The first player to capture five flags wins the game and saves his life!

Capture the Flag! author Brad Timmins lives in Sandy, Utah. His program *Macro RESET* appeared in the January, 1989 *Antic*.

USING THE PROGRAM

You'll find Capture the Flag! on this month's *Antic* Disk as CAPTURE.OBJ. Copy this file to another disk formatted with DOS 2.0 or DOS 2.5. Don't try to run it directly from the monthly *Antic* Disk.

Be sure your new disk contains the DOS.SYS file. Use DOS com-



mand E to rename CAPTURE.OBJ to AUTORUN.SYS. Turn off your computer and remove all cartridges. Place the disk in drive 1. If you're using an XL or XE computer, hold down the [OPTION] key while you turn on your computer. Capture the Flag! will load and run automatically.

HOW TO PLAY

Capture the Flag! requires two joysticks, plugged into ports 1 and 2. At the beginning of each round, both players are placed on their home bases. To move your player, press the joystick in the desired direction.

Each player is outfitted with a disintegration pistol that has a maximum of four shots. To fire, move the joystick in the direction you want to fire and press the button. Pistols can be used to blast through walls, or to blast the other player. A player who is hit goes immediately back to home base. If the player was carrying a flag, it will be dropped where the player was hit.

Each maze that's generated is far too large to be displayed on a single screen. Instead, each player has a scrolling window. A master map is displayed at the bottom of the screen, showing players' relative positions—but not the actual walls of the maze.

To pick up the flag, simply move on top of it. The flag is quite heavy and will slow down the movement of the player carrying it. Also, when the flag is carried by one player, the other player gets unlimited ammunition—but only while the first player holds the flag. As soon as the flag is dropped, the amount of ammunition returns to its previous level.

If you manage to make it back to base safely with one flag, a new maze appears, and off you go again. The first person to collect five flags is the Grand Champion.

RAPID DISK

Your October 1989 *Antic* Disk—featuring the Capture the Flag! Super Disk Bonus as well as every type-in program from this issue—will be shipped to you within 24 hours after receiving your order. Just phone Toll-Free to the *Antic* Disk Desk at (800) 234-7001. The monthly disk is only \$5.95 (plus \$2 for shipping and handling) on your Visa or MasterCard. Or mail a \$5.95 check (plus \$2 shipping and handling) to *Antic* Disk Desk, 544 Second Street, San Francisco, CA 94107.

Super Bottleneck Breaker

Contest winner improves powerful BASIC speed-up tool

By Eric Woodruff

The April 1989 issue of Antic ran a program called Bottleneck Breaker by Stan Lackey. This BASIC profiler measured how much time a running BASIC program spent executing any particular line or group of lines. Once identified, the most heavily used lines could then be streamlined to speed up the program's performance.

Antic challenged readers to relocate the profiler's counters to the 130XE's alternate memory bank, allowing the profiler to work with larger programs. The winning entry, Super Bottleneck Breaker, not only uses the extra memory of an XE, but features additional modifications that make the original more user friendly. This BASIC program works on 8-bit Atari computers with at least 48K memory and disk drive.

I have made the modifications to Bottleneck Breaker so that the counters are now located in the 130XE's extra memory.

In addition, I modified the profiler to make use of all the 130XE's extended memory and now there is a counter for each line of a BASIC program from 0 through 31767 inclusive. I have also made changes that allow the profiler's interrupt routine to be placed anywhere in memory with a few changes to the loader.

By default, Super Bottleneck Breaker is loaded into Page 6 starting at memory location 1536. By modifying the value of the variable START in line 100, the profiler can be placed at a different memory location. If you prefer to reserve memory for it, you can place a REM on line 100 and remove the REM from line 80.

I moved the profiler on/off flag to memory location 1278 (\$04FE hex). This allows for the program's mobility. One other thing, Super Bottleneck Breaker will now detect if the program is running or not, using the on/off flag set to on if the program is running (POKE 1278, non-zero value). If the BASIC program is not running, the profiler will turn the flag off for you and stop profiling.

Super Bottleneck Breaker's analysis routine has also been modified to take advantage of the extended mem-

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ory. You can now produce a report to the screen or printer for a specified number of bottlenecks (1-255).

CAUTIONS

The same cautions given in the original article still apply. The program you are profiling cannot use lines 1-3 or 31765-31766, or you won't be able to add the program lines which control the profiler. If the profiler tries to sample your program while the BASIC interpreter is moving from one line to the next, a garbage line number will appear in the final report. This happens rarely enough that it does not affect the results in any significant way.

One exception to the original cautions is that the only memory locations the Profiler now uses are 208 and 209 (\$D0, \$D1 hex). Still, if your program uses these locations, the profiler may produce wrong answers or crash.

GETTING STARTED

Type in Listing 1, PROFILE1.BAS, check it with TYPO II and SAVE a copy to disk.

Next, type NEW, then type in Listing 2, PROFILE2.LST, check it with TYPO II and LIST a copy to disk. If you have trouble typing the special characters in line 2, don't type them in. Instead, type in Listing 4 and check it with TYPO II. When you RUN Listing 4, it creates this hard-to-type line and stores it in a file called LINES.LST. (Make sure you don't already have a file by that name on your disk *before* you RUN Listing 4.)

To merge the two programs, type NEW, then ENTER "D:PROFILE2.LST" and then ENTER "D:LINES.LST". Be sure to LIST the completed program to disk.

Now, type NEW, then type in Listing 3, PROFILE3.BAS, check it with TYPO II and SAVE a copy to disk.

In addition to the programs needed to run the profiler, Antic Disk owners will find three MAC65 files on disk containing source code for the profiler (PROFILE.M65) and for the

assembler routines that the profiler uses (MEMCLR.M65, CNTANL.M65). These files are included for the reference of MAC/65 programmers and are not needed to run the profiler.

USING THE PROFILER

The procedure for running the Profiler is still the same as the original:

1. RUN "D:PROFILE1.BAS" to load the Profiler into memory.

2. LOAD the program to be profiled.

3. Check that the program does not contain lines numbered 1, 2, 3, 31765, or 31766.

4. ENTER "D:PROFILE2.LST"

5. RUN your program.

6. RUN "D:PROFILE3.BAS"

When you run PROFILE3.BAS, the screen will blank and there is a slight delay while the analysis routine is loaded into memory. You are then asked how many bottlenecks you want to see. Enter a number from 1 to 255. The program then asks if you are sure. If the wrong number was entered, just type an [N] and press [RETURN]. A new value can then be entered.

Next, the program informs you that the screen will blank during analysis and gives an estimated time (minutes:seconds) for the analysis. The time will vary from a few seconds for a small number of bottlenecks, up to about 8 minutes 6 seconds for 255 bottlenecks. To begin the analysis, just press [START].

When the analysis is complete, the screen will reappear and the total counts will be accumulated. A prompt will then appear asking if the report will be sent to the screen or printer. Just enter an [S] or a [P] depending on your preference. A report is then prepared showing the line number, number of counts, percentage of total counts taken up by the line, and a cumulative percentage. ▲

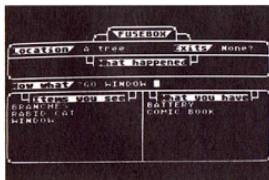
Eric Woodruff lives in Medical Lake, Washington. This is his first Antic appearance.

Listing on page 40

Adventure Contest Winners

Fusebox, Beachcomber and Discovery Incident

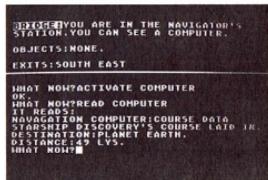
Article by Carolyn Cushman, Antic Assistant Editor



Fusebox



Beachcomber



Discovery Incident

When Antic published David Wooley's *Adventure Works* article in the April, 1989 issue, we challenged readers to come up with their own text adventures, based on Wooley's sample. We received a number of impressive entries and had an enjoyable time picking out the most entertaining of the bunch.

Although most of the entries had fantasy adventures, two of the adventures that showed the most dramatic—and most imaginative—improvements had very prosaic scenarios. The object of Ray Irish's *Fusebox* is to change a fuse. *Beachcomber* by J.G. Ulman takes you to the beach and boardwalk for a tricky seaside treasure hunt.

