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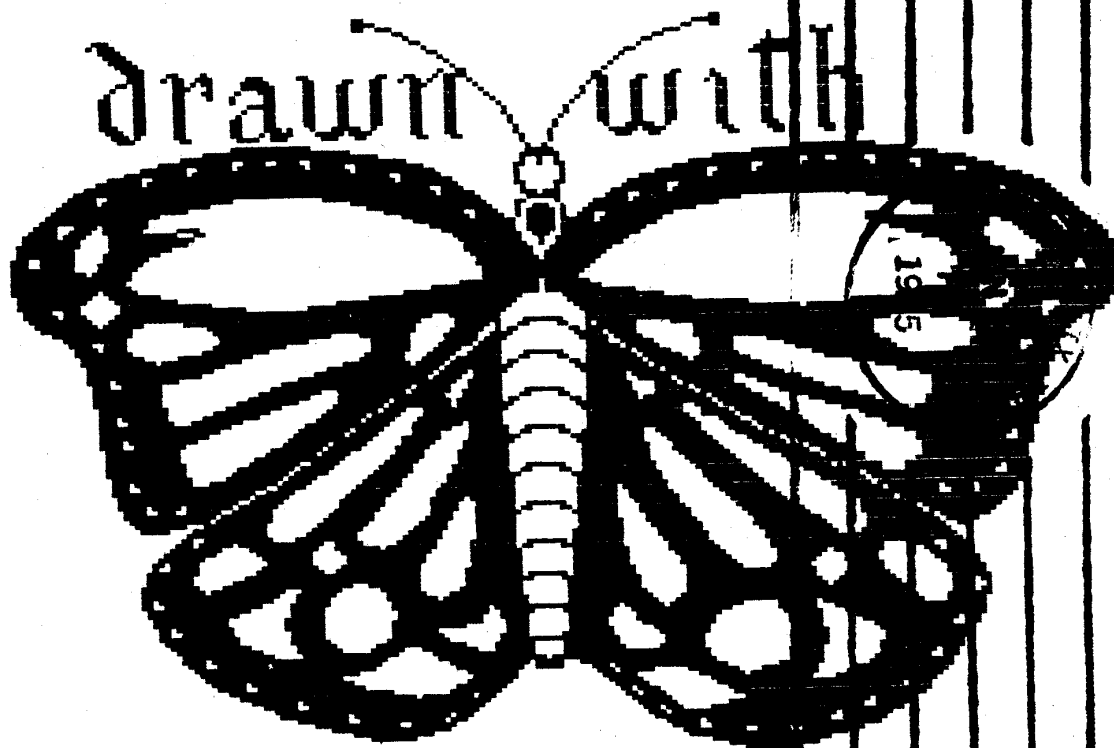
# MICROpendium

Covering The TI99/4A Home Computer And Compatibles

Volume 2 Number 5

June 1985

\$4.50



See page 36



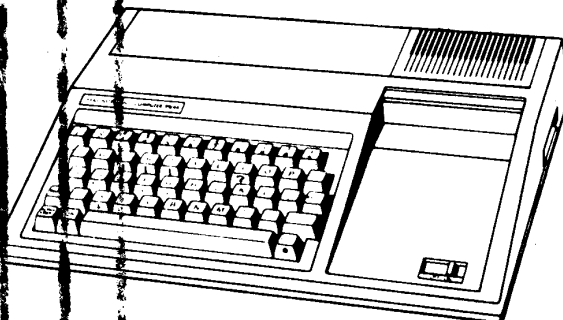
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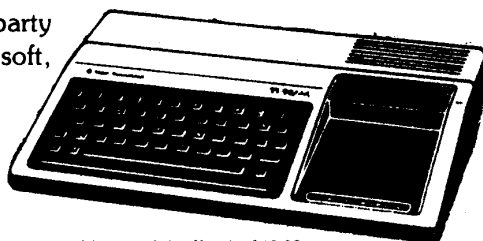
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# Contents

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John Koloen..... Publisher  
Laura Burns..... Editor

## Coming Next Month

- A report on the Consumer Electronics Show
- More on SUPER CART
- Downloading characters to your Gemini

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## Table of Contents

### New peripherals from Tex-Comp

The TC-1, TC-2 and TC-3, plus a new TI-compatible computer, have been announced.....Page 14

### Welcome to The Source

For TI99/4A modem users, how to get online with the New Texnet.....Page 16

### PRK commands enhance BASIC

More keys to help you unlock the mysteries of Personal Record Keeping.....Page 28

### A homebrew module

Adding 8K of battery-backed RAM to your Editor/Assembler (first in a series of three articles) ..Page 32

### Reviews

GRAPHX.....Page 36

Data Base 1.....Page 39

### Freeware (or nearly so)

Our offers, and those of others.....Page 41

### Newsbytes

The IUG goes bankrupt, some TI-compatible T-shirts and a program to keep track of your mileage.....Page 42

### User Notes

Loading TI-Writer without the cartridge, colors and borders, and a tune for your TI.....Page 43

Classified.....Page 46



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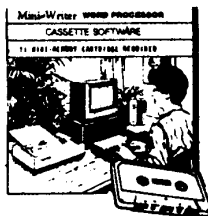
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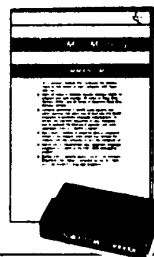
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## Comments

# Headed for the dump

TI has apparently trashed its remaining inventories of cartridge-based software. Reports are that a number of railroad cars were seen leaving Lubbock, Texas, with the remains of tens of thousands of smashed modules. The train is bound for Providence, Rhode Island, where the cartridges are to be buried.

### BRIEF IMPRESSIONS OF Z80A

My first impressions of Foundation Computing's long-awaited Z80A card are favorable, despite the fact that I could not get it to do what I wanted it to do. These days it seems that virtually any piece of hardware, and sometimes software, is long-awaited. I waited more than three months to receive the Z80A card, and have yet to receive Foundation's 80-column card, which was ordered at the same time.

The Z80A card looks like any TI peripheral expansion box card. The card is enameled and features a green activity light.

Inside the card is everything one needs for a Z80A computer, including 64 kilobytes of memory, a Western Digital disk controller that can handle single-sided or double-sided double-density disks, and an RS232 port. Although the card has been advertised as a "CP/M" card, the manual refers to "CP/M like" software. The conclusion one draws is that Foundation has not obtained licensing from Control Digital to use its CP/M operating system. What this means is that the card comes without a CP/M disk. It does include a terminal emulator program, which allows the TI99/4A console to "talk" to the Z80A card, and an operating system called MRS. MRS is similar to the standard CP/M operating system, but not identical. The manual does note that the card is designed to run "CP/M compatible" software.

The card operates at 4 megahertz, which is in the mid-range for Zilog Z80 microprocessors. The Z80 runs at 2.5 MHz while the Z80B and Z80H run at 6 and 8 MHz, respectively. These figures refer to the "clock speed" of the central processing unit, in this case the Z80A.

The Z80A card is plugged into the PEB in the normal way. It includes ports for a disk controller cable identical to the internal TI disk controller cable and an RS232 cable. The disk controller cable is plugged into the Z80A and then into the edge connector of the TI (or third party) disk controller and then into any external drives that may be present. A short RS232 cable (which must be obtained by the user) is connected from the Z80A card to the TI (or third

party) RS232 card. It is the RS232 cable that allows the Z80A card to make contact with the TI99/4A.

Connected properly, the TI system and Z80A system operate independently of each other. Because the Z80A

and TI RS232 cards must be attached, it is recommended that modem users obtain a "Y" cable to allow two RS232 connections to the TI card. Otherwise, one would have to disconnect the cable from the Z80A card in order to connect a modem.

The big question about any co-processor card is software availability. What does the Z80A card run? The manual, which is written in the first person familiar, skirts this issue, referring only to the Kaypro 2 format as being CP/M compatible. Unfortunately, I could not get the card to format a disk using the MRS operating system and thus cannot report on software compatibility. Whether this problem is my fault or the card's I am not sure. After contacting Foundation and working my way through the disk formatting over the phone with a company technician I was instructed to send it back for replacement. I am waiting for its return and expect to provide an update on software compatibility next month.

In the meantime, stay tuned.

As you can see, we've reached 48 pages with this issue, double the number of our first issue in February 1984. The postage increases substantially because of 48 pages puts the weight at more than two ounces, but we'll see how long we can keep it up.

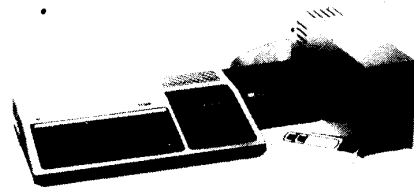
### DREAMING OF A BULLETIN BOARD

We are thinking (dreaming) about setting up a 24-hour bulletin board service. The BBS would use a 10-megabyte Winchester and would run at 300 and 1200 baud. We would include a Freeware downloading section, message base, an index of MICROpendium articles, specialty sections for TI-Writer, X BASIC, etc., a helpline feature for third-party software, etc. We'd like to get some comments from you about what you would like to see on this board and whether it would be worth \$18 a year (\$1.50 per month) to access it.

Finally, there's some verifiable news to report about successors to the 99/4A. Page 12 is devoted to a product line from the West Coast that has been kept under wraps for some time. Next month we'll have a full report on everything that was unveiled at the Consumer Electronics Show in Chicago. (We went to press with this issue before the show started.)

—JK

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# Feedback

## Line feed question

Could someone explain to me how TI-Writer uses line feed and form feed commands at the beginning and end of pages when printing from both the Editor and the Formatter? When I print several pages from the Formatter, each page starts lower and lower on the sheet of paper until the copy eventually runs onto what is the top of the next sheet of paper.

**William J. Bullock**  
Columbus, Georgia

## Will it work?

I am considering purchasing the CorComp expansion unit with two DS/DD disk drives. What problems, if any, would I expect to encounter when reading the software (Wycove Forth/TI Editor/Assembler disks), which I currently own? They have been recorded as SS/SD.

**Michael S. Lloyd**  
Toronto, Ontario

**We have not encountered any problems using Wycove Forth or the Editor/Assembler with the CorComp 9900 Micro Expansion System.—Ed.**

## Recharge

In response to Joyce Corker's inquiry of replacing the lithium battery in the Mini-Memory cartridge:

Correct me if I'm wrong, but it seems to me that simply recharging the battery would suffice. There would be no need to physically remove it from the board. All that would be required is to open the plastic shell and properly connect a pair of jump leads from a three volt charger to the respective battery contacts. (Two to five hours is the recommended charging times for button cells.)

Also, I'd like to praise Ron Castleton on his article on transliteration commands (Vol. 2 No. 1). His program is a great help for us users just getting started on the TI-Writer word processor system. I SAVED his Command Set on my program diskette and

use it with my Gemini printer at every opportunity.

I would like to point out the typos, however, on Page 14. Under the *keystroke* column; lines 12 and 13 are incorrect. They should read: CTRL U SHIFT 2 and CTRL U SHIFT P, respectively.

**Roland Chapman**  
Marina, California

PS: The correct telephone number for the Santa Cruz BBS is (408) 426-1484.

## TI-Writer faults

TI-Writer is a good word processing program. There are, however, several little faults that, if corrected, would make it an exceptional program.

The most annoying is its habit of **always** entering two spaces after every period in a formatted text, ignoring the number of spaces that were entered during text editing. This is a nuisance when using initials or abbreviations within the text and becomes a real problem when creating a number of value files for the mail-merge feature.

Another annoyance, admittedly of less importance only because of less frequent use, is the program's insistence in providing **only one** space following an exclamation point or a question mark when used to end a sentence. This occurs within formatted text regardless of how many spaces have been entered during text editing. Whenever a sentence ends with the "!" or "?" many of us would like to separate it from a following sentence with two spaces, just as we would when ending a sentence with a period.

I'm aware of the technique of employing the "caret" to get around these problems. But this is not really the answer. It seems that it would be better to change the program so it could be used in a conventional manner. TI-Writer would be significantly improved if the formatted text included **only those spaces** that were entered in the edited text.

Perhaps there are some readers out there that share my annoyance. If the program can be altered and if anyone

has had any luck in correcting any of these "faults," I'd appreciate hearing from them.

**Bob Limberg**  
San Clemente, California

**A User Note on this subject would be appreciated—Ed.**

## TI-Writer problem

Maybe you can help me with a problem. My TI99/4A at times locks up or goes bonkers while using TI-Writer. It has done it at times with the Editor/Assembler, too. TI-Writer works fine sometimes. Lately, it will load and work anywhere from two seconds to five minutes, then the cursor disappears and there is sometimes lots of noise on the monitor. If I shut it off, i.e. power down and start over, it loads and sometimes works. I tried cleaning the module with alcohol. That seemed to help but not cure the problem. Extended BASIC, Personal Record Keeping and the disk manager all work without fail. I had this trouble with the first TI-Writer I bought and TI replaced it. The new one worked 95 percent of the time, but lately it's gotten useless. Do you suppose it is the cartridge holder? I did remove it and clean it once. This helped. I didn't have any trouble for about a month. I don't use the TI a heck of a lot so it shouldn't be worn out. When the TI-Writer is working, it works fine. On occasion when I plug in the Editor/Assembler it says it can't access the 32K memory. When the TI-Writer goes bonkers all the lights on the PEB go out as if I've lost connection. This seems to happen only with Editor/Assembler and TI-Writer.

