TEXAS INSTRUMENTS

TI Forum

by Ron Albright and
Jonathan Zittrain

The Winners!

What a pleasure to do this month's column. We get to report on the terrific response from the TI community to the First Annual TI Forum Programming Contest. I would like to thank Jonathan Zittrain and Howie Rosenberg for judging the BASIC/Extended BASIC and "Other Languages" categories, respectively. They did so with great alacrity, diligence and devotion. Also, to the sponsors—Disk-Only Software, Compuserve's TI Forum, MICROpendium, Genial Computerware, and Asgard Software. We now look forward to a second contest—a different kind of contest—that you can enter even if you can't program (hint, hint). Details in the next few months. We also hope to have a Second Annual Programming Contest next fall, if there is an interest. Let us know. Now, on to the reports from the judges.

Jonathan Zittrain
BASIC/Extended BASIC

Many fine programs were submitted in the Extended BASIC category of the contest; the judging was extremely difficult. Originality, program structure, documentation, and user friendliness (including error tapping) were all taken into account.

The first prize winner is Bill Knecht's "Tourist Information Services." Its purpose is straightforward: to quickly provide the name, phone number, and address of tourist information agencies for all the states of the U.S. The code was tightly written and well-documented, the program easy-to-follow and impossible to crash. Tourist is a fine example of how data can be organized and stored for fast, easy retrieval.

The program consists of four files, but only three are required to start—the fourth is constructed during setup, saving 52 sectors in transit, another innovative idea. A provision is made to print the entire list of data as well as update it, all smoothly linked.

The first runner-up is Jack E. Shattuck's "Handy Dandy Adder" program. As Mr. Shattuck put it, it's not extremely "profound," but it is a model of programming structure and user interface. Those familiar and comfortable only with mechanical adding machines can easily adapt to ADDER, entering numbers quickly while getting a running tally, average, and other helpful information.

Too often an attempt to computerize a particular task ends up making the task more difficult—sometimes a pencil and paper or even a calculator can do a job more efficiently than any computer program. ADDER proves that computers can help even with seemingly simple tasks. Options to print the results of the tally and the tallying process are also included, although only a PIO (parallel) port is assumed by the program. RS232 is certainly a possible printer port for many users, and even the thermal printer—TP—would perform well in printing the results of the program.

Second runner-up is Mike Stanfill's "Fontastic," a program that not only assists in designing and modifying character sets for BASIC or Extended BASIC programming, but also a CHARA1-type file for use with assembly programs, such as TI-Writer. Utility rated high, as did the source code and originality. Documentation was provided within the program, enough for most users interested in this type of utility to go on.

File name and translations (between merge-files and CHARA1-type files) were a bit difficult to work with at first, and some of the prompts required some guessing, but the program was generally forgiving of errors. The character editor was easy to use and rather powerful; the results of an edit can be immediately displayed and contrasted with the rest of the character set.

Fonyastic is definitely a commercial-grade program, and no doubt will make a name for Mr. Stanfill in the TI world in the year to come. With the advent of different CHARA1 sets and the desire for original-looking program displays, Fontastic will find a place in the programmer's toolkit.

There are also some programs submitted worth honorable mentions; again, the caliber of the programming was astounding. With such talented software authors still at work, the TI community has little to worry about stagnation or obsolescence.

Here are some of the highlights of the Extended BASIC entries:

Ken Kopecky's "Stamp Inventory" is another fine database program, allowing for 190 stamps to be filed at a time in an easy-to-use format. The displays are standardized and the data neatly formatted, even allowing for a comment with each stamp. Extensive use was made of subroutines, something that too few programs consider.

"Videominder," by Mark Larry, does for videocassettes what "Stamp Inventory" does for stamps. It allows for different genres of videocassettes (e.g. horror, drama, children), and at what number on the counter the movie begins. The user can modify the working environment within the program, changing printer port and screen colors. The program also recognizes the Cor-Comp clock card.