But for a science fiction adventure, David Wooley himself returns with *The Discovery Incident*, a

mystery-adventure that puts you on an abandoned spaceship with an unknown alien threat.

You'll find all three text adventures on this month's Antic Disk. Separate HELP files with lists of verbs, etc. are provided for *Fusebox* and *Discovery Incident*. *Beachcomber* includes such information as part of its title-screen sequence.

Since these are BASIC programs, you can RUN them directly from the Antic Disk. But if you want to SAVE your game to disk you will need to copy the text adventure to another disk containing the DOS.SYS file. Both *Fusebox* and *Discovery Incident* will let you SAVE your game. All three games require a minimum of 48K memory.

As in our original sample adventure, most commands require a VERB/NOUN combination, such as EXAMINE BED or FLUSH TOILET.

In all three games, direction commands require only a single letter. To move north, south, east or west type N, S, E or W. Our testers found this modification particularly handy—typing GO and a direction every time you move gets tedious soon.

And now, here are the storylines for the winning games:

FUSEBOX

Late one night you find yourself alone in your new home using all of your modern electrical home appliances at the same time. Not a wise thing to do, however, because you just blew a fuse. It's up to you to restore electric power to your cozy home. Sounds easy? Think again! You don't even know your way around your new house, much less where anything is. You can't even find your cat, who's been missing since you moved in... ▶

Fusebox author Ray Irish added some fancy screens and special effects that almost make dying worth it. To make things trickier, the listing has been encrypted by the author. You can't just read the program listing to figure out the objects and commands you need.

Fusebox has relatively few rooms to explore, but a lot is packed into those few rooms. It's a good idea to make a map, so you don't miss anything. Most of the things you find do *something*—if the command you use doesn't work, try another.

Ray Irish of Federal Way, Washington is 20 years old. His interests include Japanese comics and animation, British science fiction television, Christian metal music and restoring his 1964 Olds Cutlass convertible. To top it off, he currently works for Toys 'R Us.

BEACHCOMBER

To play Beachcomber, RUN

BEACH.BAS from this month's Antic Disk. Beachcomber opens with a handy information screen full of commands and a short scenario. Then press [RETURN] and the actual adventure (in the file BEACH.GAM) will RUN.

Among other modifications in this adventure, you can drop items and come back to them—but items left unattended may well be stolen. There's also a number of things you can't do unless you do something else first, adding to the challenge of the game. If it seems that the shops on the boardwalks are all closed, keep exploring. At worst you'll just have to retreat to your hotel, sunburnt and thirsty, without your treasures.

What makes Beachcomber particularly interesting is the tricky solutions some of the problems require. You'll find some things you need with ease, while others prove maddeningly elusive. Once you solve the

various puzzles, you should be able to complete the adventure in about 15 minutes—but don't expect to be able to do so the first time out, or even the fourth.

DISCOVERY INCIDENT

David Woolley, author of the original *Escape From Barnaby's Isle*, returns with a science fiction mystery, the Discovery Incident. You're the captain of the starship Discovery, and you just awakened in the ship's infirmary—with a slight case of amnesia. Your crew has disappeared, and there's a strange, alien cannister in the launch bay. It's up to you to figure out what happened and save Earth from an alien threat.

The Discovery Incident is on the Antic Disk as ADVENT.BAS. This text adventure even includes a menu and a special "high tech" character set. If you prefer the standard Atari characters, you can SWAP SETS from the menu. ▲

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Beam Me Up!

Stuck inside the radioactive caverns beneath Mars—
With your transporter going nuts

By Steven Ginzburg

Your one-man shuttle craft streaks through the upper atmosphere of the mysterious planet. As you watch the red surface glide past, you wonder if you'll die of radiation poisoning or return to Earth a hero. Suiting up, you ignore the computer's constant warnings of dangerous radiation levels. Radiation can have strange effects on radio transmissions and transporter beams, not to mention humans, but you'd rather die a hero than survive as a coward.

The transporter painlessly disassembles you, atom by atom, and reassembles you...somewhere. After several minutes your eyes adjust to the dark. Patches of radioactive mold provide an eerie, dim illumination. Oh no, you're not on the planet's surface, but miles below, in a string of caverns.

Your sensor tells you that gravity is weak and air is almost non-existent—but the radiation is very strong. Your suit will protect you, but one touch of the mold would be fatal.

Radiation makes contact with your ship impossible, and your transporter is going crazy. If you don't keep moving, you will be zapped somewhere else. You'll never get back to your ship unless you reach the surface.

GETTING STARTED

Type in Listing 1, BEAM.BAS, check it with TYPO II, and SAVE a copy to



Struggle your way back to the surface of Mars in this game that combines challenging BASIC action and easy-to-create Micro Illustrator screens. This BASIC program works on 8-bit Atari computers with at least 48K memory and disk drive.

disk.

If you have trouble typing the special characters in Lines 30, 310, 336, 810-840, 860-870, 910, 1020-1045, don't type them in. Instead, type in Listing 2. When RUN, this program creates these hard-to-type lines and stores them in file called LINES.LST. To merge the two programs, type

NEW, then LOAD Listing 1, "D:BEAM.BAS" and then ENTER "D:_LINES.LST". Be sure to SAVE the completed program.

Listings 3 and 4 contain Micro Illustrator game screens, in BASIC loader formats. Type them in, checking them with TYPO II. When RUN,

continued on page 32

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continued from page 32

these listings will create files named LEVEL1.PIC and LEVEL2.PIC (make sure you don't already have files by these names on disk).

Antic Disk users will find *nine* complete screen files already on their disk. The program will work with anywhere from one to nine screens, as long as the names have the numbered format above. When the program can't find the next screen in order, it will go to the ending routine.

PLAYING THE GAME

You start in the lower-right corner of the screen, and try to move to the hole on the left, maneuvering the little man with a joystick in port 1. In most places you will be able to move freely, left and right or up and down, following the terrain. Just be careful not to touch any of the glowing stuff!

To avoid the patches of color-shifting mold, you can jump or climb

on ropes and ladders. To jump, press the button on your joystick, and move the stick left, right or up. Because of the light gravity you will jump far and fall slowly. If at any point you get stuck, press [OPTION].

ADDING SCREENS

This game uses screens created with Micro Illustrator software. You can easily make your own screens for the game. (Other picture formats can be converted to Micro Illustrator using the *Rapid Graphics Converter* in the November 1985 issue of *Antic*.)

Anything made in the first color (the default is gold) is the regular ground. If you come to a wall of this color the little man will climb right up it, automatically.

The second color (green) is used for climbable objects, such as ropes or ladders. Don't make a border in this color or your man could climb right off the screen!

The third color (blue) is the deadly material. The program makes this color glow automatically.

Save your picture as you would normally, but use the filename D:LEVELx.PIC. Be sure to replace the x with the level number you want. Level numbers can go from one to nine. The program starts with LEVEL1.PIC, then moves to LEVEL2.PIC, and so on. When the program can't find the next picture, then the game is over, and you escape.

When making your levels, there are a few things to remember. You should put a border on the screens. If you don't, the man might climb or fall out of existence. You need to leave room for the man at the lower right corner of the screen, where he begins each level. Also, be sure to leave a hole in the left border for the man to go through to finish the level.

Keep the little man's size, jump height and distance in mind. You might want to make an almost empty level to test the man's capabilities. Remember too that you only jump as long as you hold down the button.

Short jumps can be useful, and as challenging as the longest jumps.

When playing, you may note that the man's feet sometimes seem to sink below the top of the ground. This effect is caused by the program's move routine. Make your ground at least four pixels deep.

Let your creativity run wild. You can make levels in fun shapes, such as animals or words. The deadly third color can take any shape—spikes, spiders, snakes or anything else you can think of.

For that matter, don't limit yourself to just gold, green and blue. These are only the default colors. Make your levels, including the backgrounds, any color you want. You can even make some things the same color as the background, so they appear invisible. Just remember that the third color will flash no matter what you do.

PROGRAM TAKE-APART

In creating this game, I used many of my favorite programming tricks, including Player/Missile graphics, string manipulation, a machine language screen loader, and many other ideas.