**Stanley Page**  
Vancouver, British Columbia

**Your TI shouldn't get "worn out" even with heavy use. TI-Writer and the Editor/Assembler cartridges are very similar so it is not unlikely that both would be malfunctioning in the same way. We recommend that you contact a TI service center. Any readers have (Please turn to Page 10)**

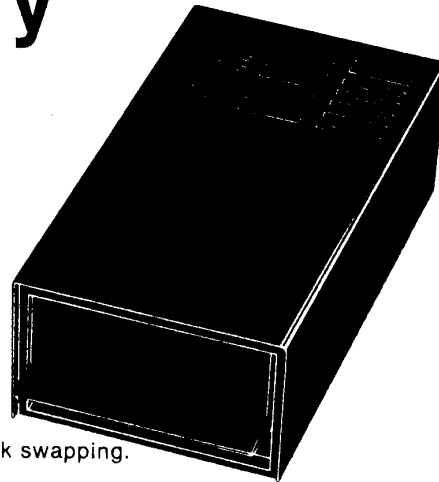


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# Feedback

(Continued from Page 8)  
advice on this problem?—Ed.

## Letter errs

The letter from Mr. Anthony B. Pennington of Springfield, Ohio, in the April issue is erroneous. First of all, the base system has 16K of VDP RAM and a mere 256 bytes, or  $\frac{1}{4}$ K of CPU RAM. With the addition of the 32K card, the total becomes 48.25K. With the addition of the Mini-Memory, the total becomes 52.25K—the maximum possible. Without the 32K card, the console contains almost no CPU RAM, not the 16K Mr. Pennington says is available. Furthermore, the system uses 2.079K bytes of VDP RAM for Extended BASIC, and not the 6K “computed” by Mr. Pennington. Additionally, in bitmap mode, the Pattern Table holds the definitions for three sets of 256 characters each, not the total of 256 characters advertised. Also, there is no one “operating system chip”; instead, most of our operating system resides in the two 4K console ROMs in the form of GPL. And finally, in Extended BASIC with 32K, string data is already stored in the excess VDP RAM.

**Chris Bobbitt**  
Darnestown, Maryland

## A PavarotTI?

I'm trying to program my TI to sing. The natural first choice is “Daisy” as sung by HAL-9000 [the computer in the movie, “2001”]. I'm encountering a problem with dragging out a sound such as e——— in Daisy. It comes out short choppy ê,ê,ê,ê,ê, when several “e's” are placed together. Maybe your readers can help me. (Note, I'm using the TEII in BASIC.)

**Daniel L. Parrott**  
Grand Bay, Alabama

## XBASIC command

Perhaps some reader might help me with this: How can you write a com-

mand in Extended BASIC that is like the ACCEPT command but allows the entry of a full-length string and not just a single line. I would like such a command or subroutine to have the same speed and editing capabilities as the ACCEPT command as it now exists.

**George Zinsmeister**  
Sunderland, Massachusetts

## Error messages

I have a TI with a Tachyon Systems 32K stand-alone memory expansion, a TI stand-alone disk controller and TI disk drive. I also have the TI Editor/Assembler package. My problem is that when I try to assemble a program I usually get an error message—once in a great while the program will assemble. This happens with the same program, one time it will assemble and the next time it won't. The rest of the package works fine. Also, I have two TI consoles and the same thing happens on both machines. The error message is: I/O ERROR 10-I/O ERROR 10. Sometimes this message will be short and sometimes it will scroll through several screens, then it ends with DSR ERROR 02E0 or DSR ERROR 03F0 or some other DSR ERROR and this is when I am trying to assemble the same program.

**Ray W. Speer**  
Alton, Illinois

## TI-Writer info

I'm always happy to see articles that unlock the mysteries of TI-Writer, and especially enjoyed the one in the February issue. I had made up my own transliteration file, but ran into problems by not having enough unused characters to transliterate. I appreciate having the use of CTRL U explained.

Handy information for those who might not have discovered it for themselves: the “@” sign doesn't properly overstrike on italics. When using italic print, use a .TL overstrike. I have Ver-

sion 1.1 of TI-Writer. Perhaps that problem doesn't exist with the later version.

An idiosyncrasy of TI-Writer that I discovered while printing this letter: if “.TL” happens to come up as the first word on a line, the entire line is dropped in printing, whether the “.TL” was the first word on a line in the Text Editor, or happened to hit the beginning of a line in printing through the Text Formatter. That makes sense, but it was puzzling to see a printout that didn't contain everything I had written.

I use TI-Writer for most of my correspondence, and usually write several letters at a sitting. So I've found it very convenient to use the “.TL” file as the master file and call the other files from it for printing. Its name is LTRFORMAT, and I included all the format commands in it, so that the only time I need commands in individual letters (aside from indents) is if I occasionally want to use different margins. After writing as many letters as I want to, I load LTRFORMAT, change the .IF's from the last printing, save it, then use it as the file to be called for printing through the Text Formatter.

Can anyone tell me how to convince my Gemini to print a program LIST-ing in condensed print with a 132-character line? I have no problem getting it to go to condensed print, but it insists on using an 80-character line, making the condensed print no advantage. I've tried everything I can think of, so obviously I'm missing something.

**Claire Roberts**  
Clovis, New Mexico

The Feedback column is for readers. It is a forum to communicate with other readers. The editor will condense excessively lengthy submissions where necessary. We ask that writers restrict themselves to one subject for the sake of simplicity. Our only requirement is that items be of interest to persons who use the TI99/4A home computer. Mail Feedback items to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

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**#11 SAVAGE ISLAND PART II** — The suspense begun in Adventure #10 now comes to an incredible conclusion with SAVAGE ISLAND PART II! This Adventure requires you to have successfully finished #10, wherein you were given the secret password to begin this final half. NOTE: For experienced Adventurers only! Difficulty Level: Advanced

**#12 GOLDEN VOYAGE** — The king lies near death in the royal palace. You have only three days to bring back the elixir needed to rejuvenate him. Journey through the lands of magic fountains, sacred temples, stormy seas and gold, gold, GOLD! This one is for experienced Adventurers only! Difficulty Level: Advanced

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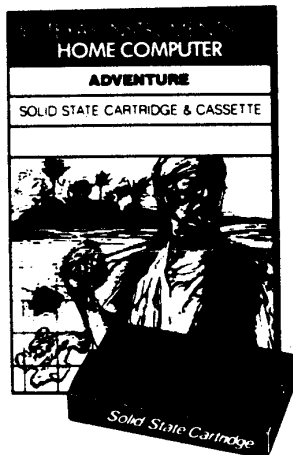
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The program is written for 'Mini-Memory' or 'Editor-Assembler' command modules (cassette or disk) and offers a full screen editor and a special easy-to-use, mnemonic language called A.P.L. (Adventure Programming Language), and comes with a complete and detailed 75-page manual.

TEX-COMP is also organizing a new TI Adventuring Users Group which will allow low-cost exchange of user-written adventures between members

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## TC-99/9 boasts 40/80-column board

# Tex-Comp to market series of compatible enclosures

A new TI-compatible computer, the TC-99/9, and a new line of peripherals for the TI99/4A have been announced by Tex-Comp Users Supply Company of Granada Hills, California.

Tex-Comp is a major retailer of products for the TI99/4A computer.

Development of the peripherals and computer has been done in secret "to avoid premature spreading of rumors that can become distorted," said Jerry Price of Tex-Comp, graduate engineer who directed the design development project.

"We didn't want to make any announcements until we had a viable product, ready to demonstrate and sell and a game plan for future development," Price said.

The new product line is based on an all-new enclosure which is original in design but suggestive of the designs currently used by IBM and TI for their PC models.

The basic product being offered by Tex-Comp is the TC-1, which comprises the enclosure, equipped with a heavy-duty regulated fan-cooled power supply, two double-sided, double-density half-height drives and a rear panel of six surge and spike protected electrical outlets, each controlled by a switch on the front panel. This version is designed to complement the CorComp 9900 expansion system which Price said Tex-Comp feels is the best 99/4A expansion product on the market.

"With the TC-1 configuration, which will be retailed at about \$450, combined with the CorComp 9900 system, the TI user will have the finest state-of-the-art equipment with disk storage capacity equivalent to eight TI single-sided drives," he said.

The next product displayed by Tex-Comp at the Consumer Electronics Show in Chicago is the model TC-2,



which has the CorComp 9900 system and TI speech synthesizer, built in along with the features of the TC-1. This configuration is a complete expansion system which will retail at about \$750.

Model TC-3 is an upgraded TC-2 with a 128K RAM and buffer board added to the TC-2 configuration, and will retail at about \$875.

The TC-99/9 is basically the TC-3 128K configuration with a modified 40/80 column TI processor board added and designed to accept the new Wico smart keyboard which has a 10-key pad and built-in trackball. TC-99/9 is a 128K fully compatible TI computer, which produced in small commercial runs should retail in the \$1,300-\$1,500 range, fully configured with a color monitor.

"We are currently conducting both market and cost studies to determine if

this product can be viable in light of the existing market and price range," said Price.

He said that in designing and developing these products Tex-Comp has worked closely with leading companies in the technology, including CorComp, TI, JMR and Wico.

In displaying this new line of products, "Tex-Comp makes no bones about the fact that TC-3 and TC-99/9 products make little or no sense for the typical TI99/4A user," said Price. "A 128K or greater memory for the 99/4A will be of virtually no use to the average user since none of the presently existing TI software can use or access it."

"We have talked to the leading TI software developers, including Navarone and Pike Creek, whose current products are carried by Tex-Comp." (Please turn to Page 16)

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```
uninet pad 0930 port 00  
service : S13
```