Chip Chapin's "Labelgen" is one that rated very highly in the utility category. Labels are generated that include user comments and clean formatting for disks, especially helpful to those that sort disks and file them. The documentation was the best of all the entries, leading the user step-by-step through many of the options. This, like "Fontwriter," is a program that clearly stands out as commercial-grade.

"Multi-Cat," by Chuck Reinhart, catalogs multiple disks, sorts the file names, and keeps a running file of a software library. Keywords can be entered and a search through the names is quickly done, helping the user find a particular file among many disks. Putting Multi-Cat and Disk Labeler together would form an incredible disk filing system! The programming and user interface both rated highly, as did the utility.

Joseph D. Goins' "Mindwarp Trivia" quizzes the user on various topics, from Disney to origins of state names. It was one of the best all-around programs, combining strong showings in each of the five categories.

The above programs show what a wide variety we received—and what incredible quality is out there in the TI world. Our sincerest thanks to all who entered. It was a pleasure to evaluate the Extended BASIC program.

Howie Rosenberg (C99, Pascal, Forth, other)

The category 3 winner is Charles E. Kirkwood for his program Cryptogram written in C99. Cryptogram is a cryptogram solving aid not unlike several others which have appeared in the recent past but with enough "extra" to make it a winner. The program as it relates to the 5 scoring parameters is as follows:

A) Originality: There have been other programs which can serve as cryptogram solving aids. In this category the program is not outstanding. Nevertheless the task is well handled and the program designed quite well to fulfill its purpose.

B) Source code: In this category Cryptogram is unsurpassed. The source code is well commented. If the judge had any doubt as to how well the program was structured, the accompanying flow charts made short work of them. These flow charts are a model for all novice programmers (and experienced programmers too) to follow in program design.

C) Documentation: Little is required as the program is well engineered from a user standpoint. The short text file that accompanies the program and which can be called from the program is perfectly adequate.

D) User Interface: As stated above, the user interface is simple enough to make the use and reference to external documentation unnecessary.

E) Utility: The program is designed for a specific purpose to aid in the solving of cryptograms. For this purpose it is very useful as it allows for rapid trial and error of various permutations of letter substitution so necessary in solving letter substitution crypts and so messy on paper, the usual method. As compared to other versions I have seen (written in XB, the speed increase of this C coded version make it useful indeed.

Ron Albright (Assembly Language)

This category was difficult to judge, at best, but I feel comfortable with the winner. Frederick Humburg's "SPY—Your Eyes Inside the TI" was a beauty. Commercial quality (and, no doubt, soon to be "buyable") and well-done characterize this tool for exploring the "innards" of the 99/4A. It came on with 200 sectors or so of tight assembly source code, printed documentation (as well as a disk file) and the SPY itself in a condensed object code version (for loading from Option 3 of the Editor Assembler module) and a version to be CALL LOAD(ed) and CALL LINK(ed) from BASIC using either Mini-Memory or Extended BASIC. After a nice title screen, you go to the SPY's "operating screen" itself. From there, you can, with single key presses, scroll through (in 256 byte chunks) any form of console memory—CPU, GROM/GRAM, or VDP RAM. You can also change the display to be in hexadecimal, character, or mixed. You can also scroll through any of 6 screen/character combinations. You can also experiment with the computer's use of arithmetic and logic operations on hexadecimal, decimal, and binary forms of numbers. It is a marvelous program. I hope it becomes available to the users soon. Nice job, Mr. Humburg.