0-5 Initialization

10-70 Title Screen

100-260 Initialize P/M graphics

300-450 The heart of the program: reads joystick, moves the character, determines character location, and flashes the deadly stuff

500-580 Loads the screen600650 Subroutine that moves A\$ to

P/M area

700-749 Death routine

750-880 Set up MAINS—screen load routine

900-990 Subroutine—Beam me up!

1000-end Win routine ▲

Steven Ginzburg is a budding 12-year-old programmer from Aptos, California, and is an honors student at Aptos Junior High. He has been using Atari computers since he was five and currently owns three of them. This is his first appearance in Antic.

Listing on page 34

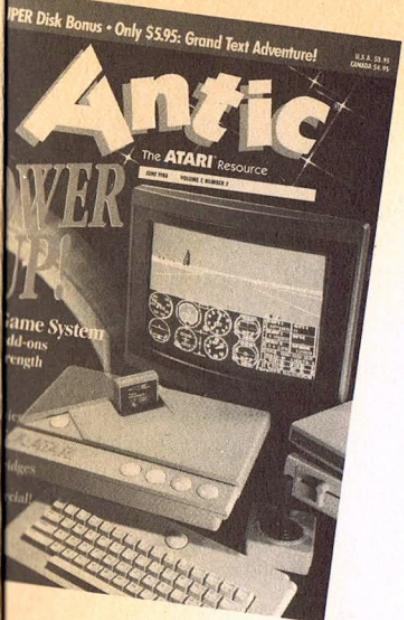
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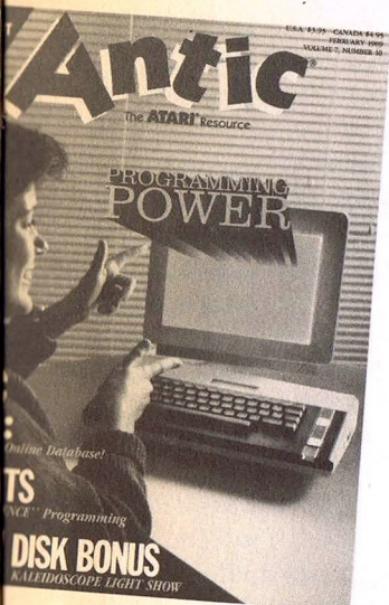
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TYPING SPECIAL ATARI CHARACTERS

The Atari Special Characters and the keys you must type in order to get them are shown below:

For [CONTROL] key combination, *hold down* [CONTROL] while pressing the next key. For inverse [CONTROL] [A] through [CONTROL] [Z], press the [■] key—or [A..] on the 400/800—then *release* it before pressing the next key. (Press [■] or [A..] again to turn off inverse.) For [ESC] key combinations, press [ESC] and then *release* it before pressing the next key.

Carefully study the chart above and pay close attention to differences between lookalike characters such as the slash key's [/] and the [CONTROL] [F] symbol [■].

NORMAL VIDEO			
FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
■ CTRL ,	CTRL S	■ CTRL T	
■ CTRL A	CTRL U	■ CTRL V	
■ CTRL B	CTRL W	■ CTRL X	
■ CTRL C	CTRL Y	■ CTRL Z	
■ CTRL D	ESC ESC	■ ESC CTRL -	
■ CTRL E	ESC CTRL =	■ ESC CTRL +	
■ CTRL F	ESC CTRL *	■ ESC CTRL *	
■ CTRL G	CTRL .	■ CTRL ,	
■ CTRL H	CTRL ;	■ SHIFT =	
■ CTRL I	CTRL =	■ ESC SHIFT	
■ CTRL J	CLEAR	■ ESC DELETE	
■ CTRL K		■ ESC TAB	
■ CTRL L			
■ CTRL M			
■ CTRL N			
■ CTRL O			
■ CTRL P			
■ CTRL Q			
■ CTRL R			

INVERSE VIDEO			
FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
■ ESC	SHIFT	■ DELETE	
■ SHIFT	DELETE	■ ESC	
■ ESC	SHIFT	■ INSERT	
■ SHIFT	INSERT	■ ESC	CTRL TAB
■ ESC	CTRL TAB	■ ESC	SHIFT TAB
■ SHIFT	TAB	■ ESC	CTRL ;
■ ESC	CTRL ;	■ ESC	SHIFT =
■ CTRL ;	■ SHIFT =	■ ESC	CTRL TAB
■ ESC	CTRL TAB	■ ESC	CTRL 2
■ SHIFT	CTRL 2	■ ESC	CTRL DELETE
■ CTRL =	CTRL DELETE	■ ESC	CTRL INSERT
■ CTRL TAB	CTRL INSERT		

TYPO II AUTOMATIC PROOFREADER

TYPO II automatically proofreads Antic's type-in BASIC listings. Type in the listing below and SAVE a copy to disk or cassette. Now type GOTO 32000. At the prompt, type in a single program line **without the two-letter TYPO II code at the beginning**. Then press [RETURN].

Your line will reappear at the bottom of the screen. If the TYPO II code does not match the code in the magazine, then you've mistyped your line.

To call back a previously typed line, type [*], then the line number, then [RETURN]. When the completed line appears, press [RETURN] again. This is how TYPO II proofreads itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000. To remove TYPO II from your program, type LIST "D:FILENAME", then [RETURN], then NEW, then ENTER "D:FILENAME", then [RETURN]. Now you can SAVE or LIST your program to disk or cassette.

 Don't type the
two-letter Codes!

```
WB 32000 REM TYPO II BY ANDY BARTON
UM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINES$(120):CLOSE #2:CLS
SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "K":POSITION 11,1? "HIGHLIGHT"
EM 32050 TRAP 32040:POSITION 2,3:?"Type
in a program line"
HS 32060 POSITION 1,4:?" ":"INPUT #2:LINE
$:IF LINES$="" THEN POSITION 2,4:LIST B
:GOTO 32060
XH 32070 IF LINES$(1,1)="" THEN B=VAL(LIN
E$):IF LINES$(1,1)<>B THEN POSITION 2,4:LIST B
:GOTO 32060
TH 32080 POSITION 2,10:?"CONT"
MF 32090 B=VAL(LINES$):POSITION 1,3:?" "
```

```
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "K":POSITION 11,1? "TYPOII"
?"POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
RJ 32140 POSITION 2,16:INPUT #3:LINE$:IF
LINE$="" THEN ? "LINE "B;" DELETED":G
OTO 32050
UU 32150 FOR D=1 TO LEN(LINES$):C=C+1:ANS=
ANS+C*MASC(LINES$(D),D):NEXT D
WJ 32160 CODE=INT(ANS/676)
JH 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/263)
BH 32190 LCODE=CODE-(HCODE*263)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:?"CHR$(HCODE):CHR$(
LCODE)
VG 32220 POSITION 2,13:?"If CODE does no
t match press [RETURN] and edit line a
bove.":GOTO 32050
```

BEAM ME UP!

Article on page 29

LISTING 1

Don't type the
TYPO III Codes!

LISTING 2

```

FC 10 REM BEAM ME UP, LISTING 2
BJ 20 REM BY GINZBURG
GD 30 REM <C> 1985,1988 ANTIC PUBLISHING
EV 40 REM <LINES 10-250 MAY BE USED WITH
    OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.>
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
EEK<10592>:POKE 10592,255
HO 70 FN$="D:INES.LST":REM THIS IS THE N
AME OF THE DISK FILE TO BE CREATED
RD 80 ?,"Disk or Cassette?":POKE 764,25
PY 90 IF NOT (PEEK<764>=18 OR PEEK<764>=
58) THEN 90
TH 100 IF PEEK<764>=18 THEN FN$="C:)"
UB 110 POKE 764,255:GRAPHICS 0:?"      AN
TIC'S GENERIC BASIC LOADER"
MY 120 ?,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :"Creating ";FN$ :? "...Plea
se Stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):C=1
BQ 160 AR$="":READ AR$ 
YC 170 FOR X=1 TO LEN(A$):STEP 3:POKE 75
    2,255
DM 180 LM=LM-1:POSITION 10,10:?"Countdo
wn...T-";INT(LM/10);">""
BK 190 A$<C,C>=CHR$VAL(A$<X,X+2>):C=C+
1:NEXT X:GOTO 160
MM 200 IF PEEK<195>=5 THEN ? :? :"TOO
MANY DATA LINES!":? "CANNOT CREATE FIL
E!":END
CM 210 IF C<LN+1 THEN ? :? :"TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? "Prepare ca
ssette, Press [RETURN]"
AR 230 OPEN #1,8,0,FN$ 
PU 240 POKE 766,1:#1:A$,:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:?"COMPLETED"
JW 1000 DATA 807
QL 1010 DATA 0510480320650360400570570440
    49048054041061034036060024126024060036
    036034155051049048032065036
ZT 1020 DATA 0408890440890430550410610340
    36060024126024060036036034058082069077
    032080085084032067072065082
JB 1030 DATA 0650670840690820320790780320
    83067082069069078155051051054032090061
    085083082040065068082040034
EP 1040 DATA 1691921332041652032010002400
    10070204070204056233001024144242165204
    037205133204169003056229203
UY 1050 DATA 2010002400090702040702042302
    0302414423810496034041041058082069077
    032077076032082079085084073