```
*u001 000 connected to 70300017
```

```
Connected to THE SOURCE
```

```
> ID TI4596 LDT79K
```

```
TI4596 (user 21) logged in Saturday, 25 May 85 10:11:36.
```

```
Welcome, you are connected to THE SOURCE.
```

```
Last login Sunday, 19 May 85 13:06:00.
```

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# Welcome to The Source

## (and the New Texnet)

By JOHN KOLOEN

A TI99/4A user can shape certain areas of The Source database into a TI domain.

TI subscribers to The Source have an active electronic bulletin board, a Parti system that some users are trying to turn into a reference library for such specialties as Editor/Assembler and Forth, and Texnet, an exclusive service for TI99/4A users operated by Doyle and Don Bynum. Don Bynum was the TI executive in charge of the TI99/4A during its heyday.

Before we get into the details of these special services, let's first note that The Source, which is owned by the Reader's Digest Association, offers all subscribers such typical telecommunications services as electronic bulletin boards, electronic mail and the ability for individual subscribers to communicate in real-time with each other over modems. Users pay an

hourly rate for accessing The Source, which varies depending on the time of day and baud rate. Evening and weekend rates are \$7.75 per hour at 300 baud and \$10.75 per hour at 1200 baud. The daytime, weekday charge is over \$20 per hour at 300 baud. A storage fee is also assessed for any files that a user maintains on The Source's computers. The Source charges a minimum monthly fee of \$10, whether you use it or not. (All charges are assessed directly to a user's credit card.) The Source also offers a number of value-added features, such as access to stock market airline reservation services, that are available at an additional charge. However, we will ignore these services since they are not exclusive to TI subscribers.

The Source is an easy to use database based in Virginia. However, most subscribers do not have to pay long distance telephone rates to access The

Source because it supports a network of local access telephone numbers across the country. Users call the local number, then wait for a prompt indicating that a connection has been made. Then the user is prompted for ID number and password. If everything checks out, the user is admitted to The Source and a main menu screen appears on his computer screen.

The main menu lists a number of options, including one allowing direct access to Texnet. Other options place the user at Source command level, which means that the user may go directly to any offering of The Source database by inputting the name for the location desired, or he may select any of the remaining options to follow fully prompted menus into a series of well-defined database areas. These range from home shopping services and computer hobbyist areas to news reports from  
(Please turn to Page 18)

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## TEX-COMP PERIPHERALS—

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(Continued from Page 14)

Comp, and they agree that there would be no incentive to develop 128K or greater software due to the relatively small installed base that would ever materialize," said Price.

Price pointed out that developing and writing a 128K or greater software

program can take as much as 100 times more work than writing a 48K (or less) TI program for the current configuration. The amount of development effort can go up almost exponentially as the memory capacity of the computer increases, said Price. That is why the Super 500K+ programs pre-

announced by major software houses for the Apple Macintosh did not even come close to meeting projected delivery dates, he said.

In view of this, Price said he doubts that a 128K or greater TI compatible could be a commercial success, due to the lack of good software.

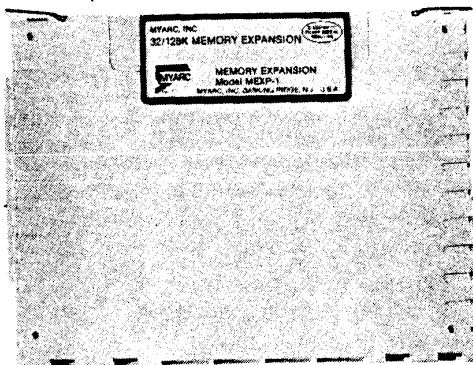


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## MANY USER SERVICES AVAILABLE—

(Continued from Page 16)

wire services.

Sticking with a TI99/4A orientation, The Source user is most likely to go to the TI bulletin board or SourceMail to start a session. (The bulletin board can be accessed directly from command level by entering POST READ TI.) It is not uncommon for 80 or more messages to be posted in a week, though a number of them are advertisements for a variety of products. Messages left by TI users vary, though most have something to do with computing. The most intriguing messages often turn out to be those that provide directions for users to obtain information or program from a user's Sharefile.

These SFILES, as they are known, can consist of virtually anything, from lengthy tutorials to actual programs. Since Sharefiles are set up by individual users, it is always an adven-

ture to access new items.

Individual users may also maintain "mailboxes" under their identification numbers. Any other Source subscriber may leave a message in any Source subscriber's SourceMail area, or SMAIL. (The act of sending a message to another Source subscriber is called SMAILing.) Users pay a storage fee for any data that they keep in their SourceMail, Sharefile or User File Directory storage areas. Fees vary depending on the amount of data. However, users may delete items at any time, thus reducing storage fees.

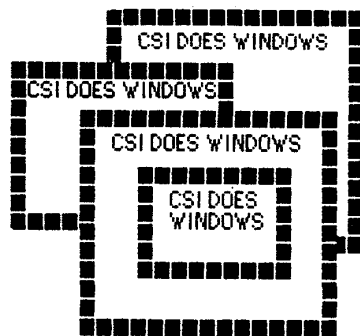
There are, of course, a large number of user services available on The Source, including the Parti system. Parti, which is short for "Participate," is a unique expansion of the electronic bulletin board concept. Referred to as a "conference board," Parti expands the bulletin board into a lecture hall.

Unlike the main Source bulletin boards, users may create documents of any size on Parti where they will be available for access by other Parti users. Parti allows for branching into user-defined sub-conferences. In this way, a user who is looking for information on assembly language programming, for instance, would not have to go through scores of Parti messages having to do with other subjects to get there. Parti participants may modify a Parti conference as they go along. Parti seems to attract more sophisticated users than the main TI bulletin board.

### THE NEW TEXNET

Perhaps the most promising area on The Source for TI users is Texnet. Texas Instruments gave Texnet its start as a telecommunications network for TI99/4A users, but when TI left the

(Please turn to Page 20)



### Windows with a view

Written in super-tight assembler CSI Windows uses only 8K. Small yet so powerful it's almost beyond belief! In this 8K are an assortment of primitives that allow you to perform many operations on and in windows.

### Multiple windows

Support for up to 5 windows, each having dimensions of up to 256 x 192 pixels.

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Normally a package this powerful would only be available to assembly language programmers but we have taken great pains to make it available from three TI Languages, Basic (requires E/A cartridge), Extended Basic, and Assembly Language. All three require 48K of ram.

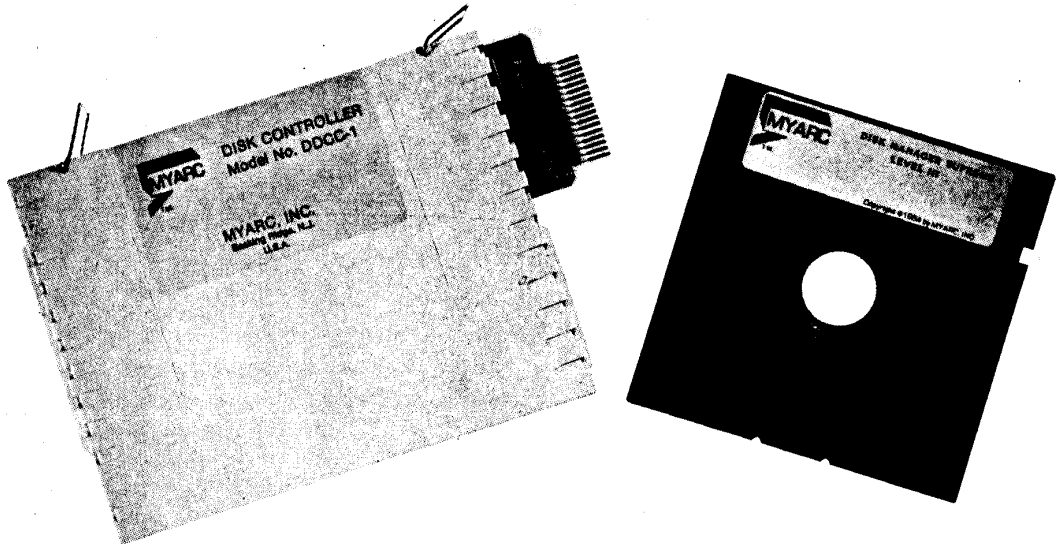
### The Good Part

We have decided that CSI Windows should be available to everyone who wants it. This means that you can buy it not for 99.95 but 24.95. As if that's not incredible enough you can buy the complete source code and license to distribute object modules for an additional 24.95.

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## NO EXTRA CHARGE FOR TEXNET—

(Continued from Page 18)

home computer business it dropped its support of the service. Not until the summer of 1984 did Don and Doyle Bynum begin to pick up the pieces that TI had left. After months of work, they finally had what is called the New Texnet online.

The New Texnet (hereafter referred to as Texnet) is easier to use than the original. Much of it is modeled after The Source so that a user who is familiar with The Source may easily find his way on Texnet. Incidentally, Texnet may be accessed from Source command level at any time simply by entering TEXNET.

There is no charge for accessing Texnet, except for the hourly charge normally levied by The Source. Texnet receives a royalty from The Source based on the amount of time subscribers spend on Texnet.

Texnet offers an array of services, all of which begin via its introductory menu, which follows:

- 1 All About Texnet
- 2 Texnet Commands
- 3 TI Communications
- 4 TI Software
- 5 TI Search
- 6 TI News
- 7 Special TI Functions
- 8 Texnet Manual.

To get familiar with Texnet, the best thing to do is to try out all the options.

For example, selecting option one (All About Texnet), the user will be able to learn more about the services offered, which include a software exchange, directory of TI user groups, listing of TI service centers around the country, uploading and downloading capability and a suggestion box for user ideas. Although it seems a bit odd, since Texnet can be accessed only by those with a Source identification number that begins with a prefix TI (as in TI4596), it is also noted that current Source subscribers with TI computers may exchange their Source ID numbers for a TI-prefixed number by calling Source Communications Marketing, 800-336-3366, 703-821-6666 in Virginia.

*Accessing The Source or Texnet is simply a matter of following pathnames, or menu prompts. Here a user goes from the Texnet mail menu to the online manual with one keystroke. From there is only one more keystroke to access a chapter from the manual.*

Selecting option 2 from the Texnet menu will provide a listing of Texnet commands. Each may be used directly from the Source command level. They are:

TIUSER—TI user group lists  
 TISOFT—TI software for sale  
 TISWAP—Texnet free software exchange.  
 TIDECODE—Decode text transmitted from your TI  
 TISERVICE—TI service centers  
 TINETS—News about the TI.

Selecting the TI Communications

Welcome to the NEW TEXNET

- 1 All About Texnet
- 2 Texnet Commands
- 3 TI Communications
- 4 TI Software
- 5 TI Search
- 6 TI News
- 7 Special TI Functions
- 8 Texnet Manual

Enter Item Number or <H>elp:8

TEXNET ONLINE MANUAL

- 1 Introduction - (7 pages)
- 2 Equipment - (2 pages)
- 3 Texnet Commands - (3 pages)
- 4 TI Communications - (27 pages)
- 5 TI Software - (22 pages)
- 6 TI Search - (1 page)
- 7 TI News - (8 pages)
- 8 Special TI Functions - (22 pages)
- 9 TI SWAP - (12 pages)
- 10 POST A Message - (8 pages)
- 11 Trouble-Shooting - (7 pages)
- 12 Manual Updates - (1 page)

Enter item number or Help 8

SPECIAL TI FUNCTIONS - (22 pages)

- 1 Points To Remember - (6 pages)
- 2 Download From Personal UFD - (6 pages)
- 3 Load File To Personal UFD - (6 pages)
- 4 Decode Text File - (4 pages)

option results in the following menu:

1 TI Chat (two-way, real-time communication between users. This can be initiated by any user but users are not required to respond. The Chat option may be turned off so that other users are unable to initiate the option.) Chat is also supported by The Source.

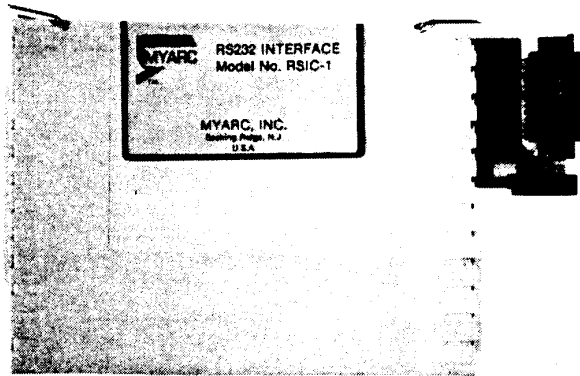
2 TI Users (listing of TI users and brief biographies. Providing such information is voluntary.) Source offers a similar listing for Source subscribers.

3 TI Online (lists the ID numbers of TI

(Please turn to Page 22)

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## RS232 INTERFACE CARD.



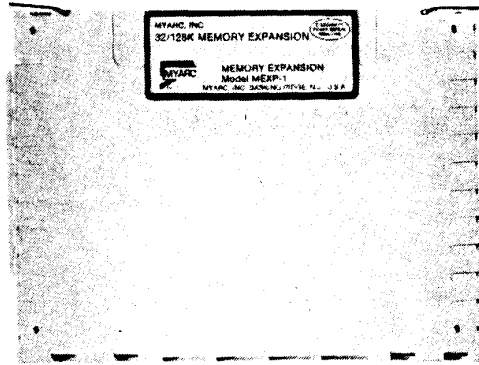
- RS232 serial port allows output to any serial device (modems, serial printers etc).
- With optional Y-cable you can access a second serial port. This feature would allow a serial printer and a modem.
- Parallel port allows output to a parallel printer.
- A second RS232 may be purchased to allow four serial and two parallel ports. These would be accessed as P10"-P10/2-RS232-1/2/3/4.
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- Comes complete with comprehension manual and operating instructions.
- Latest technology assures the most reliable design features.
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- **Call EMDKI(1)** - Instructs RAM disk to emulate disk drive 1 for auto booting of the program stored in memory like TI-Writer\*.
- **Call EMDKI(O)** - Turns off EMDKI(1) command.
- **Call VOL ("small volume - name")** - Allows directories and sub-directories to file on the RAM disk. Also obtains all directories in the RAM disk
- Manufactured in the U.S., to strict quality levels. This will insure high system reliability unmatched in the industry.
- The only true RAM disk available for the TI 99/4A\* computer, offering high speed program load and execution, mass data and file storage. Complete high speed file manipulation plus 100% compatability, make this unit the most sought after peripheral ever offered.
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## PROGRAMS SOLD AND GIVEN AWAY—

(Continued from Page 22)

breviated descriptions of the software or read in-depth descriptions detailing program functions and requirements. Documentation for some programs is listed in SFILES or on TINEWS. Payment for these programs is via credit card prior to downloading.

Incidentally, use of credit cards offers a unique means of protecting software from piracy. The following warning is appended to some software descriptions:

**WARNING—YOUR NAME AND MASTERCARD OR VISA NUMBER WILL BE ENCODED IN SEVERAL LOCATIONS AND WILL BE RANDOMLY DISPLAYED DURING EXECUTION. VIOLATING THE COPYRIGHT WILL MEAN GIVING YOUR CREDIT CARD TO THE PEOPLE WITH WHOM YOU SHARE THE AUTHORS WORK!**

Softmail Inc., which operates Texnet, is the publisher of the programs. Authors receive a royalty on sales.

TISWAP may be the most popular feature of Texnet. After all, users may download hundreds of programs for no more than the cost of the telephone connection and Source access charge. Unlike the programs available through the TI Software Store, programs offered through TISWAP are not copyrighted. There is a lot of variety in program offerings, ranging from very simple games in console BASIC to utilities designed to facilitate programming.

TISWAP is accessed through The Source command level. Users may select listings of programs by category or review the entire contents of the TISWAP database. Users may scan the titles of each category, such as Utility, and return for descriptions of particular titles, or narrow or expand the search field as desired. (Incidentally, there are more than 50 programs listed in the Utility category.) This process is used in virtually all Source services, so anyone familiar with The Source will find no trouble in using TISWAP.

Once the selection is made, the user

is prompted to proceed with the downloading, which writes the program to the user's disk. (Downloading or uploading cannot be done using cassette tapes.)

TISWAP also allows users to upload programs for consideration by Texnet. If selected by Texnet, these uploaded programs will be added to TISWAP for downloading by other users. All programs in TISWAP are considered to be in the public domain.

The TINEWS option "is something of a misnomer," Bynum says. "It contains as much current events-type stuff as we can get but we really see its main potential as a reference database for users. Such things as tutorials, manuals (like the TI Forth manual), and product reviews are what we hope will be of value when available as keyworded databases."

While TINEWS is still in a

(Please turn to Page 26)

## A 'broader orientation'

Keeping Texnet alive isn't quite a full-time job, but it takes three men to do it. Don Bynum says he spends about three hours a day maintaining Texnet, while his father, Doyle, is online about an hour each day. Blaine Crandall, who's in charge of TISWAP, spends about 90 minutes a day updating and maintaining the free program service.

The personable Bynum estimates that some 12 percent of all Source subscribers own TI99/4A computers. He extrapolates the figures from counting the number of subscribers whose ID numbers have TI prefixes. What this means, for example, is that the number of programs on TISWAP can be increased indefinitely. "The Source determines how much space on their disks we can have and because of the amount of billing we generate for them...they say 'don't worry about the space.'" Incidentally, TI Forth has been added to the TISWAP list of programs. It takes more than an hour to download at 1200 baud, Bynum says. An effort is under way to make portions of the Forth manual available on TINEWS.

Unlike CompuServe, which Bynum characterizes as being oriented "more toward very sophisticated users," Texnet "tries to maintain a broader orientation."

Noting that use of The Source/Texnet can be expensive, Bynum says that the typical, experienced user can reduce costs significantly. "Most people get on, go to TISWAP and list the contents, dumping it into a disk. Then they logoff and review their disk files and then logon to download a program."

Running at 1200 baud can also save money, even though the hourly rate is higher than at 300 baud. Again, a user can go to an area of the database, dump the contents to a disk at high speed and logoff. Depending on the terminal emulator that is used, the disk file can be called up using TI-Writer for review.

Bynum notes that not all terminal emulators are designed to work with Texnet. He says few problems have been reported by persons using AMA/Link, TEII or TE1200. P-TERM users have reported problems when trying to download programs.

Softmail Inc., which operates Texnet, is continuing a special introductory subscription fee through June 30. New subscribers can obtain a Source/Texnet subscription and TE-1200 for \$69.95. For more information, or to order, contact the company at P.O. Box 745, Rockwall, TX 75087.



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## CONTEST PAYS \$100—

(Continued from Page 24)

developmental stage compared to TISWAP and other functions, it has great potential.

When Texas Instruments operated Texnet, TINEWS was used to hype new products. The New Texnet has cleared out all the detritus and is offering the comments of columnists as well as articles about programming and other subjects. TINEWS offers \$100 to the author of the best article submitted each month. A similar contest is run to encourage submissions to TISWAP.

Selection 7 on the Texnet menu, Special TI Functions, supports uploading and downloading via User File Directories (UFD) and decoding functions. A UFD is a private file maintained by a user for his own use, while a Sharefile UFD is a public file that may be accessed by other users.

Selection 8, Texnet Online Manual,

is a recent innovation that provides comprehensive information about Texnet and how to use it. It is divided into the following chapters:

- 1 Introduction—(7 pages)
- 2 Equipment—(2 pages)
- 3 Texnet Commands—(3 pages)
- 4 TI Communications—(27 pages)
- 5 TI Software—(22 pages)
- 6 TI Search—(1 page)
- 7 TI News—(8 pages)
- 8 Special TI Functions—(22 pages)
- 9 TI SWAP—(12 pages)
- 10 POST a message—(8 pages)
- 11 Trouble-shooting—(7 pages)
- 12 Manual updates—(1 page).

The "pages" referred to indicate the number of screens of information available under each chapter.

Texnet is a constantly evolving creation with as much potential for the future as any telecommunications service available to TI users. The only way to fully appreciate it or The Source is to go online.

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# PRK commands enhance BASIC