Overall Winner

For some very unfair reason, ingenuity, particularly in the computer world, is disproportionally represented in the young. One of the brightest young programmer's to come along in the TI community is J. Peter Hoddie, president of the TI SIG of the Boston Computer Society. Besides being a full-time college student, running his large computer group, releasing the smash-hit "Font Writer" software ($24.95 from Asgard Software, P.O. Box 10306, Rockville, MD 20850), and planning several new releases through Genial Computerware (write them for some exciting developments—835 Green Valley Drive, Philadelphia, PA 19128), he had time to write a beauty for our contest. Dubbed "XB:BUG," this is both a novel concept as well as an extremely useful utility. In brief, you load XB:BUG into the Extended BASIC environment and there it sits. It is invisible until invoked with the SHIFT-CTRL keypress. Then, it leaps into action ready for a command. If you are running a program at the time, it stops (sprites keep in motion, of course, but program execution ceases). From the XB:BUG command prompt, you can enter any of about 10 functions. With the "A"rray command, you can inspect the contents of an array, "B"reakpoints displays the cur-

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Amiga Genlock Peripheral Interface To VCR

Commodore Business Machines, Inc. has expanded the capabilities of the Amiga personal computer with the introduction of the Genlock 1300 video synchronizer. The Genlock 1300—the first consumer-priced, stand-alone computer genlocking device of its kind—can synchronize an external video signal from a VCR, camera or videodisc player with text, sound and graphics generated by the Amiga computer.

Easy To Use, Affordable

The Genlock 1300, an electronic outboard device, allows users to superimpose Amiga's sophisticated computer-generated graphics, animation, stereo sound and titles over videotaped images generated by video equipment ranging from video cameras to consumer VCRs, videodisc players and camcorders—a task previously relegated to equipment costing much more. The Amiga Genlock 1300 brings the capability of video mixing to Amiga users in an easy to operate, affordable format home enthusiasts, as well as serious videophiles, can enjoy.

"We've introduced a peripheral that will give every Amiga user who wants it the opportunity to take computer-generated graphics a step further into a dimension previously unavailable to them because of prohibitive cost," stressed Nigel Shepherd, general manager, Commodore North America. "We anticipate this will create a whole new generation of users in all areas—business and artistic endeavors, as well as increase consumer enjoyment of both computer and video equipment."

Many Applications

The resulting product—synchronized graphics—can be displayed on a monitor or TV set, or recorded on videotape with many potential applications. Businesses can utilize the superb Amiga graphics and processing power to create video presentations for sales and training applications. Animation software can be used to produce promotional videos for advertising or display work. Even home users can enhance self-produced personal videos with sound, titles and animation using the Genlock 1300.

Multi-Functional Input, Output Ports

Powered through the Amiga, the 2.5 pound Genlock 1300 fits neatly—and unobtrusively—into the Amiga chassis. Genlock 1300 connects to the RGB port of the computer's main console. The input ports accept an RS-170 composite signal, stereo audio lines and an Amiga computer signal. The outputs include both composite and RGB videos as well as a stereo audio signal. The peripheral controls adjust source hue, the position of the video under the Amiga computer graphics, the balance of the Amiga audio against the external signal and an interrupt audio source switch.

Now Available

Since its introduction a year and a half ago, the Amiga has extended the limits of computer-generated graphics for artists who use the visuals in a wide range of applications. The Genlock 1300 is another step toward bringing Amiga users "total control" over the graphics they create. Genlock 1300, which is now available for sale, has a suggested retail price of $195.00.

For more information contact Commodore Business Machines, Inc., 1200 Wilson Drive, West Chester, PA 19380; (215) 431-9100. ●

Three for Maxisoft

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you can then highlight ranges easily, or click on any cell to examine it's contents. Clicking on a cell makes it the upper left corner of the active window when you return to normal mode. This is a very fast and accurate way to move the window.