```

LISTING 3

```

CA 10 REM LOADER FOR LEVEL1.PIC
QQ 20 REM BY STEVEN GINZBURG
GD 30 REM <C> 1985, 1988 ANTIC PUBLISHING
EV 40 REM <LINES 10-250 MAY BE USED WITH
OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.>
PR 60 DIM FNS$(20),TEMP$(20),ARS$(93):DPL=P
EEK(10592):POKE 10592,255
TT 70 FNS$="D:LEVEL1.PIC":REM THIS IS THE
NAME OF THE DISK FILE TO BE CREATED
RD 80 ? "Disk or Cassette?":POKE 764,25
5
PY 90 IF NOT (PEEK(764)=18 OR PEEK(764)=
58) THEN 90
TH 100 IF PEEK(764)=18 THEN FNS$="C:"
VB 110 POKE 764,255:GRAPHICS 0:?" AN
TIC'S GENERIC BASIC LOADER"
MY 120 ?,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? :"Creating ";FNS$? "...Plea
se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
C:1
BU 160 ARS$="":READ ARS

```


LISTING 4

BE PREPARED FOR THOSE ANNUAL SAVINGS CHOMPERS

BUDGETIZER

Article on page 18

LISTING 1

Don't type the
TYPO II Codes!

```

FJ 1 REM BUDGETIZER.V4 BY L. BRILLIANT M.
D 3/22/89
00 2 REM C) 1989, ANTIC PUBLISHING INC.
HJ 10 DIM ARRAY$(<99,11>),ARRAY$(<1>),DUMMY$(<1>
65,CAT$(<96>),FIELD$(<428>),LINE$(<132>),PRS
20>),TOTAL(<11>),WIDES(<1>),BLANK$(<72>
H5 20 DIM RESERVE(<11>):DUMMY$="D1=BUDGET.D
AT":OPEN #1,4,0,"K:"
XR 30 ? "M <1> DISK DRIVE OR <2>?";
ZH 40 GET #1,K:IF K<49 OR K>50 THEN 40
KM 50 DRIVE$=K:DUMMY$(<2>)=CHR$(<DRIVE>):GOS
UB 10000:GOTO 100
EG 90 POKE 783,4?:"PRESS RETURN TO CHOO
SE. PRESS RETURN ?" AFTER EDITING. N
NC 91 CHANCE <1>?>
NC 92 ?"RETURN. PRESS RETURN TO GO BACK.":
POKE 783,24:RETURN
ZX 95 POSITION COL,ROW:GET #6,X:POSITION
COL,ROW:?:CHR$(<X+128>*X<128>):RETURN :
REM CURSOR ON
NK 96 POSITION COL,ROW:GET #6,X:POSITION
COL,ROW:?:CHR$(<X-128>*X>127>):RETURN :
REM CURSOR OFF
XE 100 ? " PRINT BUDGET? :> 1. PRINT BUDGET? :? 2. EDIT? :? 3.
SAVE? :? 4. QUIT"
DA 110 POKE 755,2:POKE 752,8:?:"CHOOSE
ONE?"
OT 120 GET #1,K:IF K<49 OR K>52 THEN 128
OT 130 ?> 0:ON K-48 GOTO 5888,2888,6888,788
OT 8
UI 999 STOP
YH 2000 REM EDIT CATEGORIES
DL 2010 POKE 755,2:POKE 752,1:?:" * <
* EDIT CATEGORIES * * *>
RA 2011 ? :? " POSITION 4,ROW? :> ?":FOR RO
M=3 TO 8:POSITION 4,ROW:?:"?>:NEXT ROW
TN 2012 POSITION 4,9? :" POSITION 5,ROW? :>
:GOSUB 90
UZ 2020 CAT=INT(LEN(CAT$)/16):SIZE=15:FN=
6:COL=5:ROW=3:ASCII=32:ASCII2=90:IF CA
T=0 THEN 2040
NM 2030 FOR N=0 TO CAT-1:POSITION 5,N+3:?>
CAT$(<N>*16+1,16+15>):NEXT N
GH 2040 POKE 761,255
HJ 2050 POKE 760,255
TY 2051 IF PEEK(<720>)=5 THEN V=1:RETURN
XH 2052 IF PEEK(<764>)=255 THEN 2051
IK 2058 GET #1,K
SI 2060 IF PEEK(<694>)=128 THEN POKE 694,0:
K-K-128
UX 2070 IF PEEK(<702>)>64 THEN POKE 782,64
K-128
FL 2080 IF K=155 THEN V=2:RETURN
QU 2090 IF K=27 THEN V=3:RETURN
M 2095 IF K=126 AND COL$= THEN GOSUB 96:

```

```

RG 2750 ? "M":POKE 703,24:RETURN
UZ 2900 GOSUB 96:IF Z<CAT THEN 3000
DO 2910 IF PEEK(53279)=5 THEN 2910
PY 2920 GOTO 2040
UV 3000 REM EDIT FIELDS
OM 3010 POKE 755,2:POKE 752,1:?"M"
    *EDIT FIELDS *M
NJ 3012 ? "M":NEXT ROW:FOR ROW=3 TO 1
    :POSITION 4,ROW:?"M":POSITION 12,ROW
    :? "M":NEXT ROW
PN 3020 96:CAT$ $\times$ Z*16+16,Z*16+16>;:SIZ
E=7:FN=10:COL=5:ROW=3:ASCII1=32:ASCII12=
90:IF NF=0 THEN 3040
KD 3030 FOR N=0 TO NF-1:POSITION 5,N+3:?
FIELD$ $\times$ Z*70+N*7+1,Z*70+N*7>;:NEXT N
MN 3040 GOSUB 95:GOSUB 2050
CI 3050 CHOICE=ROW-3:ON V GOTO 3900,3350,
    2080,3580
TO 3060 GOSUB 3580:GOTO 3000
DB 3060 GOSUB 96:POKE 703,4:?"M"
    *EDIT FIELDS *M:POKE 703,24
ML 3110 Q=8:FOR N=1 TO 10:POSITION 4,N+2:?
    :"M":POSITION 5,N+2:0=1
BQ 3120 FOR S=5 TO 7:GET #6,X:DUMMY$ $\times$ S=0
    HRS<X>;:NEXT S:POKE 755, NOT <PEEK(755)>*2
R0 3130 IF DUMMY$=FIELDS $\times$ Z*70+Q*7-6,Z*70+
    Q*7>;THEN 3580
LZ 3140 IF N>NF THEN GOSUB 3600:GOTO 3580
XV 3150 IF DUMMY$=" " THEN POKE 755
    ,2:GOSUB 3650:GOTO 3580
S0 3160 FIELDS $\times$ Z*70+Q*7-6,Z*70+Q*7>=DUMMY
    $
PF 3180 POSITION 4,N+2:?"M":NEXT N
BM 3190 RETURN
JT 3190 IF DUMMY$=" " THEN Q=0-1:RE
    SUME=0:FOR N=0 TO 11:IF RESERVE<N>=0
    THEN 3580
XP 3200 FIELDS $\times$ Z*70+Q*7-6,Z*70+Q*7>=DUMMY
    $:NF=NF+1:CAT$ $\times$ Z*16+16,Z*16+16>=CHR$<N
    F>:RETURN
TP 3250 FIELDS $\times$ Z*70+Q*7-6,Z*70+Q*7>=FIELD
    $ $\times$ Z*70+Q*7+1,Z*12+70>;:FIELDS $\times$ Z*70+64,
    Z*70+70>;"
CZ 3360 ARRAYS $\times$ Z*720+Q*72-71,Z*12+720>=A
    RRAYS $\times$ Z*720+Q*72+1,Z*12+720>;:ARRAYS $\times$ Z
    *720+648,Z*720+720>;BLANKS
WZ 3370 NF=NF-1:CAT$ $\times$ Z*16+16,Z*16+16>=CHR
    $<NF>;Q=0-1:RETURN
AI 3380 GOSUB 96:IF CHOICE<NF THEN 4000
ER 3390 IF PEEK(53279)=5 THEN 3910
QK 3390 GOTO 3040
IL 4000 REM EDIT DATA
BY 4010 POKE 755,2:POKE 752,1:?"M"
    *EDIT DATA *M
FL 4011 ? "M":NEXT ROW:FOR ROW=3 TO 14
    :POSITION 4,ROW:?"M":POSITION 11,ROW
    :? "M":NEXT ROW
GG 4012 POSITION 4,15:?"M":GOSUB
    900
UE 4015 DATA JAN,FEB,MAR,APR,May,JUN,JUL,
    AUG,SEP,OCT,NOV,DEC
WU 4040 RESTORE 4015:FOR ROW=3 TO 14:READ
    DUMMY$:POSITION 12,ROW:?"M":NEXT ROW
IQ 4040 AR=Z*10+1:CHOICE<AR=N 0 TO 11:POSI
    TION N,M+N=3:AB5:ARRAY<AR,N>;:NEXT N
PK 4040 SIZE=6:FN=12:COL=5:ROW=3:ASCII=48
    :ASCII12=58
MO 4040 GOSUB 95:GOSUB 2050
YH 4300 GOSUB 96:ON V GOTO 4040,4350,3000
UX 4350 GOSUB 4500:GOTO 4000
DC 4500 GOSUB 96:POKE 703,4:?"M"
    *EDIT FIELDS *M:POKE 703,24
DG 4510 FOR N=1 TO 12:POSITION 4,N+2:?"M"
    :POSITION 5,N+2
BA 4520 FOR S=5 TO 1 TO 6:GET #6,X:DUMMY$ $\times$ S=0
    HRS<X>;:NEXT S:POKE 755, NOT <PEEK(755)>*2
RH 4530 ARRAY<AR,N-12>=VAL<DUMMY$>:POSITION
    N 4,N+2:?"M":NEXT N
SF 4540 FOR N=1 TO 11:IF ARRAY<AR,N>>ARR
    AY<AR,N> THEN 4560
JC 4550 NEXT N:RETURN
US 4560 POP :FOR N=0 TO 11:ARRAY<AR,N>=AR
    RAY<AR,N>;*1:NEXT N:RETURN
UM 5000 REM PRINT
M5 5005 TRAP 11200:OPEN #2,8,0,"P"
BB 5010 ? "M"      ** PRINTING **:?"M":?
BS 5020 ? "ENTER TODAY'S DATE: ":"INPUT DU
    MMY$:POKE 752,1:?"M"
BY 5030 ? #2:PRS?: #2?: #2:WIDES;"BUDGET
    PRINTED";"DUMMY$?: #2
YP 5040 ? #2:"          JAN      FEB
    MAR      APR      MAY      JUN
    JUL      AUG      SEP";"NOV
    DEC"
YJ 5050 FOR N=0 TO CAT-1:?"M":WIDES:CAT$<
    N*16+1,N*16+15>
RF 5070 NF=ASC<CAT$<N*16+16>>;:IF NF=0 THE
    N 5100
BD 5080 FOR S=0 TO NF-1:AR=N*10+5:?"M":?
    "#2:FIELD$<AR#7+1,AR#7+7>;:FOR X=0 TO 11
    :#2:ARRAY<AR,X>;:NEXT X:?"M"
EI 5090 NEXT S:NEXT N
IC 5100 POKE 753,24:?"M":2:LINE$      ** PRINTING **:?
    MMY$:POKE 753,24:?"M":2:LINE$      ** PRINTING **:?
    TA 5110 TOTALP=0:TOTALN=0:R=0:FOR X=0 TO
    11
    :S120 FOR N=0 TO CAT#10
    NL 5130 D=ARRAY<N,X>;:IF D<0 THEN TOTALN=T
    OTALN+D
    SH 5140 D=0:FOR N=0 TO 11:IF RESERVE<N>=0
    THEN 5150
    M150 NEXT N:TOTAL<N>=TOTALN<1:R=R+TOT
    ALN:TOTALN=0:POKE 755, NOT <PEEK(755)>
    M2
    MR 5200 NEXT X:FIXED=INT<TOTALP/12>:PERIO
    D=I/R/12+1
    IZ 5210 ? "#2:FIXED":FOR N=0 TO 11:?"M":?
    INT<FIXED>;:NEXT N:?"M"
    C220 ? "#2:PERIOD":FOR N=0 TO 11:?"M":?
    :TOTAL<N>;:NEXT N:?"M"
    C230 ? "#2:LINE$?: #2:"TOTAL":FOR N=0
    TO 11:?"M":INT<TOTAL<N>+FIXED>;:NEXT N
    :?"M"
    NG 5240 RESERVE=0:FOR N=0 TO 11:RESERVE=R
    ESERVE-TOTAL<N>+PERIODIC:RESERVE<N>=RE
    SERVE:NEXT N
    TR 5250 X=0:FOR N=0 TO 11:IF RESERVE<N>=X
    THEN ?-RESERVE<N>
    IJ 5260 ? "#2:NEXT N"
    HN 5260 IF X<0 THEN FOR N=0 TO 11:RESERVE
    <N>=RESERVE<N>;X:NEXT N
    UU 5270 ? "#2:#2:"RESERVE":FOR N=0 TO 1
    1:#2:#2:INT<RESERVE<N>>;:NEXT N:?"M"
    MM 5280 ? "#2:#2:#2:"MIN MONTHLY INCOME":F
    IXED+PERIODIC,;"BALANCE
    :?"M"
    MX 5290 ? "#2:,""BILLS DUE
    :?"M":?"#2? #2? #2,,,,"BILLS OUT
    :?"M"
    SU 5300 ? #2,,,,"RESERVE
    :?"M"
    UE 5310 ? #2,,,,"AVAIL BALANCE
    :?"M"
    XC 5380 ? #2:CHR$<12>:CLOSE #2:GOTO 100
    H0 6000 REM 5000
    PD 6010 POKE 752,1:?"M"      ** SAVING T
    O DISK **"
    TP 6015 DUMMY$="D1:BUDGET.DAT":DUMMY$<2,2
    >:CHR$<DRIVE>
    GX 6020 TRAP 11300:OPEN #3,8,0,DUMMY$>
    JN 6030 PRINT #3;CAT$?: #3:FIELD$<1,CAT#7
    B2?: #3:ARRAYS<1,CAT#720>
    DA 6040 CLOSE #3
    NM 6050 GOTO 100
    FZ 6060 REM QUIT
    NE 7610 ? "WDTA NOT SAVED. QUIT? <Y/N>""
    DN 7620 GET #1,K:IF K=28 THEN 100
    AT 7630 IF K>89 THEN 7020
    KV 7650 ? "#BUDGETIZER":END
    NJ 10000 UVTUP=PEEK(134)+256*PEEK(135):POK
    E UVTUP+10,PEK(UVTUP+2):POKE UVTUP+11,PE
    K(UVTUP+3)
    EM 10020 POKE UVTUP+14,224:POKE UVTUP+15,16
    M0 10030 ARRAYS<13>="M":ARRAYS<4320>="M":A
    RRAYS<2>=ARRAYS<BLANKS>:ARRAYS<FIELD$>=
    RSV$>
    WH 10035 LINE$<13>="":LINE$<132>="":LINE
    $<2>=LINE$>
    XB 10040 OPEN #6,12,0,"5"
    AV 10045 TRAP 11000:OPEN #2,4,0,DUMMY$>
    LP 10050 INPUT #2:CAT$>CAT=INT<LEN<CAT>>;
    16>
    WT 10060 AD=ADR<FIELD$>;HI=INT<AD/256>;LO=
    AD-HI*256:POKE 866,7:POKE 868,LO:POKE
    869,HI
    JA 10065 AD=CAT#70:HI=INT<AD/256>;LO=AD-H
    I*256:POKE 872,LO:POKE 873,HI
    UZ 10070 FIELD$<AD>="":A=USR<ADR<"M" LUM
    >:GET #2,X:IF X>155 THEN 1100