The following is the second part of an article started last month detailing special uses of the Personal Record Keeping cartridge—Ed.

By LAURIE SMITH

Here are the special commands available with Personal Record Keeping. If the cartridge is inserted and TI BASIC is chosen, then these undocumented commands are available:

1. The PREP subprogram is used to define a fixed length data area in VDP RAM.

—CALL P(V), where V is a numeric expression which is the number of bites to reserve.

2. The LOAD subprogram is used to load a data file from an external device into the data area reserved by the PREP subprogram.

—CALL L(V\$ V), where V\$ = file name and V = return variable.

3. The SAVE subprogram is used to

save a data file from the data area reserved by the PREP subprogram to an external device.

—CALL S(V\$,V), where V\$ = file name and V = return variable.

4. The ACCEPT subprogram is used to accept data entry from the console and return that entry on the screen at a specified location. It can take one of the following forms:

CALL A(Y,X,C,V,L,H)

CALL A(Y,X,W,C,V)

CALL A(Y,X,W,C,V,F)

CALL A(Y,X,W,C,V\$)

where

Y = Y screen position

X = X screen position

W = field width

C = return code

1 = valid non-empty data was entered

2 = an empty data field was entered

3 = Shift-A was pressed

4 = Shift-R was pressed

5 = Shift-V was pressed

6 = Shift-W was pressed

7 = Shift-Z was pressed

V = return variable

V\$ = return variable

L = low value

H = high value

F = field number

6. The DISPLAY subprogram is used to display characters on the screen at a specified location. This statement can take one of the following forms:

CALL D(Y,X,W,V)

CALL D(Y,X,W,V\$)

CALL D(Y1,X1,W1,V3,Y2,X2,W2,V2\$,Y3,X3,W3,V3,etc.)

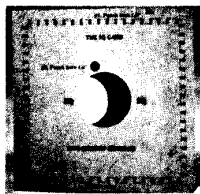
where

Y = Y screen position

X = X screen position

W = field width

(Please turn to Page 30)



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The **SST EXPANDED BASIC COMPILER** contains all of the features of the **SST BASIC COMPILER**, plus most of the features of **EXTENDED BASIC**. It also includes many commands that are not available in **TI BASIC** or **TI EXTENDED BASIC**. A major feature of the **SST EXPANDED BASIC COMPILER** is the ability to add your own commands. If you have need of a command not commonly found in Basic, you can easily add it to our compiler (*Editor/Assembler* module only).

The **SST EXPANDED BASIC COMPILER** package translates a Basic program into TMS9900 machine language, resulting in a great gain in program execution speed. The compiled commands are up to 160 times faster than the corresponding commands in **TI BASIC** or **EXTENDED BASIC**. For a comparison we used our Compiler to run the benchmark program for making change in the April 1984 MICROpendium. This program takes over 30 minutes in **TI BASIC**. When the program was compiled using the **SST EXPANDED BASIC COMPILER**, the program ran in 37 seconds. In fact, you can compile the program, save it on a disk, recall it, run it and still be considerably faster than **TI BASIC**.

A second benchmark program appeared in the November 1984 issue of the MICROpendium (page 22). This program took:

209.4 seconds in <b>TI BASIC</b>	7.2 seconds in <b>TI FORTH</b>
219.6 seconds in <b>TI EXTENDED BASIC</b>	4.9 seconds in <b>WYCOVE FORTH</b>
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The **SST EXPANDED COMPILER** is also many times faster than **TI PASCAL**.

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## PRK ENHANCES BASIC—

(Continued from Page 28)

V = display value  
V\$ = display value

The GETPUT subprogram is used to write data to and read data from a file that has been defined using the PREP and HEADER subprograms and takes one of the following forms:

CALL G(R/W,REC,FLD,V)  
CALL G(R/W,REC,FLD,V\$)  
CALL G(R/W,REC,FLD,MIS,V2)  
CALL G(R/W,REC,FLD,MIS,V2\$)

where

R/W = read/write code

- 0 = write valid data to the file
- 1 = read data from the file
- 2 = indicate missing data in file anything else will cause an error.

REC = record number

FLD = field number

V = numeric value

V\$ = string value

MIS = return code

V2 = return variable

V2\$ = return variable

8. The HEADER subprogram is used to write and/or read the information in the file header. It can take one of the following forms:

CALL H(R/W,INFO,FLD,V)

CALL H(R/W,INFO,FLD,V\$)

where

R/W = access code

0 = write information in header

1 = read information in header

INFO = header item number (value of 1 to 14 which specifies which item of header information is to be read/written)

1 File name (0 to 9 characters)

2 Day of month (Integer from 1 to 31)

3 Month (Integer from 1 to 12)

4 Year (Integer from 0 to 99)

5 Number of fields per record (This is updated by the HEADER routine each time a new highest numbered field is defined)

6 Number of records (This is updated by the GETPUT routine each

time a new highest numbered record is written)

7 Length of header in bytes (This item is automatically maintained by the HEADER routine)

8 Length of each record in bytes (This is maintained by the HEADER routine)

9 Name of field (0 to 9 characters)

10 Type of field

1 = characters

2 = integer

3 = decimal

4 = scientific notation

11 Width of field

character : 1 to 15

integer : 1 to 10

decimal : 2 to 11

scientific notation : 8 to 13 (width of field is automatically handled by HEADER routine)

12 Number of decimal places for field

character : 0 (handled by HEADER)

integer : 0 (handled by HEADER)

decimal : 1 to width-1

scientific notation : 0 to 5

13 Amount of storage for field in bytes (Maintained by HEADER routine)

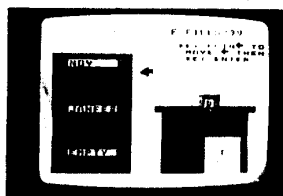
14 Position of field in record (Maintained by HEADER routine)

Note: Items 9 through 14 are repeated for each field defined.

FLD = field number (This parameter is ignored for items 1 through 8 but must be included in the parameter list.)

V = variable name

V\$ = variable name



### E-FILES 99

A VERSATILE ELECTRONIC CARD FILE DATA BASE, WITH EASY TO USE PICTURE DRIVEN MENUS. JUST POINT TO THE DESIRED DRAWER, DEFINE THE FILE ACCORDING TO YOUR OWN SPECIFICATIONS. SORT OR SEARCH BY ANY USER DEFINED FIELD. ADDRESS BOOK CAPABLE, MAIL LIST/LABEL OPTION. SELECTIVE PRINTOUTS AVAILABLE. 3 DRAWERS WITH A MAX 200 RECORDS PER DRAWER. X-BASIC 32K MEM REQ'D. DISK ONLY \$ 20.95

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## KIDware releases 33 new programs

KIDware has released 33 new children's programs for the TI99/4A.

With this new offering, KIDware now has more than 130 TI99/4A programs available for children ages 1-16. These programs are available on cassette tape, with two programs available on each tape at \$9.95 per tape.

For further information, contact KIDware, P.O. Box 9762, Moscow, Idaho 83843 or (208) 882-3830.

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## Adding 8K of battery-backed RAM

# A homebrew module

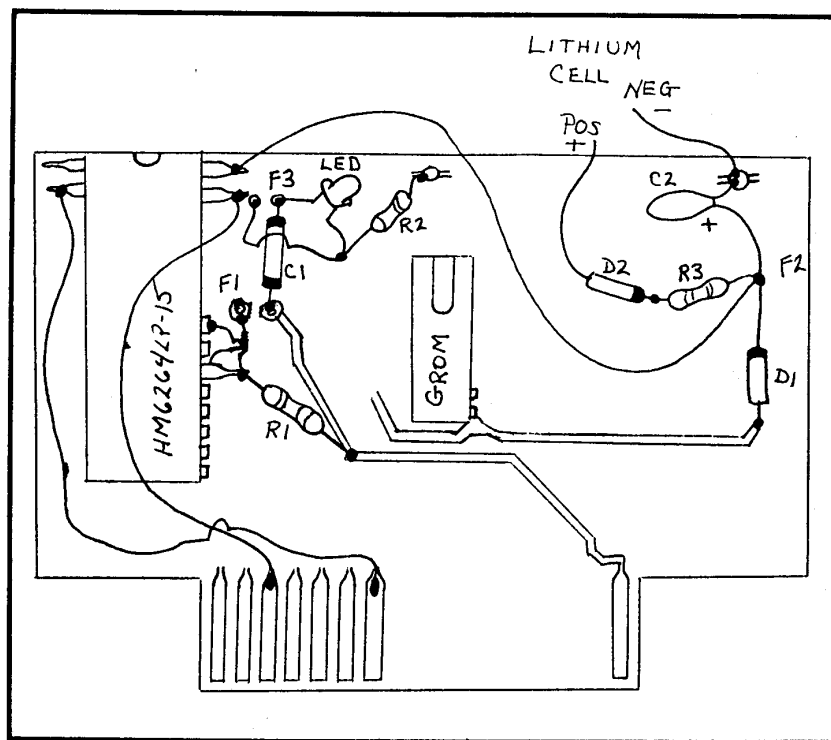
By JOHN CLULOW

Ron Gries has developed a number of useful modifications for the TI computer. Some of you may have heard of Ron's auto-answer auto-dial device which allows an inexpensive modem to be used in a bulletin board system. Ron has also built an EPROM programmer and a battery-backed DSR RAM card for the peripheral expansion box, added 256 bytes of RAM to the 16-bit bus CPU pad in the console and is currently constructing a battery-backed RAM disk. If there is sufficient interest we will be happy to share any schematics and other information on these projects with MICROpendium readers.

This article discusses construction of a very useful Gries circuit that adds 8K of battery-backed RAM to the Editor/Assembler module. The utility of this device derives in large part from its capacity to provide E/A module *menu access* to assembly language software. In effect, this means you can write your own 8K battery-backed command module software.

Software requirements are discussed in a separate article by David R. Romer [scheduled to be printed next issue—Ed.]. The information David provides can be used with programs which do not reference external utilities. A future article will provide a method of loading programs which make use of E/A utilities and the BASIC support package. We believe that source code will not be necessary.

Before you start tearing your E/A module apart, a few words of caution are in order. You will have to remove your E/A GROM and transplant it into a new board: **DO NOT USE** an E/A module you cannot afford to lose. Secondly, we recommend that this project be undertaken only by readers who have had some prior experience building electronics kits. A low watt-



age (25 watt) soldering pencil should be used with minimal contact on IC pins. Soldering and de-soldering techniques are not easily conveyed in an article such as this: If you have any concerns about technique, seek help from someone with more experience.

Do not start the project until you have obtained all items in the parts list and read all of the steps below. Then complete each step in order, checking it off as you go along. If you have any questions you may call either Ron Gries (419) 874-1414 or John Clulow (419) 874-8838 for assistance.

### Preparation of the Game Module Circuit Board

1. Open the game module by removing the screw and prying the corners near the edge connector.
2. Remove the circuit board.

3. Remove the re-set resistor. The resistor is located near F2 in the diagram. It is at the end of the board opposite the large ROM IC.

4. Carefully de-solder the capacitor C1 located to the right of the ROM. Save this capacitor.

5. De-solder and remove both the ROM and the smaller GROM. Use a vacuum type solder remover to suck the solder from each pin from the bottom of the board. Apply the soldering pencil to each pin for 5-6 seconds before removing the solder. After the solder has been removed from all pins try moving the pins back and forth to verify that each one is no longer attached to the board. Some pins may still be loosely attached and the remaining solder connection can sometimes be

(Please turn to Page 33)



## STEP-BY-STEP INSTRUCTIONS—

(Continued from Page 32)

broken by applying a little force with a knife or screwdriver. When all the pins are free, remove the IC.

Both the ROM and GROM ICs from the game module will be discarded. You can safely practice your desoldering technique on them. Try to minimize the time heat is applied to each pin while at the same time insuring the solder is molten enough to be removed by the vacuum device. This technique will subsequently be applied in removing the E/A GROM which will be re-used in the new module.

6. Break the foil connection at F1. F1 consists of two adjacent holes. One end of the C1 capacitor had been in the hole nearest the ROM. Using a knife or other sharp tool, break the foil connecting the two holes on the top surface of the board. Don't worry if you scratch into the plastic portion of the board in the process. Just make sure that there is no metal connecting the two holes at F1.

7. Break the foil connecting the two holes at F3. This time you will find the connecting foil on the underside of the board. The other end of the capacitor C1 had been soldered into one of the adjacent holes. Make sure there is no metal connecting the holes at F3 on the underside of the board.

8. Now replace and solder the capacitor C1 this time locating it in the right hole of the F1 and F3 pairs between which you broke the foil connection.

9. At the end of the board at which the reset resistor was located, you will find a row of eight solder holes. Isolate a hole near the back of the board (F2) by breaking ALL foil connecting it with ANYTHING ELSE. After you have completed this, TRIPLE CHECK to make sure this hole is isolated from all other foil on the board. Solder a resistor lead or other stiff wire into this hole allowing it to stick up about 3/16 inch above the board.

10. Solder a short piece of wire from the ROM hole 18 to the left hole of the pair at F1. Note that ROM hole 18 is the sixth hole up from the lower right.

11. Solder one end of a 1K resistor (R2) to a grounded hole at the back of the board. There are several of them in a row and all have two tabs connecting them to the ground foil that surrounds the board. If you're not sure you have a ground hole check for continuity with any of the large metal circles at the corners of the board.

12. To the other end of the resistor R2, solder one lead of a small red LED. You MUST solder the lead that is adjacent to the FLAT SIDE of the LED enclosure. Solder the other lead of the LED to the F3 end of the C1 capacitor.

13. Solder a wire from the left F3 hole to the resistor-LED connection. This junction (LED-resistor-F3) is not attached to the board. The stiffness of the LED and resistor leads should be sufficient to suspend it above the board.

14. Connect the cathode (banded) end of the D1 diode to the wire you soldered into the F2 hole. Solder the other end of D1 into the hole in the foil connecting to the bottom right pin in the GROM location as shown.

15. Solder one end of a 1K resistor (D3) to the F2 wire and the other end to the banded end of a diode (D2). Solder a wire to the other lead of the diode. This wire is in turn soldered to the POSITIVE pin of the battery holder (the battery is NOT to be placed in the holder at this point). Bend the leads of the battery holder over before soldering.

16. Wrap the R3-D2-wire connection with electrical tape.

17. Solder the + (positive) lead of the tantalum capacitor (C2) to the F2 wire. Solder the other lead to one of the ground holes at the back of the board.

18. Solder a wire from the ground lead of the C2 capacitor to the NEGATIVE lead of the battery holder. DO NOT insert the battery yet.

### Installation of the RAM Chip

Although it has not happened to us, CMOS devices can be damaged by static electricity. As the saying goes,

(Please turn to Page 34)

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# INSTALLATION OF RAM CHIP—

(Continued from Page 33)

an ounce of prevention... When handling the RAM follow the precautions below TO THE LETTER!

Do not work on a carpet or rug of any kind. Spread a large sheet of aluminum foil on the bench you will be working on. Wear all cotton clothing—NO SYNTHETICS. Keep contact with the pins of the IC to a minimum. Handle the plastic body—not the pins—whenever possible.

1. Remove the RAM IC from its static protective packaging. Align the pins to fit into the holes in the circuit board by placing the pins on one side of the IC flat on a table (aluminum foil) and pushing the body of the IC toward them. This procedure will keep the pins in a straight line. Check the alignment with the board and repeat the process as needed.

2. Bend these pins out using needle-nose pliers: Pins 1, 2, 20, 27 and 28. They should be bent outward parallel with the top of the IC.

3. Place the IC in the holes for the ROM such that the notched end is flush with the back of the board. Pin 14 of the RAM IC should be in the last hole on the right side left by the ROM (hole 12).

4. Solder in all pins on the underside of the board. Minimize contact of the soldering pencil with each pin. (Four to five seconds is plenty safe).

5. Solder a wire from Pin 2 to the seventh edge connector pin from the left as shown.

6. Solder a wire from pin 20—CSI—(bent out) to the part of Pin 22 on the upper surface of the board. Make the connection as close to the board as possible and minimize contact time with the soldering pencil.

7. Solder one end of a 1K resistor (R1) to the foiled hole shown and the other end to Pin 20 (bent out). The drawing has been altered for clarity—the foiled hole is actually directly below the left side of the GROM IC holes.

8. Solder a wire from Pin 27 to the third edge connector pin from the left

as shown.

9. Solder a wire from Pin 28 to the wire at hole F2 as shown in the diagram.

### Removal of the E/A GROM

1. Open the E/A module using the same procedure as with the game module and take out the circuit board.

2. Remove the E/A GROM by desoldering each of the GROM pins. While you should minimize contact time with the solder pencil, we have not had any problems with GROM damage—they are not super-sensitive.

3. Place the E/A GROM on the new board (notch toward the back) and solder in all of the pins.

### Initial Test of the RAM Chip

1. With the console OFF, insert the module card into the GROM slot. (The board need not be in the plastic case.)

2. Turn the console on. The LED should light. If it does not, turn the console off and re-check all wiring to find the error.

3. In BASIC, enter:  
CALL LOAD(24576,1,2,3,4)  
CALL PEEK(24576,A,B,C,D)  
PRINT A;B;C;D

4. If you see the numbers 1 2 3 4 displayed on the screen after entering the PRINT statement, the module checks out OK (so far).

5. Turn off the console, remove the module and install the battery in its holder. Be careful to get the + side of the battery facing up.

6. Repeat test steps 1 to 3.

7. If you still see the numbers 1 2 3 4 displayed upon entry of the PRINT statement, turn the console OFF and wait several minutes.

8. Turn the console ON and enter ONLY the PRINT statement. If the battery back-up portion of the circuit is working properly, you will still see 1 2 3 4 displayed on the screen.

### Final Steps

Once the board tests OK, carefully wrap the battery holder in electrical tape so there will be no possibility of shorting. Then place the spring in the BOTTOM of the E/A module case and re-position the sliding door. Place the board in the case, locate the battery

(wrapped in tape) and snap the case closed.

Now repeat the testing process. Once you have verified that the module is working correctly, you will be ready to use the material presented in David R. Romer's article.

## Datex software in public domain

Datex Co. of Ridgewood, New York, reports problems with TI products previously advertised in MICROpendium.

Mike Bergen of Datex writes, "We are now looking for a good Wycove Forth programmer, and if we will find such a person we might again support the TI99/4A. All our 99/4A products are now available as public domain, while quantities last."

For further information, contact Datex, 1923 Linden Street, Ridgewood, NY 11385 or (718) 417-0165.

## Teaching assistant

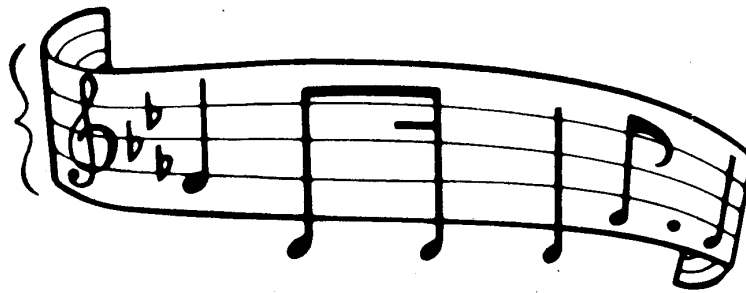
The Charles Morreale Company of Venetia, Pennsylvania, says it has the programs teacher Ken Stephens of Arizona wrote in asking about in May.

Micrograde, an electronic gradebook, includes the following options: Enter student's name; add an evaluation; make corrections, including name change, grade change, name deletion, evaluation deletion and change in possible points; percentum profile for the entire class; individual's profile; sort including alphabetizing roster, class list, letter and percentage grade for all as determined by the teacher and select percentage groups; and a save and/or exit program. Most options are screen or hard copy.

Required are disk drive, Extended BASIC and 32K. Suggested price is \$38.95.

For further information, contact the Charles Morreale Company, 105 Meadowbrook, Venetia, PA 15367 or (412) 941-5419.

# FORTI MUSIC SYSTEM



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Voices	- 12
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Voice Pitch Range	- Bass 1 octave below bass clef Treble 1½ octaves above treble clef
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## GRAPHX

# A full-service graphics package

By CHRIS BOBBITT