Formulae can use all the normal math operators and many functions are built-in, including ABS, ACOS, ASIN, ATAN, ATAN2, AVERAGE, CHOOSE, COS, COUNT, DAVERAGE, DAY, DCOUNT, DMAX, DMIN, DSTDEV, DSUM, DVAR, ERR, EXP, FUTURE VALUE, HLOOKUP, IF, INDEX, ISNA, LN, LOG10, LOOKUP, MAX, MIN, MOD, MONTH, NA, NOT, NET PRESENT VALUE, OR, PI, PMT, PRESENT VALUE, RAND, ROUND, SAY, SIGN, SIN, SQRT, STDEV, STYLE, SUM, TAN, TODAY, VAR, VLOOKUP, WEEKDAY, and YEAR. With all these, the program is quite flexible. Formulae can be typed in or the mouse can be used to point to math symbols at the top of the screen. Cell references in formulae can be relative or absolute.

Data from sheets can be graphed as bar, line, pie or area charts. These can then be saved in a format compatible with Deluxe Paint if more detail is to be added. Charts also can be printed from within MaxiPlan.

My only complaint about the program is the documentation. I would have liked to see more useful tutorial information. The fact that the two-page index is almost adequate indicates how much information is missing from the manual.

Though initially offered with a "key disk" copy protection scheme, MaxiSoft has reconsidered and now offers the program in unprotected form. ●

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rent breakpoints and allows you to change these, "C"hange allows you to change the value of any numeric variable, "G"raphics will allow you to choose to examine the definitions of either characters, color, or sprites, "L"ist allows you to list any range or program lines, "P"rogram will tell you which line is currently executing, the ON ERROR line number (if present), and Option Base, and "V"ariables lists variables with their current values. There is even a built-in math calculator accessible from the command prompt. Once you have peaked around and changed the program as you would like, hit SHIFT-CTRL again, and the XB:BUG goes back into hiding and the XB program continues from where it was stopped. XB:BUG takes up a minuscule 5 kilobytes and comes in versions to load it into either high or low memory. The documentation that came with the submission was excellent and several demo programs were sent with printed instructions on using XB:BUG with these programs. It was a joy to use and investigate some programs with. This utility will soon, as I understand it, be available for purchase (try Disk-Only Software, P.O. Box 244, Lorton, VA 22079). When it is, and if you program at all in Extended BASIC, buy it. It will make your task much the easier.

A Real PAL...

Some time back, I came right out and said that I thought Joypaint 99 (Great Lakes Software, 804 E. Grand River Avenue, Howell, MI 48843; $49.95) was the best graphics program available for the TI. I still believe that. Now, Ernest Chandler and his folks have made the package even better. With the release of Joypaint PAL ($9.95), Joypaint can now use screens from Graphx, TI Artist, and Great Lakes' own Extended Business Graphics. Further, the PAL

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allows printouts to the hard-to-print-to Axiom GP-100 printer, and a facility to reduce objects by half. A nice utility and it adds all the features I missed in Joypaint itself. Also, Great Lakes has released a second disk of Clipart ($9.95). Does my heart good to see a company not only release a marvelous program, but continue to support it and even enhance its usefullness to the consumer and for such a modest cost. Hats off to Great Lakes. Highly recommended.

Still Kicking...

Despite the fact that Jim Peterson (Tigercub Software, 156 Collingwood Avenue, Columbus, OH 43213) has discontinued the famous "Tips" series (after over 40 months), he is still selling his incredibly cheap, ingenious and innovative BASIC and Extended BASIC software (some 130, all for $3). One of the Tigercub's biggest successes (besides his "Tips from the Tigercub" on disk, Volumes 1-4, $15 each/$42 for all four) has been his "Nuts and Bolts" series. This collection (I and II, $19.95 each, $37 for both) has served Extended BASIC programmers well—increasing productivity and ease of programming. These disks contain 100 subroutines each, all in D/V163 file format—ready to merge right into your existing program to enhance it in any of, well, a hundred ways. Containing everything from screen wipes (clever ways to clear the screen), to character fonts to enhance your displays, to math routines, sorting routines and sound effects. If you program in Extended BASIC, you need this toolbox of routines. By merging these into your code and using the CALL SUB routine commands, you can double or triple the time it takes you to construct a polished program. I love this software not just because it is well-done and extensively documented. I love it for what it represents—a return to programming. There are no high scores, windows, screaming meanies, or aliens near this disk. This disk is for programmers. Beginners and experienced hackers, alike. Whether you are writing your first or your first hundred programs, these subroutines are fundamental. They are the building blocks for your ideas. They are not ideas themselves—they are but bricks in the wall. You supply the cement and Voila! A program—your program. Yours and Jim's—but Jim will let you take the credit. Check out Tigercub Software soon.