```

```

DX 10080 AD=ADR<ARRAY$>;HI=INT<AD/256>;LO
=AD-HIM256:POKE 866,7:POKE 868,LO:POKE
869,HI
HM 10085 AD=CAT*720:HI=INT<AD/256>;LO=AD-
HM256:POKE 872,LO:POKE 873,HI
UC 10090 AD=ADR<HM LUM$>;CLOSE #2
XL 10110 HIDES=CHR$<14>;PRS="BASIC/MMMNGH"
UW 10120 LINE$<1>=...:LINE$<132>=...:LINE
$<2>=LINE$
DD 10200 RETURN
ES 11000 CLOSE #2:IF PEEK<195><>170 THEN
11020

```

```

JY 11010 CAT=0:GOTO 10110
GN 11020 ? "MDISK ERROR #";PEEK<195>;". P
RE55 ANY KEY.":GET #1,K:GOTO 10045
RK 11030 CLOSE #2:IF PEEK<195>? "SOMETHING IS WRONG
WITH THE DATA FILES.":? "ERASE 'BUDGET
.DAT' AND RESTART.":END
BS 11200 ? "PRINTER ERROR. PRESS ANY KEY
#":GET #1,K:GOTO 1008
VS 11300 CLOSE #3:?"MDISK ERROR #";PEEK<
195>;". PRESS ANY KEY.":GET #1,K:GOTO
100

```

IMPROVING A POWERFUL BASIC SPEED-UP TOOL

SUPER BOTTLENECK BREAKER

LISTING 1

```

SM 10 REM BASIC PROFILER, PART 1
JH 20 REM BY STAN LACKEY
ST 30 REM XE VERSION BY ERIC WOODRUFF
IF 40 REM Cc, 1989, ANTIC PUBLISHING
BC 50 REM
HE 60 REM If reserving memory, remove REM
on line 80 and add REM to line 100.
UA 70 REM Don't drop number of Pages rese-
rvred below 16! It's the minimum reserv-
ation so as not to cause problems.
GG 80 REM START=PEEK<106>*256-105:POKE 10
6,PEEK<106>-161:POKE 740,PEEK<106>
AJ 90 REM Otherwise, use the following li-
ne. Place the address after "START=".
ML 100 REM START=136
GG 110 GRAPHICS 8? : ? " Loading P
rofiler. . . "
NG 120 FOR I=START TO START+101:READ A:PO
KE I,A:NEXT I
ZN 130 DATA 173,254,4,240,95,152,72,173,1
,211,72,160,0,177,138,133,208,200,177,
138,46,67,10,24,6,288,195
KL 140 DATA 0,201,64,176,4,160,0,240,18,2
,81,126,176,4,160,1,208,10,261,192,176,
4,160,2,208,2,160,4,160
SR 150 DATA 416,63,9,64,133,209,152,10,10,
24,105,192,141,1,211,160,0,177,208,24,
195,1,145,208,144,14,200
ZH 160 DATA 177,208,105,0,145,208,208,5,1
69,0,141,254,4,104,141,1,211,184,168,1
04,64
ST 170 REM Set up timer interrupt.
RJ 180 HI=INT<START/256>;LO=START-HIM*256
>
NR 190 POKE 528,LO:REM UTMRI1 VECTOR LOW
AJ 200 POKE 529,HI:REM UTMRI1 VECTOR HI
IS 210 REM S5761,0:REM VOLUME TO ZERO
JZ 220 REM S5760,255:REM TMR0 TO ZERO
JX 230 REM S5769,0:REM TURN ON TIMERS
UE 240 POKE 16,193:REM SET TMINT1
LP 250 ? "Done. . .":? ? "Next. . .":? ? "LOA
D the program to be Profiled. . .":?
OU 260 ? :? "ENTER . . .":CHR$<34>;"D:PROFILE1.2
-LST":CHR$<34>:?
SN 270 ? :? "RUN"

```

LISTING 3

```

US 10 REM BASIC PROFILER, PART 3
JH 20 REM BY STAN LACKEY
LC 30 REM XE REVISION BY ERIC WOODRUFF
IF 40 REM Cc, 1989, ANTIC PUBLISHING
BC 50 REM
II 60 POKE 1278,0:GRAPHICS 8:POKE 210,146
YR 70 POKE 559,0:RESTORE 80:FOR I=39424 T
0,39655:READ A:POKE I,A:NEXT I
SN 80 DATA 104,104,133,223,133,211,104,13
,3,222,133,220,104,104,133,207,173,1,21
,1,133,208,169,0,133,218,133,219
UU 90 DATA 1,133,214,133,215,165,216,133,20
,3,165,213,160,210,160,133,205,0,201,164,176
,4,160,2,208,2,160,3,41,63,9,64,133,2
AB 100 DATA 176,4,160,1,208,18,201,120
6,4,160,2,208,2,160,3,41,63,9,64,133,2
04,152,10,18,24
RL 110 DATA 105,193,141,1,211,160,1,177,2
03,208,6,160,177,203,240,93,200,177,20
3,133,227,197,215,144,84,208
HU 120 DATA 7,136,177,203,133,226,165,219,133,225
,165,218,133,224,165,218,133,224,165,219,1
30,208,160,1,208,177,203,240,93,200,177,20
03,177,208,160,1,208,177,203,240,93,200,177,20
BZ 140 DATA 24,161,205,133,205,144,2,230
,208,160,8,169,255,209,205,208,222,200,
209,205,208,217,162,3,181,224
EF 150 DATA 149,212,202,16,249,165,208,14
1,1,211,230,218,208,4,230,219,48,3,76,
30,154,160,3,185,212,0
ZU 160 DATA 145,222,136,16,248,165,222,24
,105,4,133,222,144,2,230,223,198,207,2
40,3,76,20,154,96
NN 170 REM ANALYSIS STRING: 4 BYTES PER E
NTRY
OL 180 REM LO, HI BYTE OF COUNTER,
ZU 190 REM LO, HI BYTE OF COUNT.
ON 200 REM
IO 210 DIM ANAL$<1023>,YNS<1>
UU 220 ANAL$<1>=CHR$<255>;ANL$<1023>=CHR$<
255>;ANL$<2>=ANL$<
IE 230 TRAP 230:POKE 559,34:?"Basic
Profiler Bottleneck Analysis":? :?
BZ 240 ? "How many bottlenecks do you wan
t":? "to see (1-255)":INPUT NUM
OF 250 IF NUM<1 OR NUM>255 THEN 240
AZ 260 ? :"Are you sure (Y/N)":INPUT YN
JR 270 IF YNS<>"Y" AND YNS<>"N" THEN 260
ET 280 IF YNS<>"Y" THEN 230
OR 290 ? :"During analysis, the screen
will be blank to Speed up calculatio
n. . ."
UU 300 TMINT=INT<NUM/255*485>+1:IF TMINT<
60 THEN TSEC=TMINT:TMIN=0:GOTO 320
GX 310 TSEC=TMIN-INT<TMIN/60>*60:TMIN=INT
<TMIN/60>
SE 320 ? "Estimated time (M:S): ";TMIN;" :";TSEC

```

```

E 330 ? :? " ** PRESS START TO ANALYZ
E **"
XR 340 IF PEEK<532793>6 THEN 340
GI 350 POKE 559,8:X=USR<39424,ADR<ANL$,N
UM>
HQ 360 POKE 559,34:POKE 752,1:?"MANALYSI
S COMPLETE."
DS 370 TC=0:FOR I=1 TO NUM4 STEP 4
IX 380 POSITION 2,2?;"TOTAL COUNTS":TC
JU 390 CT=ASC<ANL$<I,1>>+ASC<ANL$<I+3
,I+3>>*256
TR 400 TC=TC+CT:IF CT>0 THEN NEXT I
JU 410 TRAC=0:?"Report on Screen or PR
INTER":INPUT YNS
CP 420 IF YNS<>"S" AND YNS<>"P" THEN 400
EX 430 IF YNS="P" THEN LPRINT "TOTAL COUN
TS":":TC:LPRINT "LINE","COUNT","PERCENT
","CUML_X"
WT 440 IF YNS="S" THEN PRINT "LINE","COUN
T","PERCENT","CUML_X"
IZ 450 CUM=0:FOR I=1 TO NUM4 STEP 4
H6 460 LN=ASC<ANL$<I,1>>+ASC<ANL$<I+1
,I+3>>*256
JL 470 CT=ASC<ANL$<I+2,I+2>>+ASC<ANL$<I+3
,I+3>>*256
TU 480 CUM=CUM+CT:THEN 540
TU 490 PCT=CT/T1*CUM-CUM*PCT
NY 500 Y=CINT<0.5+10000*RND>/100
PJ 510 X=CINT<0.5+10000*RND>/100
BI 520 IF YNS="S" THEN PRINT LN,CT,X,Y
XK 530 IF YNS="P" THEN LPRINT LN,CT,X,Y
MH 540 NXFT:I=POKE 752,8:END

```

```

PR 60 DIM FN$<20>,TEMP$<20>,AR$<93>;DPL=P
EK<10592>;POKE 10592,255
WO 70 FN$="D:LINE5.LST":REM THIS IS THE NAME OF THE DISK FILE TO BE CREATED
RD 80 ?;"MDisk or (B)assette?":POKE 764,255
PY 90 IF NOT PEEK<764>=18 OR PEEK<764>=58 THEN 90
TH 100 IF PEEK<764>=18 THEN FN$="C:";
110 POKE 764,255:GRAPHICS 0:?"AN"111:CLS
120 ?;"GENERIC BASIC LDR.DSK"
129 ?;"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ?;"? 17"Creating?;FN$?;"...please stand by."
LH 150 RESTORE :READ LN:LM=LN:DIM AS<(LN):C=1
BQ 160 AR$="" :READ AR$ 
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75,2,255
DM 180 LM=LM-1:POSITION 10,10:? "Countdown...":INT(LM\10);":"
BK 190 AS$C,C=CHR$VAL(ASC$X,X+2):C=C+1:NEXT X:GOTO 160
HM 200 IF PEEK<195>=5 THEN ?;?;?;"@TOO MANY DATA LINES!":?"CANNOT CREATE FILE!":END
CM 210 IF C<LN+1 THEN ?;?;"@TOO FEW DATA LINES!":?"CANNOT CREATE FILE!":END
UQ 220 FN$="C:";THEN ?;?;"Prepare cassette, press [RETURN]":
AR 230 OPEN #1,8,0,FNS
PU 240 POKE 766,1:#1;AS$:POKE 766,8
LA 250 CLOSE #1:GRAPHICS 0:#;"@DISK FILE READ"
JH 1000 DATA 82
MF 1010 DATA 05803208800618805308820400658
688028400834101469003133285174801211165
2058100108241851391341001211
BU 1020 DATA 1680001690641332041521332031
452032302828285230204016246198205016
22314200212110906349841041058
PX 1030 DATA 08206907703206796706696508020
320698808408206503208200877155

```

LISTING 4

```
PX 10 REM BASIC LOADER FOR PROFILE2.LST
JH 20 REM BY STAN LACKEY
GD 30 REM <C> 1985,1988 ANTIC PUBLISHING
EV 40 REM <LINES 10-250 MAY BE USED WITH
IJ 50 REM OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.>
```

EASIEST ROUTE TO YOUR DISK CONTENTS

QUICK DIRECTORY

Article on page 22

LISTING 1

```

NS 0 REM $"D:QDIRMAK.BAS"
SE 10 DIM JS@103
ZH 20 GRAPHICS 8:?"Quick Directory, by M
at@Rat"
AY 30 ?"cc: 1989, Antic Publishing"
ZA 40 ?:"Get disk in Drive 1 ready"
PB 50 ?"and press RETURN":INPUT JS:?
?
AJ 60 RESTORE
UF 70 TRAP 80:OPEN #1,8,0,"D:QDIR":GOTO 9
?
JC 80 ?"Couldn't create D:QDIR.":? "ERR0
B:","PEEK<195>":END
UP 90 REM ? #1;"18"
CT 100 ? #1;"CLR:DIM AS<153>:AS<1,100>=";
CHR$#34:?
XT 110 FOR I=1 TO 100
KT 120 READ A?: #1:CHR$#A:;
FX 130 NEXT I
DF 140 ? #1:CHR$#(34):CHR$#(155):
GA 150 REM ? #1;"20 "
JL 160 ? #1;"AS<101,153>":CHR$#34:;
BL 170 FOR I=101 TO 153
LJ 180 READ A?: #1:CHR$#A:;
GJ 190 NEXT I
DM 200 ? #1:CHR$#(34):? "":CHR$#(34):"Dir
Spect":CHR$#(34):? "":USR<ADR#A$3>"
LJ 210 CLOSE #1

```

Don't type the
TYPO II Codes!

```

HM 230 ? :"Try E.;" :CHR$ (34) ;D:ODIR"
NA 240 ? "to get a quick directory"
UZ 250 ? "listing now!": ? :?
RQ 260 ? :? "E.;" :CHR$ (34) ;D:ODIR":CHR$ (2
B):CHR$ (28):CHR$ (28):END
AH 270 DATA 104.240.6.176.104.104.202.208

TS 280 DATA 251.162.0.169.11.141.66.3
SK 290 DATA 142.72.3.142.73.3.169.63
TY 300 DATA 32.86.220.169.5.141.66.3
GA 310 DATA 169.4.141.69.3.142.68.3
FI 320 DATA 169.40.141.72.3.32.86.228
CR 330 DATA 162.80.169.12.157.66.3.32
US 340 DATA 86.228.169.3.157.66.3.169
SY 350 DATA 4.157.69.3.169.8.157.68
DK 360 DATA 3.159.6.157.74.3.169.128
EK 370 DATA 157.75.3.32.86.228.48.55
HM 380 DATA 162.80.169.8.157.68.3.157
UZ 390 DATA 73.3.169.4.141.69.3.169
BQ 400 DATA 40.157.66.3.169.8.157.66
BQ 410 DATA 32.86.228.169.5.141.66.3
GT 420 DATA 169.4.141.69.3.142.68.3
DU 430 DATA 169.40.141.72.3.169.9.141
YR 440 DATA 66.3.32.86.228.16.201.162
GM 450 DATA 80.169.12.157.66.3.76.86
FD 460 DATA 228. -1