Delphi's TI Information Network...

This service continues to grow and promises even more things in 1987. Jeff Guide has taken over as the Head Sysop of that system and, being a strong TI 99/4A user, he promises to build the TIIN into a major force. Art Byers, a member of the "99 Professional Council," has also put together a marvelous "help disk" that contains tutorial files on how to use Delphi in general and the TIIN specifically, as well as containing the public domain Xmodem protocol for the TI (by Paul Charlton) to help you immediately get started downloading the excellent software offerings on the Network. Art did a terrific job on this disk and makes it the best introduction available for any electronic system. Once you have subscribed to TIIN, you can contact Art (username "ART-BYERS") on how to get your copy. For more information, contact Delphi at (617) 491-3393.

The Mystery Is Over...

On January 16, MC announced their new hardware venture for the TI. The MG-Triton (that is right, Triton is the "major American firm" that bankrolled this product) offering, dubbed the "TurboXT Personal Computer," will be two hardware and one software products. The hardware products will be, first, an "interface" or "bridge" box that will plug into the side port of the 99/4A into which one would plug the /4A video, the monitor is hooked to (via RF modulator or direct video cable) it along with the PC-XT video and the PC-XT keyboard cable is hooked into the box. The peripheral expansion box's beloved "firehose" connector will also be plugged into the bridge box. The second hardware will be, simply, a PC-XT expansion box with 256K, a DS/DD controller, a compatible disk drive and 8 expansion slots. The 8088 chip will run at a clock speed of 4.7 Mhz (the traditional PC speed) or 8 Mhz, the increasingly popular "turbo" speed. The software product allows the TI to emulate a PC keyboard and, by pressing Function-Control-Enter, one is able to switch from XT-mode to TI-mode. (According to MG, this product was the most difficult to produce—to have the TI keyboard "emulate" an XT keyboard. The actual design of the interface box took less than a month). Further, one can do a form of "multi-tasking" in that one could start a task on the XT (a database sort, or a file download via modem, and switch to TI-mode and perform some function or task there (the reverse is not possible). The devices will be both 100 percent TI as well as XT-compatible. Further, MG confirmed to me that with just a black and white television, the XT-mode will be able to display 80 columns and even run some graphics-based software (e.g. "Flight Simulator"). No, Virginia, you cannot get 80 columns in the TI-mode. Total price is $499 plus $18 or so for shipping and handling. One of the nicer features of the machine is a liberal 30 day "money back guarantee," a one-year parts and labor warranty as well as an optional extended warranty of 3 years available for an additional $99. Triton also offers MSDOS and utilities and a tutorial for $69.95. The software package includes a text editor, calendar, and a terminal emulator. Product delivery is slated for March, 1987. The delivery date appears firm. You can get further information from Triton by