```

LISTING 2

```

0 :SAVE=0:QDIR.M65
10 :ASM.#:0:QDIR.OBJ
20 :ASM.#:0:QDIR.COM
30 ;
40 OBJECT = 1
50 COM = 2
60 CODE = OBJECT
70 ;
80 ; Set CODE equal to OBJECT
90 ; to create an object file
100 ; to be used from a BASIC
110 ; in the USA routine.
120 ; Set CODE equal to COM to
130 ; make a stand alone .COM
140 ; file for use with Sparta
150 ; or any other DOS.
160 ;
170 ;
180 ; Quick Directory by Mat*Rat
190 ; Ratware Softworks
200 ; (c) 1989, Antic Publishing
210 ;
220 ; A quick and dirty utility
230 ; for getting a complete
240 ; directory listing while in
250 ; BASIC.
260 ; The BASIC Program QDIRMAK.BAS
270 ; will create a the file:
280 ; D1:QDIR.
290 ;
300 ; From BASIC immediate mode
310 ; use the command:
320 ;
330 ; E."D:QDIR
340 ;
350 ; The user will be prompted for
360 ; a directory specification,
370 ; and a DIR will be displayed.
380 ; If it's a SpartaDOS disk,
390 ; the directory will be listed
400 ; in LONG format.
410 ;
420 XCORD = $55
430 YCORD = $54
440 SAUMSC = $58
450 STRING = $FC ;String Ptr
460 FILEBUF = $0400 ;Cas buffer
470 CIO = $E456 ;CALL OS HERE
480 ICCOM = $0342 ;COMMAND TO CIO
490 ICBADR = $0344 ;BUFFER OR FNAME
500 ICBLEN = $0348 ;BUFFER LENGTH
510 ICAUX1 = $034A ;AUX BYTE #1
520 ICAUX2 = $034B ;AUX BYTE #2
530 ;
540 COPN = 3 ;COMMAND OPEN
550 CCLOSE = 12 ;COMMAND CLOSE
560 CGTXR = 5 ;GET TEXT REC
570 CTXXR = 9 ;PUT TEXT REC
580 CBINR = 7 ;GET BINARY REC
590 CPBINR = 11 ;PUT BINARY REC
600 CDRAW = 17 ;COMMAND DRAUTO
610 CFILL = 18 ;COMMAND FILL
620 ;
630 OPIN = 4 ;OPEN FOR INPUT
640 OPUT = 8 ;OPEN FOR OUTPUT
650 OPDIR = 6 ;OPEN FOR DIR
660 ;
670 ; A=USR(ADR<QDIR$>,ADR<"D1:.*">)
680 ;
690 ; QDIR holds the code that follows.
700 ; It pulls the address of the
710 ; directory specification string
720 ; off the stack. It allows the user
730 ; to enter a file specification,
740 ; such as D2:*.BAS, which is then
750 ; used for a directory listing.
760 ;
770 ; .ORG $3400
780 ; .OPT OBJ
790 ; .IF CODE=OBJECT
800 BEGIN
810     PLA
820     BEQ GETDRV
830 ; Clean up unnecessary
840 ; parameters and continue
850     TAX
860     CLEAN
870     PLA
880     DEX
890     BNE CLEAN
900     .ENDIF
920     GETDRV
930 ; Show only a question mark
940 ; as a prompt for file spec
950 ; No room for more in the code.
960     LDX #0
970     LDA #CPBINR
980     STA ICCOM
990     STX ICBLEN
1000    STX ICBLEN+1
1010    LDY #1
1020    JSR C10
1030    ; Accept the user's file
1040    ; specification.
1050    LDA #CGTXR
1060    STA ICCOM
1070    LDA #>FILEBUF
1080    STA ICBADR+1
1090    STX ICBADR
1100    LDA #40
1110    STA ICBLEN
1120    JSR C10
1130 ; FILEBUF now contains
1140 ; the text file spec
1150 ; to use as a template
1160 ; for the directory
1170 ; listing.
1180    GOTDRV
1190    LDX #550
1200    LDA #CCLOSE
1210    STA ICCOM,X
1220    JSR C10
1230    LDA #COPN
1240    STA ICCOM,X
1250    LDA #>FILEBUF
1260    STA ICBADR+1,X
1270    LDA #0
1280    STA ICBADR,X
1290    LDA #OPDIR
1300    STA ICAUX1,X
1310    LDA #128
1320    STA ICAUX2,X
1330    JSR C10
1340    BMI CLOSEDDRV
1350    GETFILE
1360    LDX #550
1370    LDA #0
1380    STA ICBADR,X
1390    STA ICBLEN+1,X
1400    LDA #>FILEBUF
1410    STA ICBADR+1,X
1420    LDA #40
1430    STA ICBLEN,X
1440    LDA #CGTXR
1450    STA ICCOM,X
1460    JSR C10
1470    BMI CLOSEDDRV
1480    LDX #0
1490    LDA #>FILEBUF
1500    STA ICBADR+1
1510    STX ICBADR
1520    LDA #0
1530    STA ICBLEN
1540    LDA #CPBINR
1550    STA ICCOM
1560    JSR C10
1570    BPL GETFIL
1580    CLOSEDDRV
1590    LDX #550
1600    LDA #CCLOSE
1610    STA ICCOM,X
1620    JMP C10
1630    .IF CODE=COM
1640    *= $02E0
1650    .WORD GETDRV
1660

```

Tech Tips

XY COORDINATES TO SCREEN MEMORY

Tech Tips regular Greg Vozzo of Brightwaters, New York shows how to convert X-Y coordinates (such as those used in PLOT, DRAWTO, etc.) into screen memory locations used by PEEK and POKE. Type RUN to start the program, which will fill screen memory (and thus the screen) with 0s.

To RUN the second part of the program, type GOTO 50. This POKEs a 0 into screen memory, converts the location into X-Y coordinates, and then prints an A there. The third section of the program is run by typing GOTO 200. This will print HELLO at the designated X-Y coordinates and then overwrite the word by POKEing 0s into the appropriate screen memory locations.

```

 Don't type the
TYP0 II Codes!
DK 10 GRAPHICS 0:REM NEXT MODE 0
UM 20 A=PEEK<88>+PEEK<89>*256:REM GETTING
  OF SCREEN MEMORY
DX 30 FOR I=0 TO 959:PUKE A+I,16:NEXT I:REM
  EM PEEKS<88>+PEEK<89>*256:SCREEN MEMORY
YS 40 END
EL 50 GRAPHICS 0:A=PEEK<88>+PEEK<89>*256:
  POKE A+156,16:REM PUTTING A INTO SCREEN
  MEMORY,156 PEEKS FROM THE TOP OF IT
LZ 60 Z=40:REM # OF COLUMNS IN MODE 0.
YR 70 Y=INT<156/2>:REM DISPOSE OF THE END
YL 80 X=156-4*Y+2:REM EXTRACTS REMAINDER
YR 90 FOR P=1 TO 750:NEXT P:REM PRIMING
HR 100 POSITION X,Y? "A":REM PUTTING A
  HERE
NS 110 END
SZ 200 GRAPHICS 0:A=PEEK<88>+PEEK<89>*256
  :X=10:Y=10:Z=40:POSITION X,Y? "HELLO"
EN 210 FOR P=1 TO 750:NEXT P
BO 220 FOR I=0 TO 4:REM LENGTH OF HELLO
CY 230 POKE A+4*Y+2*Y+3*Y+1,16:NEXT I:REM
  HAVING PEEK<88>+PEEK<89>*256
NZ 249 END
NA 250 REM DISPLAYED THE REVERSE IN THE END OF IT
  (GOING BACKWARDS).

```

FIVE-COLOR CURSOR TEXT

ANTIC modes 4 and 5 (same as Graphics 12 and 13) are special in that they allow four colors in a single character, and five on the whole screen. However, there is no cursor.

This program, also by Greg Vozzo of Brightwaters, New York, sets up a GRAPHICS 0 screen and changes it to a mixed screen of ANTIC modes 2, 4 and 5. The character set is altered and the screen colors are changed. Finally text is printed—and a cursor is present.

How did this happen? The redefined character set altered the SPACE character, which occupies the whole screen, into a solid block. This way, the cursor will show up in the color assigned to location 712 (background) when it overlays the solid block. In addition, the now-solid playfield is its own color, separate from the background, so a screen border is possible.

A hand icon pointing to the right, indicating a call to action.

Don't type the
TYPO II Codes!

LINE WIPER

This short program by Mark Perez, of Fremont, California produces an impressive "line wipe" effect for erasing text from the screen. Its secret lies in the clever use of the ATASCII character set in WIPE1\$ and WIPE2\$. Use this routine to dress up your own programs

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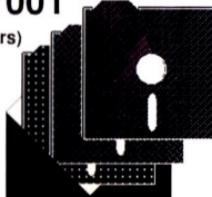
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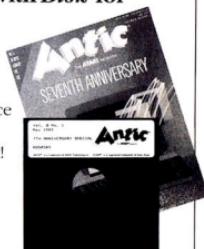
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U8 - 66319	\$4.50
U8 - 66320	\$4.50
U8 - 66321	\$4.50
U8 - 66322	\$4.50
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U8 - 66325	\$4.50
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U8 - 66330	\$4.50
U8 - 66331	\$4.50
U8 - 66332	\$4.50
U8 - 66333	\$4.50
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U8 - 66339	\$4.50
U8 - 66340	\$4.50
U8 - 66341	\$4.50
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U8 - 66360	\$4.50
U8 - 66361	\$4.50
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