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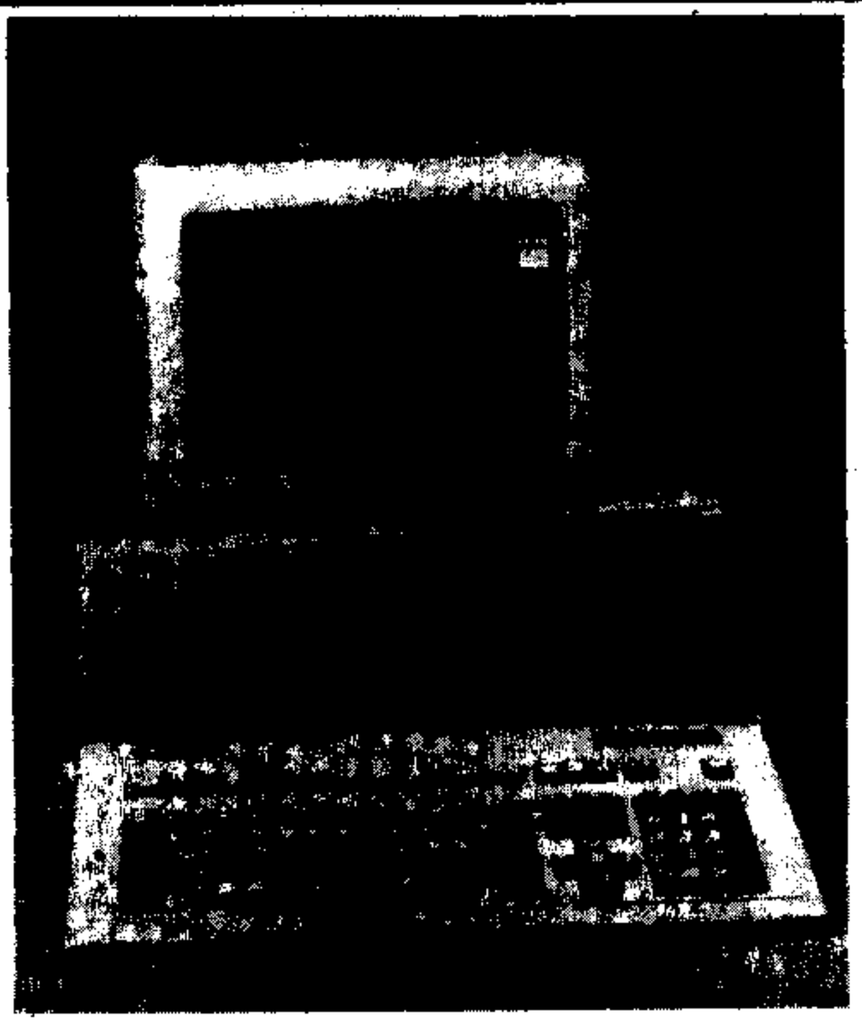

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outlined above was a little more subtle but apparent enough to let you see what's wrong. The MSDOS requires an "$," the dollar sign, at the end of a character line. Without it, the DOS will not stop printing. The program has many message strings without it and only two had the required dollar sign at the ends. I didn't notice this until I assembled and linked the file and ran it. At first, it printed a string of garbage and crashed. The DS register was not aligned properly and the pointer was pointing to a body of codes rather than to a message string.

I fixed it by aligning DS with the CS register since the message section was within the CS Code Segment declared as "public" code. The sequence of PUSH CS, POP DS will do it. The MASM, as you may have read somewhere, aligns DS register 10H more than the CS register automatically if it is an EXE file. Without the above pop and push sequence, the DS will be pointing to an erroneous location.

I should have known better but when I assembled and ran the program the second time, it printed a potpourri of messages followed by colorful symbols, an indication of runaway printing! This happens any time when you forgot to put the dollar signs at the end of the message string, a common error in an assembly routine. I scan the message section with the EDLIN but quickly switched to the New Word, the word processor I use. (This word processor is the forerunner of the Wordstar Version 4.0.) EDLIN complicates things when you are just adding or deleting a symbol or two, but in many lines. Word processors usually can handle this type of job nicely, providing if your word processor program can work on a pure ASCII files.

I reassembled it and ran. The computer went into a deep freeze and nothing less than the little black switch (the rest button) can de-freeze it. I loaded the SMDB with the MOVE.EXE (I renamed the SYMDEB. It facilitates wuick typing. Remember, both MASM and LINK have four characters each as their names. Since the program name has the same length, you just type the name and push PF3. Viola, you get the target file name without retyping the whole name.) I traced point to point makin gsure the CPU is responding to my commands. At the very end of the program, the CPU did not come back to the address zero of the code segment. The location always has the Interrupt 20H, the code "CD20," which returns you back to the operating system.

I don't remember exactly what I did there. The idea is to keep the original Data Segment value somewhere you can access when needed; in one of the registers or in a memory location. In this program the ES Register keeps the original DS value to the end of the program. I pushed the ES register followed by AX register holding 0000. You can load the AX register with immediate value of 0000 and push it. Some people want to XOR the AX which invariably clears the contents of the AX register to all zero, but this method clears flags as well. After these two pushes, you can do RET(urn) FAR. The instruction RET FAR picks up two 16 bit Words in the Stack. The CPU puts the value pushed before the last in the Program Address register IP and the value pushed last in the CS Register. This is, in strict sense, a faked far jump rather than a true return operation.

The program has no menus as other 1970s and early 1980s vintage programs do. You have to type in parameters when you call the program. The XMODEM.ASM copy I mentioned earlier had many of available parameters disabled or unimplemented and the selection was, in my opinion, totally inadequate. The program is quite elusive that if you miss the selection of parameters, it jumps back to the operating system doing nothing showing nothing, or, if you looked through the source list and found the special parameter for examples and used it, the program will give you some confusing hints and jumps back to the DOS. Besides, the present program initializes the serial port in just one format only.

I set out to rewrite most of the action routines using a straightforward menu system with some added features like format selection. Of course, the existing routines are for the IBM hardware and I patched in half a dozen IF SANYO...ENDIF and IF IBM... ENDIF structures to accommodate both Sanyo and IBM hardware. The work may be finished in a couple of months if the Almighty had given me the chance. You may see the result in this column in the near future.

The QMODEM

The QMODEM communication program is a complete communication program with everything you need. This is not a public domain program in real sense. It's a shareware. The program asks you to send a donation. Donation? What donation? This is a misnomer for a straightforward sale based on trust. The program is written and compiled using the Turbo Pascal, but furnished without the source code. It works fine in the clones but does not do anything when you run it on Sanyo because the serial port interface routine is specifically written for the IBM hardware.

I have identified most of the input/output routines. The task now awaiting me is to rewrite the interface routines for the

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Newsletters Received And The Fairs...

The mailbox runneth over and thanks to West Jax 99'ers (P.O. Box 176, Orange Park, FL 32067), the TIC-TAC Users Group (812 S. 132nd, Seattle, Washington 98168—winner of the "Newsletter of the Month" award; newsletter subscriptions $6/year), the Houston Users Group (13107 Bafing, Houston, TX 77099), and the Penn-Ohio Users Group (71 Elm Street, Struthers, OH 44471). Special thanks to Charles Good, the librarian of the Lima 99/4A Users Group (2225 High Ridge, Lima, OH 45805) and Jim Susco of the CIN-DAY Users Group (416 Pinewood Avenue, Piqua, OH 45356) who sent a nice collection of their groups' excellent newsletters. Again, if you don't belong to a users group, join one. The Second Annual LA TI Fest will be held May 16 and 17. Write the LA Users Group (148 S. Maple Drive, Beverly Hills, CA 90212) for details. Last year's event was super and this year promises to be an even bigger happening. TICOFF '87 will be held March 28 (Art Byers, Coordinator, c/o Roselle Park HS, 185 Webster Avenue, Roselle Park, NJ 07204) and the New England fair will be held the following weekend, April 4. Write BCS, TI User Group, One Center Plaza, Boston, MA 02108).

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Will Wonders Ever Cease?

There are rumors about that we may be getting one of the early production models of the Myarc 9640 computer for review. If it comes to pass, you, the readers, will get a thorough look at one upgrade path for the 99/4A. Keep your fingers crossed. ●