For better or worse, there aren't very many truly useful programs available for the 99/4A.

This is really a shame considering that before most people bought the machine, they had some particular purpose in mind—a productive task that could be made simpler with the use of a computer.

Most, even those with the best of intentions, have ended up using the computer solely for entertainment. This is usually because most people can't locate software that enables them to do something on the computer that they can't do elsewhere much easier.

Fortunately, there are a few exceptions. TI-Writer, Multiplan and a number of third-party word processors, mailing list programs, terminal emulators and database programs are excellent tools that make computers productive. These are tools that make your machine more than just a sophisticated Colecovision by turning it into, for a time anyway, a true "productivity tool."

In the area of computer graphics, the category of "productivity tools" is nonexistent. Most other machines have programs that are useful for creating business graphics, incorporating graphics into text or performing even more esoteric but useful tasks. The TI99/4A, in part because its graphics are harder to manipulate, hasn't inspired similar applications programs, at least until now. I'd like to introduce GRAPHX, which is truly, as the subtitle states, "The Ultimate Graphics Software."

This Australian import is different from the myriad of other drawing programs and peripherals available for the 4A. It can be used for something other than creating pretty pictures, even though it can do that too. This program can be easily used to make near typeset-quality text in an infinite number of fonts, create logos and advertising material (even whole ads)

## Review

### Report Card

**Performance** .....A  
**Ease of Use** .....A  
**Documentation** .....A  
**Value** .....A+  
**Final Grade** .....A

**Cost:** \$50

**Manufacturer:** R.L. and C.P. Davis,  
 P.O. Box C568, Clarence Str., Sidney,  
 Australia, 2000

**Requirements:** Console, monitor or  
 television, expansion memory, Extended  
 BASIC or Editor/Assembler, disk  
 system, Epson Mx-80 or compatible  
 printer recommended

and create detailed scientific and business graphs and charts.

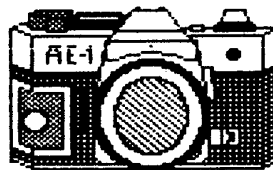
**Performance:** GRAPHX comes on a single disk, and can be loaded through either the Editor/Assembler or the Extended BASIC cartridge. It takes about as long to load this program as the others. (In other words, count on sitting around for about a minute or so

until the program is ready to go.)

After loading, the program draws a fantastic title screen, consisting of a detailed drawing of a 99/4A console and monitor, and an ever-changing monitor "screen." If you could sit and watch, you would see 16 different pictures, from a furry koala bear to a fine drawing of the Space Shuttle, displayed on the drawing's monitor. The program continues to display these pictures until a key is pressed.

After the user presses any key, the screen clears, a star-shaped cursor appears and a little help message is displayed at the top of the screen, indicating to the user that he or she should press any of the program's function keys. The 10 most often used functions of the program are accessible by pressing any of the number keys. The remaining functions are available through a series of pull-down menus that can be accessed by pressing the "=" key. After the menu key is pressed, the menu scrolls down (while carefully preserving your picture underneath it), and an option of the menu is highlighted in a different color

(Please turn to Page 37)



MADE ON GRAPHX IN LESS  
 THAN 3 MINUTES FROM  
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 AND A LITTLE WORK!

# MICROpendium

(C. BOBBITT)

## POWERFUL 'ZOOM' OPTION—

(Continued from Page 36)

(green). To choose an option, highlight the appropriate choice by moving the joystick up or down, and then by pressing the "fire" button. The program uses no other keys; one never has to touch the FCTN, CTRL or SHIFT keys while this program is running. Most input is by joystick, except for those 11 keys at the top. Except for Super Sketch, this program probably has the least complicated of any of the drawing programs.

GRAPHX has a lot of features that set it apart from the other graphics programs. However, the whole genre carries some similarities. Like all graphics programs, it permits the user to use a joystick or other input device (keys, etc.) to draw on the screen in any of the 15 available colors. Like most graphics programs, it can be used to change the color of objects, change the screen colors, fill shapes and erase objects. Like some, it can be used to draw lines and other mundane shapes, and it can save and load pictures from diskette. And like a few, it contains a built-in, Epson-compatible screen print option. However, this particular program contains some features never seen in a program like it for the TI99/4A.

First of all, the program has a powerful "zoom" option. When the "6" key is pressed, a little window-shaped object appears on the screen. The window can be moved to any place on the screen simply by pulling the joystick in the appropriate direction. When the "fire" button is pressed, the portion of the drawing in the window instantly becomes four times larger, and fills the television or monitor screen. This option is excellent for fine, detailed work where a single extra pixel may throw off an entire picture. In the zoom mode, the cursor can be set to any of the five available speeds, and one can draw or erase pixels with the joystick at will. To leave this mode, simply press "6" again, and the screen becomes normal, with all changes implemented. The speed of this routine is spectacular.

GRAPHX also has one of the best line and circle drawing functions ever. Lines and circles are created with a "rubber-banding" method. In other words, a line or circle appears on the screen after "8" or "9", respectively, is pressed, and the shape can be stretched, flattened, made smaller or made larger by moving the joystick in the appropriate direction.

To choose, and thus draw, the desired shape, simply press the "fire" button. An added feature; circles, once their shape has been decided upon, can be moved anywhere around the screen before being placed permanently. This is useful for creating complex figures. The shapes and sizes of the circles and lines are for all purposes infinite.

This program has two features that every graphics program should have but none else do, the ability to move or copy any portion of the screen in either black and white or color. It's very simple to operate. After the "9" key is pressed, a short menu appears. After any of the four available move or copy options is selected, a 16x16 pixel box is displayed on the screen. The box can be made larger or smaller simply by moving the joystick. The user has a choice of four box sizes, 16x16 pixels, 32x32 pixels, 48x48 pixels or 64x64 pixels.

After a size is chosen, the box chosen becomes mobile. It can be moved anywhere on the screen simply by pushing the joystick in the desired direction. After it's on the desired portion of the picture, simply press the "fire" button. A black shadow of the portion of the picture to be copied or moved appears in place of the box. Depending upon the option chosen at

the short menu, one of two things happens. If in the copy mode, when the shadow is moved with the joystick, the original remains. Using the joystick and the "fire" button (used to drop the picture), one can place an infinite number of copies of the shadow all over the screen before returning to the short menu. If in the move mode, after

the shadow is moved a blank area remains where the portion of the picture was removed. To drop the shadow in its new location, again press the "fire" button. These two functions are extremely utilitarian and have a distinctly useful purpose.

The features already listed would be enough for almost any graphics program on the market today, and with the exceptions of the move and copy options, there are graphics programs that duplicate each and every one to some degree. However, this program wouldn't be a true productivity tool if it lacked the last, but most important set of features: the "clipboard" options.

The clipboard, simply put, is an alternate area of memory where many small pictures, even special alphabets and clip art, can be stored until needed, separate from the picture seen on the screen. This file of pictures can be saved and loaded separately from the screen. Thus, the user can build up a library of thousands of fonts and pictures that can be copied anywhere onto other pictures at any time.

All the clipboard features are accessible through a sub-menu of the main menu. Every conceivable option was included. The user can save or load clipboard files from disk, view clipboards without disturbing the picture, put copies of the pictures in the clipboard file any place on the screen, put pieces of the picture on the screen into the clipboard file and delete certain pictures in the file or the entire file. The program is provided with a number of example clipboard files, including computer, gothic and normal letter fonts, and two animation sequences (more on that later). Letters or pictures are placed on the screen simply by selecting the desired picture by leafing through the clipboard, and then by moving the selected object to the desired destination. Shades of MacPaint!

With the clipboard the user can even experiment with computer anima-

(Please turn to Page 38)

## SHADES OF MACPAINT—

(Continued from Page 37)

tion—not the sprite variety but instead that used to make movies; in other words, one frame at a time. After drawing each frame in the screen, simply remove them to the clipboard in the desired order (they are placed sequentially in the file from the first removed to the last), and use the “see” option of the clipboard menu to look at them. You can leaf through the frames at a constant rate of about three or four per second by simply holding the joystick pushed forward. The clipboard will hold about 64 16x16 pixel pictures, 16 32x32 pixel pictures, seven 48x48 pixel drawings or four 64x64 pixel ones. Of course, you can save pictures of various sizes in the same file.

GRAPHX has a number of miscellaneous functions worth mentioning—a typewriter mode where you can move a cursor any place on the screen and type uppercase letters anywhere (great for labeling), a print option that allows screen dumps in two sizes and two densities, the five-speed cursor, an option to turn off the ever-present help lines temporarily, an erase option that puts grey blocks in a checkerboard pattern all over the screen and much more.

I've been using this program for two months now, and except for one minor bug, every function seems to work perfectly. The bug? In zoom mode, the eight pixels in the upper right corner are always transparent, even though they are really another color in the regular mode. It's not a disabling error, just mildly irritating. I have only one other minor complaint which really isn't very fair to the program. I wish it had a catalog disk option (even though none of the others do). This is mainly because clipboard files tend to proliferate like rabbits. A number of times I've had to quit the program in order to catalog my data disks to find the one containing the file I need.

**Ease of Use:** GRAPHX, unlike the grandfather of graphics programs, Draw-A-Bit (and unfortunately some of its progeny), is very simple to use.



The only keys used by the program are the 11 in the top row, the various letter keys and ENTER for such things as entering filenames and in the typewriter mode. All other functions are available through those fascinating pull-down menus and the joystick.

The documentation of the program recommends that the user make a function strip for the top row—and even gives a sample diagram of what it should look like. With this function strip and a good joystick, and by following the multitude of “help” prompts, this program is exceedingly simple to use. Despite the program's simplicity, you can create some really complex graphics scenes the equal of the best made with other graphics peripherals or programs. With the addition of the numerous functions and menu options described, this program is a first class drawing program, almost as versatile and nearly as sophisticated as the \$1,000 Auto/CAD program for the TI-Pro. It's also a heck of a lot cheaper and so much easier to use.

**Documentation:** The manual provided with this program is almost unnecessary. Despite this, it's probably one of the best manuals for any program on this computer or any other. The manual provides instructions and exercises for learning how to use the program, and it's very useful as a

detailed reference source on the operation of all its options.

For the first-time user, the manual contains numerous diagrams and printouts from the program itself to explain options. It includes very understandable descriptions, and even lists possible uses of options, yet remains completely comprehensible. For the technical user interested in adapting pictures or clipboard files into his own assembly programs, the documentation includes a considerable amount of pertinent information. The program disk even includes the assembly language source code for a program to read and display saved picture files. The manual is professionally done.

**Value:** As mentioned, this program is the first “productivity tool” for graphics for the 99/4A. If you own a business, work in an office, or need to prepare reports for school, this program will meet and perhaps exceed your graphics requirements. It can create beautiful charts and graphs, fine title displays suitable for photocopying, quality text in any conceivable font, diagrams and pictures suitable for business and school as well as scientific work. If you are a professional artist, it may not meet your total graphics needs, but a suitable system for an artist may cost thousands of dollars.

(Please turn to Page 47)

## Data Base I

## A useful applications package

By RON ALBRIGHT

For some time now, like the legendary Diogenes, I have been searching the darkness looking for honesty.

I am not looking for an honest man, but searching the software world for an "honest" database.

Several qualities come to mind: good documentation; which leads to the second quality, ease of use; thirdly, full features (including an interface with the TI-Writer word processor); fourthly, reasonable cost; and finally, utilities to be applied to the database files.

The search has been a long one. First, there was Personal Record Keeping (PRK), which was quite limited, with a bizarre file format, making interfacing with anything other than Personal Report Generator and the Statistics module impossible. But it was all we had. Then came NAME-IT (Extended Software), a disk-based program which had many features, adequate documentation (but quite complicated to run) and reasonable price. It did not have a good TI-Writer interface, was quite slow to operate (including the sort routines, five minutes for 250 records, and was very "modular," that is, you could have only 250 records per file and they could not be merged or worked with together. But it was an improvement. Then came Data Base 500/300 (IUG, LaPubCo). Dreadful program as marked, with the slowest data entry protocols I have ever seen, slow to the point that even I had to wait on it to catch up with my hunt-and-peck technique. More recently, we have seen Navarone's entry with Data Base Management on cartridge/disk. Very fast and multifeatured, with 40-column display and word-processor interface, but very limited by the worst documentation in recent memory (requiring the company to make another manual available for additional cost). It was

## Review

## Report Card

Performance ..... A  
Ease of Use ..... A  
Documentation ..... A-  
Value ..... A+  
Final Grade ..... A

Cost: \$29.95

Manufacturer: SPC Software, Box 121, Brightwaters, NY 11718.

Requirements: Console, monitor or television, memory expansion, disk system and Extended BASIC.

also annoying to be unable to input my printer specifications to it because they were too long (I don't think "RS232.BA = 4800.DA = 8" is unreasonable!) It was also at the high end on cost (\$69.95 or so). I have it but I never use it. I have never gained the sense of comfort with it to apply it.

So, the search went on. At least until now. I want to review a package little known in this software market but one that has become the most useful applications package I have acquired since TI-Writer. It is the Data Base I software from SPC Software Company.

**Performance:** What makes this software better? Several things come to mind.

First, it has a variable file format. You are still limited to a maximum of 10 fields per record and a maximum record size of 245; ALL of the programs I have worked with have this last limitation. Navarone and Database 99 allow more fields per record, but all have a record size limited to about a disk sector (somewhere around 256 bytes). The saving trade-off with Data Base I is that you can pre-select record size and the disk space for each record

will vary depending on which size you choose. For example, if you have a simple mailing list consisting of first name (12 characters maximum), last name (12 characters) address (25 characters), city/state (20 characters) and ZIP Code (five characters), you have space requirements of 75. You don't need the 250 or so bytes allocated by most DB's and should not have to be restricted so severely to number of records per disk. So with DB I you can preselect a record size of 75 (53, 117 and the full 245 are the other choices). With record size of 75, you can get around 1,000 records per single-sided, single-density disk, much more than the more rigid file structure of other databases. If you don't need the space, why be confined to using it?

Secondly, the interface with the TI-Writer word processor is well done. Two aspects are worthy of note. There is a built-in "form letter" utility which can handle up to five different letters each run through the file list. You can select who the letter(s) will go to with a match option and vary the matching for EACH of the five letters (thus, you could match LETTER1 with all records with "NY" state, LETTER2 with line match for the "01123" ZIP Code, etc.). There is a "replace prompt" option with the form letter utility which would allow you to change the records after a run through the form letter utility.

Another example: if you send out a collection letter scheduled to go to customers two months after the bill is sent, you can send out the letter and the program will automatically write to the files the date the letter was sent. You can then search through records later to see when a collection letter was sent for a particular account. Writing the form letters for the program is equally simple. Rather than the often-confusing TI-Writer scheme, with this method you simply place in the letter

(Please turn to Page 40)

## CUSTOM PRINTOUT OPTION—

(Continued from Page 39)

file the line number you want to use at each location preceded with the character "I" (FCTN A). If you have a record format where line 1 is first name, line 2 is last, line 3 is address, line 4 is city/state, line 5 is ZIP, line 6 is Mr. or Mrs. and line 7 is the date an invoice was sent, your form letter might look like this:

```
!6 !1 !2
!3
!4 !5
```

Dear !6 !2 :

Our records show that we sent you an invoice on !7 .

Your account is overdue. Please send payment.

Admittedly a terse business letter, but you get an idea how simple the interface is.

The second aspect of the TI-Writer interface involves the "PRINTOUT" option. One of the choices for printouts of files besides (of course) to printer and screen is "TI-Writer". With this option, you write directly to disk in standard Display Variable 80 format. The printouts can then be read with TI-Writer or Editor/Assembler or even sent via modem.

The SPC DBI software also has a very simple "FORMAT" scheme for printouts. You are given, on screen, several standard printouts for mailing labels and the "CUSTOM PRINTOUT" option. With this option you can create any form you wish, even to the point of having up to eight fields per line and six lines per printout. Once the custom format is established, you don't have to do it again; it is written to disk to be accessed easily for future printings. How have I used this format? I have been developing a directory of the members of the TI Forum (Compuserve). The record format is simple:

```
Line 1: First Name
Line 2: Last Name
Line 3: Address 1
```

```
Line 4: Address 2
Line 5: City/State
Line 6: ZIP Code
Line 7: Phone
Line 8: CIS ID Number
Line 9: Data1
Line 10: Data2
```

Mailing labels are simplistic. What I wanted was an easy-to-read printout in hard copy (first, and also in a format transmittable TO the Forum file areas). Standard mailing labels are not easy to search for records, so I formatted for a "line listing"—each record printed out on a single line. Further, I wanted two listings, one sorted by ID number, the other alphabetically by last name. With the SPC DBI, it was simple. I formatted the printout to be:

```
Line 1: 8 2 1 5 [record number]
```

I couldn't include their addresses or phone numbers simply because when printing to disk in D/V 80 format, you are allowed, obviously, only 80 characters per line. Then, using the "COLUMN FORMAT" option, you can left-justify the printout neatly. The records were then sorted separately on the fields I mentioned and printed out. Instead of sheets of paper with mailing labels I have a clear listing of 2½ pages for 150 members. I also have the mailing labels through another format.

Certainly the features mentioned already are convenient and functional. However, the functions that set this software in a class by itself are in the "UTILITIES" package that accompanies Data Base I. With this set of programs, one is able to:

1. Create a file disk with sequenced records on disk; in effect, take a file and rewrite it completely to another usable file sorted on any line.
2. Combine two smaller files into one.
3. Break a large file into two smaller files.
4. Write the same word-string to one field on ALL records.
5. Create a Data Base I catalog of your disks.

All are useful and unique and WORK. My favorite is the Disk Catalog Database. With this utility, you can form a file of your programs and disks, not just for printouts, but to be manipulated and written to just like a database! You can add comments about programs, sort programs, format printouts, etc., all through Data Base I. I think this single feature is worth the cost of the software.

I do have a few criticisms. First, while I personally like the on-disk documentation, if you don't have a printer, you'll have to find someone who does. Also, an annoying "bug" is that when you search for records, you must enter the search string EXACTLY as it appears in the database. If it was entered in lower case, you must enter lower case as the search string; if the last name was entered "Jones", you cannot find the record if you enter "JONES" or "jones" as a search string. A minor hang-up is that records are searched on only the first five characters. This is getting picky, I know, but a search of "Johns" will also show all the Johnsons, Johnstons, etc. Otherwise, the software is completely error trapped and (at least by me), crash-proof. Finally, a comment rather than a criticism. I will continue to look at databases for our machine until I find a "free-form" model with unlimited record size and true relational functions. Until then (never?) SPC's Data Base I is for me.

**Documentation:** The documentation comes as a set of TI-Writer files on disk and is 30 pages of clearly written instructions and examples. There is even a utility included to print out the documentation if you don't have TI-Writer.

**Value:** I give this the highest rating.

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# Freeware (or nearly so)

## Freeware policies

This page is a regular feature of MICROpendium. MICROpendium makes no claims as to the validity of any Freeware offer nor is there any guarantee that any software will be suitable for any purpose.

### Freeware requirements:

- disks sent for freeware should be initialized;
- unless otherwise stated, you must include a stamped, self-addressed return mailer to receive the freeware;
- be patient (those offering Freeware are not doing it for a profit);
- report any problems you have to MICROpendium.

## Software updates

MICROpendium is offering file updates for TI-Writer and Microsoft Multiplan. Also offered at no charge is Super Bugger and an Extended BASIC loader for TI-Forth.

The TI-Writer enhancements offer new printer defaults and true lowercase letters. Multiplan enhancements include an auto-repeating cursor that speeds up program operation. The Forth loader allows TI-Forth to be used with Extended BASIC rather than the Editor/Assembler. Super Bugger is an improved version of TI-Debugger.

TI-Writer and Multiplan updates all fit on a single-sided disk. Super Bugger will fit on a single-sided disk. All three will fit on a double-sided diskette. The Forth loader requires a single-sided diskette. To facilitate handling, order the Forth loader separately from the updates of SBUG. Include the appropriate number of diskettes to Freeware, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

TI-Forth is also available. The cost is \$20 and includes the 232-page manual, the system disk with screens, a demo disk, postage and packaging. Purchasers are asked to include two initialized single-sided diskettes. MICROpendium will supply a third disk containing the source code for TI-Forth at no extra charge.

To order, send check or money order and two diskettes to Forth, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

## Free access library

Amnion Helpline is offering TI users its Free Access Library of public domain software. The library consists of 104 diskettes filled with programs for the TI99/4A.

The library is operated as a non-profit entity by Dr. Guy-Stefan Romano, director of Amnion Helpline. The helpline is a free information service for TI users who have questions about products and other aspects of home computing.

The library provides "volumes" of programs. There are 37 diskettes, or volumes, of games; 10 diskettes of graphics-oriented programs; 16 music-oriented diskettes; 14 diskettes of learning materials in many categories; eight diskettes

of financial and business programs; seven diskettes of technical, scientific and statistical programs; six diskettes of personal and home use programs; and 6.5 diskettes with miscellaneous programs ranging from baseball statistics to programming utilities. There are also a limited number of Pascal and Forth programs available.

Volumes are \$5 each. The cost includes the single-sided diskette, mailer and postage. Users may send their own diskettes and return postage and mailer and obtain volumes for \$2.50 each.

Volumes on double-sided diskettes are \$8, \$4 if the purchaser sends a diskette, mailer and postage.

All programs may be copied and redistributed freely as long as no charge is made for them.

The library also will supply particular programs to fit specific purposes to any user who sends an initialized diskette with return mailer and postage. Enclose a note describing the type of program desired. Amnion will return the diskette with programs that fit the description.

Users are encouraged to donate programs to the library. There is no payment. Include a note stating that the program submitted is to be placed in the public domain.

Order forms for software volumes are available from the library. For more information, contact Amnion Helpline at (415) 753-5581 from 9 a.m. to 4 p.m. (Pacific time) or write to 116 Carl St., San Francisco, CA 94117.

Romano asks that users send no money until after writing for information, as there is no copying fee for many of the programs.

## Free utilities

Danny Michael, of Route 9, Box 460, Florence, AL 35620, has a freeware screen dump and a program called Neatlist.

The screen dump is written in assembly language and is unprotected. It requires XBASIC and works with Epson/Gemini-type printers. The program includes instructions and fully commented source code.

Neatlist is an assembly language utility for XBASIC programmers. Neatlist produces an orderly listing of programs that can be a time-saver in debugging and modifying programs. The program allows the user to set margins for program listings as well as starting and ending line numbers. Listings include easy to read program lines and a list of variables used in the main and subprograms. If you like it, he says, you may pay him for the program, but not more than \$10. If you don't like it, "you keep it anyway," he says. He asks that you give copies of the program to other. Send one disk for each program. Or send \$5 for each program and he will supply the disk, mailer and postage.

## Free craps game

Ramssoft Enterprises, 1501 E. Chapman Ave., Suite 338, Fullerton, CA 92631, is offering its Computer Craps game as Freeware. The game

formerly sold for \$14.95. The game requires XBASIC and expansion memory. Instructions are included as a file that can be read by TI-Writer.

## On cassette

Robert D. Temple, 602 E. Franklin St., Kenton, OH 43326-2015, is offering several small programs in console BASIC. The programs are used in state lottery games to pick either 3, 4 or 6 numbers completely at random using the RANDOMIZE and RND command. Another program picks every possible combination of numbers in Lotto-type games. Send a cassette for the programs.

## Cape Cod Golf

Harry P. Richard, 5 Sandstone Dr., Burnt Hills, NY 12027, is offering Cape Cod Golf as freeware. The game is on cassette and runs out of console BASIC. The game previously retailed for \$14.95. Send \$1 to cover the cost of the cassette, postage and mailer.

## Free routines

Silver Wolf Software, P.O. Box 4242, Santa Rosa, CA 95402, is offering a collection of assembly language routines written for the NORCAL TI99/4A User Group. The utilities include a routine to save and recall an entire screen of text, a routine that creates lowercase letters with true descenders and a complete chart of ASCII characters, alongside their code values. The routines require XBASIC, disk system and memory expansion. Send a disk with return mailer and postage.

## Sprite Builder

John Taylor, 2170 Estaline Dr., Florence, AL 35630, is offering Sprite Builder as freeware to TI users. The program is used to design double-sided sprites. An Extended BASIC-assembly language hybrid, the program requires a disk drive, expansion memory and Extended BASIC. A speech synthesizer and printer are optional.

Those who order must send either two single-sided or one double-sided disk. Included are a cassette version and disk version of Sprite Builder, disk and cassette documentation that may be called to the screen or dumped to a printer, fully commented assembly language source code and 115 predefined sprite patterns that the user may modify or merge with existing programs.

(Please turn to Page 47)

Anyone wishing to have a Freeware announcement included on this page may do so by submitting a copy and brief description of the program, and a note indicating that it is in the public domain, to MICROpendium. The notice will appear monthly, subject to approval by the publisher. Freeware announcements will continue to be published until withdrawn by the person submitting it.

# Newsbytes

## IUG goes bankrupt

The International 99/4 Users-Group, headquartered in Bethany, Oklahoma, has announced that it has filed for protection under Chapter 7 of the Federal Bankruptcy Act.

Charles La Fara, president of the defunct five-year-old group, said that he wished to ship all in-house orders for owner written and translated software to IUG members prior to May 30, 1985. He said there would not be enough capital to refund any full or partial membership dues, and that creditors will be notified by the court as to the final division of assets.

La Fara said that the IUG's software library has been kept intact and that active IUG members will be notified by a new supplier how to purchase items from it.

## Forth and T-shirts

As of June 1, address for the TI Forth International Information Center is 4122 North Glenway, Wauwatosa, WI 53222.

This is the address of the Milwaukee Area 99/4 User Group, which is also selling T-shirts for TI users and user groups.

Sizes range from small to XXL. Colors are blue, gray, white, gold, red, green, orange and yellow. Price is \$5.50 for short-sleeved shirts and \$7.70 for long-sleeved shirts. Minimum order is six of one message, but this may include any mixture of sizes, colors and sleeve lengths.

Messages available are "Texas Instruments User Group," "Boot Up With T.I.," "I Love My T.I.," "Programmers Do It In Groups" and "Texas Instruments Orphan." The group will also fill minimum orders of 10 with custom messages, and says two to three weeks should be allowed for delivery.

## C.A. Root gone?

Readers have reported to us that C.A. Root Associates, whose On Gaming was reviewed in MICROpendium's

first issue, has apparently left the market.

The telephone number has been disconnected, and their post office box has recently been closed. As of this writing, some customers are still awaiting shipment of their orders.

## LarryVision offer

LarryVision's newest catalog, available for \$1 refundable with purchase, includes what the company calls a "spiffy little program" and a logical-character-list programming aid.

The rearranged ASCII list shows which color set a character belongs to, as well as all possible four-character sets for sprite design. The chart may be used when setting up a for-next loop to change characters or colors, to see which characters are affected.

The company has recently introduced a new BASIC game, Froglips.

For further information, write LarryVision, P.O. Box 37702, Jacksonville, FL 32236.

## Auto tax log

Pike Creek Computer Co., producer of the TI-Count series, has recently produced Auto-Count, for business automobile and truck records.

The program sells for \$49.95.

The date, place, purpose, driver and either the odometer readings or total miles driven are typed into a form on the screen. This data is recorded on diskettes and can be easily edited, according to the manufacturer.

Dates and odometer readings are validated to be chronologically consistent with preceding recorded trips. Fuel, maintenance and other costs can also be recorded and accounted for on a trip or year-to-date basis, the manufacturer says.

The company says Auto-Count's management report program can print data for one trip, business trips, private trips or all trips; print trips selected on the basis of mileage, driver or trip numbers; print all trips that contain key words in the "visited" or "purpose" fields (i.e., find and print

all records containing, for instance, "Chicago" or "sales."); and select a complete, partial or summary reporting format.

The TI99/4A version of Auto-Count requires Extended BASIC and one disk drive. The company also produces a version for the IBM PC and compatibles.

For further information, contact Pike Creek Computer Co., 2 Galaxy Drive, Newark, DE 19711 or (302) 239-5113.

## Quality 99 products

Quality 99 Software has recently released three new programs. QS-XREF is said to provide a full cross-reference listing of all keywords, functions, variables, subprograms and line numbers in two minutes with no disk swapping or accessing and no manual operations. The program outputs to either screen or printer. It requires disk drive, 32K memory and Extended BASIC.

QS-Assembler allows a user to load and run the Assembler disk with Extended BASIC. It requires disk drive, 32K memory, XBASIC and the Editor/Assembler disk.

Logo-Lister lists Logo procedures to a parallel or serial printer directly from a disk with the Extended BASIC module. Required are disk drive, 32K memory and XBASIC.

For further information, contact Quality 99 Software, 1884 Columbia Rd. #500, Washington, D.C. 20009 or (202) 667-3574.

Newsbytes is a column of general information for TI99/4A users. It includes product announcements and other items of interest. The publisher does not necessarily endorse products listed in this column. Vendors and others are encouraged to submit items for consideration. Items submitted will be verified by the staff before inclusion and edited to fit the Newsbytes format. Mail items to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

# User Notes

## CC, TK and TI

Here's a trick that came off The Source TI bulletin board. It should be of interest to users with a CorComp disk controller and the TK\*Writer by Tom Knight that loads TI-Writer without the TI-Writer cartridge.

Assuming that you have TK\*Writer and your TI-Writer edit and format files on the same disk, load the CorComp disk manager and go to the File Utilities section. Then press Option 2 for Load and Run. Under file name enter the WRTR program from TK\*Writer and under the program name enter EDITOR. Then hit enter. The TK\*Writer program will load the CHARA, EDITA1 and EDITA2 files, bringing you into TI-Writer without the use of any cartridge. The same process can be used to load Formatter or Utility files. Enter FORMAT for the formatter and UTILIT to access the Utility option.

## Not initialized

**DISK NOT INITIALIZED.** Sound familiar? Those three words can turn even the most hardened computerist into a bowl of jelly. Often this message will occur on a disk that we know holds our best programs and files. But what should one do?

Certainly, don't reinitialize it. Rather, follow a suggestion by Donald M. Thomson III, of M&T Utilityware. Thomson, who created the DISK + AID program, noted this problem in a column that appeared in the Cin-Day Users Group newsletter. "I have found that about 95 percent of the disks I get with that problem can be repaired in about three minutes.

Using a single-sector access program such as DISK + AID, he recommends that you load sector zero into memory and look for the code for DSK starting at address 0D. If it isn't there, then you may have found the reason that the computer says your disk isn't initialized. Enter the code for DSK starting at sector 0D (DISK + AID

allows you to enter in ASCII while others require hexadecimal code) and resave sector zero to the disk. Then try to load a program from it. It should work.

## Changing colors

The following comes from the Winnipeg 99/4 Users Group. T.L. Atkinson, who writes a column for the Winnipeg UG newsletter, issued a challenge concerning modifications to the color defaults in TI-Writer. The response came from Tim MacEachern, author of Wycove Forth.

First, since the color defaults are in the EDITA1 program, it is necessary to copy EDITA1 to a newly initialized disk so that the first sector of the program is at sector 22. Then load a program that allows sector access—Disk Fixer, DISKO, Disk + Aid, etc. Then load sector 22 from the EDITA1 disk into memory. "This sector should be headed by FFFF 2000 2000 0420 3674," Atkinson wrote. Those with a printer may wish to dump this sector for future reference. "Located at address 00F4 you will see a series of words starting with 87xx. The xx is the bytes you will have to change." The five words correspond to the five color choices offered by TI-Writer Editor.

The words are:

- 87F4—White characters on blue background
- 8713—Black on green
- 87F3—White on green
- 8717—Black on cyan
- 87F1—White on black

(The third and fourth digits refer to the foreground and background colors, respectively. Here is a list of the 16 colors and their corresponding hexadecimal codes: Transparent, 0; black, 1; medium green, 2; light green, 3; dark blue, 4; light blue, 5; dark red, 6; cyan, 7; medium red, 8; light red, 9; dark yellow, A; light yellow, B; dark green, C; magenta, D; gray, E; and white, F.)

Now simply change the hex code in any or all of the words to correspond

to the colors you prefer. Then simply save the screen back to the disk and copy the newly edited EDITA1 file back to your TI-Writer disk.

## A box, a box

Richard Sutor of New York City has designed a subroutine that allows users to place a border and other things. First the code, then the explanation:

```
10 CALL CLEAR
100 R=1 :: C=3 :: NC=27 :: NR=19 :: GOSUB 10000
110 REM (ENTER DISPLAY AT CODE)
10000 CALL CHAR(95,"FF00")::
CALL CHAR(125,"000000000000000000FF"):: CALL CHAR(93,"8080808080808080"):: CALL CHAR(91,"0101010101010101")
10010 CALL HCHAR(R,C,95,NC)::
CALL VCHAR(R,C,91,NR):: CALL HCHAR(R+(NR-1),C+1,125,NC)::
CALL VCHAR(R,C+NC,93,NR)
10020 RETURN
```

Now, save the code using the MERGE option. Lines 10000-10020 may be renumbered as long as they are high numbers.

For purposes of illustration, let's say that we want to put a solid border around a program menu. Construct the menu text using separate DISPLAY AT statements for each line. Also, use the SIZE option for each line, i.e. DISPLAY AT (R,C)SIZE(13):"1. First Line". "This will prevent the whole line from being cleared and a 'hole' being punched through the right side of the box," Sutor writes. "Don't use ERASE ALL or the box will be cleared as soon as it's formed."

Select the coordinates of the box. These appear in line 100 in this example: R=starting row, C=starting column, NC=the number of columns and NR=the number of rows. In the example, the box starts at row 1 of column 3 and extends to the right for 27 columns and down 19 rows.

(Please turn to Page 44)

# User Notes

(Continued from Page 43)

Be sure to place the four variables just before the DISPLAY AT statements. Also, include a GOSUB to the subroutine immediately following the variables.

You'll want to use ACCEPT AT statements for input. Just as with the DISPLAY AT statements, use the SIZE option to maintain the integrity of the box.

## Voltage does it

William Fielden, of Louisville, Kentucky, writes: "Having tried loading many cassette programs and encountering the NO DATA FOUND or the ERROR IN DATA messages once too often I called TI to see if they could offer any help. From their assistance I found the computer is looking for a signal of one volt measured peak to peak. With this knowledge, I constructed a 'Y' connector to allow the connection of a Volt-Ohm-Meter to be connected to the ear phone jack from the tape recorder. Next, I set the V.O.M. to 2.5 volts A.C. and tried loading a program while adjusting the volume control and leaving the tone at maximum. By adjusting the volume to give a reading of approximately one volt the program went right in. Then I again tried all the difficult programs that could not be loaded previously and found that out of approximately 50 all but one loaded on the first attempt, and that one loaded on the second attempt. Needless to say, I was very pleased."

## Multiplan changes

Dean Eaton, of Lakewood, Colorado, writes: "You can change the disk drive for transfer commands and printer default in Multiplan by using Forth. Use the same procedure as stated in your April User Note titled 'Forth changes.'"

The defaults are located in the MPINTR file. Copy the file to a newly initialized disk and follow the pro-

cedures outlined in the April User Note item. The screen to edit is number 8. To set the default to disk drive 2 change DSK1 to DSK2. To change the serial printer default to parallel change RS 232.BA=300 to PIO. Remember to space over remaining code in the RS232 description rather than deleting it.

## Bar chart

This little BASIC program comes from the Northern Alabama 99 Computer Users Group, Huntsville. It produces a multicolored vertical bar chart.

Here's the code:

```
100 CALL CLEAR
110 FOR SET=1 TO 31 STEP 2
120 CALL COLOR(SET/2,8,8)
130 A=INT(RND)+1
140 CALL VCHAR(25-A,SET,SET*
8+31,A)
150 CALL VCHAR(24-A,SET+1,SE
T*8+31,A)
160 NEXT SET
170 FOR X=1 TO 16
180 CALL COLOR(X,X,X)
190 NEXT X
200 GOTO 200
```

Line 130 controls the size of the bars. Substituting the values in line 130 will change the height of the chart.

## Rewarding sound

Pleasant sounds can be so rewarding, and here's a tune that can be inserted into a BASIC or Extended BASIC program to brighten it up. Each statement must be on a separately numbered line in BASIC, or may be entered as is in Extended BASIC:

```
100 CALL SOUND(110,262,1) ::
CALL SOUND(110,330,1) :: CALL
SOUND(110,392,1) :: CALL
SOUND(298,523,1) :: CALL
SOUND(95,392,1) :: CALL
SOUND(350,523,1)
```

This sound advice comes from the Delaware Valley Users Group, Wilmington.

## Joystick tester

A number of readers wrote in in response to the Rev. Carl Hoffmeyer's inquiry regarding why his joysticks would not go up, suggesting that the problem might be the Alpha Lock being on.

Carlo Angelico of Philadelphia, Pennsylvania, also included a joystick-testing program, which he says scans either joystick and returns the value read by the computer in BASIC. The program also informs you of when the fire button is pressed, Angelico says. Extended BASIC is required for the program.

```
100 CALL TITLE :: CALL CLEAR
:: CALL SCREEN(6):: PRINT "
RELEASE ALPHA LOCK!!!": : :
110 INPUT "TEST WHICH JOYOS
T?(1 OR 2):":NO :: IF NO<1 O
R NO>2 THEN 110 :: NO=INT(NO
)
120 CALL CLEAR
130 DISPLAY AT(1,3):"JOYST #
":NO :: DISPLAY AT(7,11):"X
Y" :: DISPLAY AT(8,11):"-
"
140 CALL CHAR(33,"191818FFFF
FF1918"): : CALL PLOT
150 CALL JOYST(NO,X,Y):: DIS
PLAY AT(10,10):X,Y :: CALL P
OINT(X,Y):: CALL KEY(1,K,S):
: IF K=18 THEN CALL FIRE
160 GOTO 150
170 END
180 SUB PLOT
190 DISPLAY AT(10,4):"A" ::
DISPLAY AT(12,2):"- " :: DIS
PLAY AT(12,4):"X" :: DISPLAY
AT(14,4):"X"
200 DISPLAY AT(12,6):"- "
210 DISPLAY AT(11,3):"." ::
DISPLAY AT(11,5):"/" :: DIS
PLAY AT(13,3):"/" :: DISPLAY
AT(13,5):"."
220 CALL SPRITE(#2,89,2,60,4
1):: CALL SPRITE(#3,88,2,88,
14)
230 SUBEND
```

(Please turn to Page 45)

# User Notes

(Continued from Page 44)

```

240 !
250 !
260 !
270 SUB POINT(X,Y)
280 IF X=X2 AND Y=Y2 THEN SUBEXIT :: CALL DELSPRITE(ALL)
290 IF Y=4 THEN CALL SPRITE(#1,33,7,72,40):: X2=X :: Y2=Y :: SUBEXIT
300 IF X=-4 THEN CALL SPRITE(#1,33,7,88,24):: X2=X :: Y2=Y :: SUBEXIT
310 IF Y=-4 THEN CALL SPRITE(#1,33,7,104,40):: X2=X :: Y2=Y :: SUBEXIT
320 IF X=4 THEN CALL SPRITE(#1,33,7,88,56):: X2=X :: Y2=Y
330 SUBEND
340 !
350 SUB FIRE
360 DISPLAY AT(21,3):"->FIRE BUTTON PRESSED<-"
370 CALL WAIT(4)
380 DISPLAY AT(21,3):"
"
390 SUBEND
400 !
410 SUB WAIT(T)
420 FOR X=1 TO T :: NEXT X
430 SUBEND
440 !
450 SUB TITLE
460 CALL CLEAR :: DISPLAY AT(88,3):"JOYSTICK TESTER..."
:: DISPLAY AT(18,5):"PRESS:"
:: DISPLAY AT(20,7):"I-INSTRUCTIONS"
470 DISPLAY AT(24,7):"<FCTN-4>-TO QUIT"
480 DISPLAY AT(22,7):"ANY OTHER KEY TO BEGIN"
490 CALL KEY(0,K,S):: IF S=0 THEN 490
500 IF K=73 OR K=105 THEN CALL INSTRUCT
510 SUBEND
520 !
530 SUB INSTRUCT
540 CALL CLEAR
550 PRINT "PICK JOYSTICK # YOU WANT TO": "TEST. THE X&Y INPUTS ARE": "SHOWN UNDER X & Y COLUMNS.": "THE LAST POSIT

```

```

IN OF THE": "JOYST IS"
560 PRINT "SHOWN IN THE LEFT -MOST ": "FIGURE BY A RED CROSS.": "EXIT THE PROGRAM BY PRESSING": "<FCTN-4>."
570 PRINT :: :: :: :: ::
580 PRINT "PRESS ANY KEY TO CONTINUE."
590 CALL KEY(0,K,S):: IF S=0 THEN 590
600 CALL CLEAR :: SUBEND
610 !
620 !END OF PROGRAM - WRITTEN BY C.Angelico 12-29-84
630 !
640 !
650 !

```

## Reviewed in MICROpendium

### 1984

**February:** B-1 Nuclear Bomber, Tandon TM-100 Disk Drive, Void, Beanstalk Adventure, Microsurgeon, On Gaming, Database 500  
**March:** Star Trek, Escape From Balthazar, Garkon's Getaway, Sky Diver, Mail-Call, Pro-writer 8510 Printer

**April:** Monthly Budget\$ Master, Budget Master, Home Budget, Thief, Donkey Kong, Khe Sanh  
**May:** Companion Word Processor, Q\*Bert, Mad-Dog I & II, Programs for the TI Home Computer

**June:** Creative Expressions Accounts Receivable/Accounts Payable, CDC 9409 Disk Drive, Starship Concord, Lost Treasure of the Aztec, ASW Tactics II

**July:** Theon Raiders, Introduction to Assembly Language for the TI Home Computer, Game of Wit, Pole Position

**August:** TE-1200, Tower, Galactic Battle, Galaxy

**September:** Wycove Forth, 99/4 Auto Spell-Check, QUICK-COPYer, Wizard's Dominion, Anchor Automation Mk XII Modem

**October:** Killer Caterpillar, ZORK I, Defender  
**November:** 9900 Disk Controller Card/Manager, Super Bugger, Transtar 120S printer, Floppy-Copy, Data Base-X

**December:** Gravity Master, Data Base Manager System, Learning 99/4A Assembly Language Programming

### 1985

**January:** Super Sketch, Foundation Computing 128K Card, PTERM-99, TI-Runner

**February:** Super Extended BASIC, Beginning Assembly Language For the TI, ZORK II

**March:** Morning Star Software CP/M Card, WDS/100 Winchester Disk Drive, Sketch Mate, BMC Color Monitor

**April:** 9900 Micro Expansion System, Disk'Aid, Gemini 10X-15X

**May:** Character Sets and Graphics Design, Draw 'N Plot

## Shepherd Software releases S-FILES and S-REPORT

Shepherd Software has released S-FILES and S-REPORT.

The company says that coupled with them are the common utilities necessary to print, copy, sort, merge and create subfiles.

According to the company, the user defines screens, file layout and content and is allowed complete disk usage (350 records on a single side, 710 on double-sided). The user can assign his own item names and size (28 bytes maximum), up to 22 items per record, and can sort and create new files or sort only for the current need (labels or reports).

S-FILES is said to allow accessing any record directly by record number, browsing or searching on item value including wild card. The user can change or add records with on-screen commands.

S-REPORT is designed to allow the user to define nine different rules to print up to nine different versions of labels or reports from the same file. Totals and subtotals can be requested on any item the user wishes control breaks for. Users can specify the order for items to print (columns left to right) and the beginning tab position for each column, allowing custom-designed report format (such as one, two or three printed lines from each record in the file). A count of records to be printed may be requested. Records may be requested with items equal, unequal for a specified item name and value, or all items. Label may be printed five wide with user-specified tab for each label and up to three items per line for the number of lines specified.

S-FILES and S-REPORT will be available to distributors or customers may mail check or money order to Shepherd Software, N. 87 W. 17833 Shepherd Drive, Menomonee Falls, WI 53051. Price is \$59.95 plus \$2 postage and handling. Wisconsin residents add 5 percent sales tax.

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### NUTS & BOLTS

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ages to Epson or Prowriter compatible printers in just 45 seconds for \$15.00. Send for catalog to BRIGHT MICRO COMPUTERS, 2781 RESOR ROAD, FAIRFIELD, OHIO 45014. v2n5

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This disk contains a Super Home Finance Helper program that you can use to print your checks, budget and save for large bills. (Contains 4 linked programs, totaling 186 sectors, with 25+ page manual.) Bonus programs include: Lister, Cataloger, monthly (3 variable) Charting and VCR Filer pro-

# Classified

gram. (These programs total more than 70 sectors.) Programs written by Professional Engineer. Mail \$24 to: Rodney Wirtz, 377 Loma Ave., Long Beach, Calif. 90814. ExB/32K. v2n6

## TI99/4A INTERACTIVE ADVENTURES

Newest, intriguing text-only excitement! Discover "Temple of Terror" and "Cave-In." Ransack an ancient and deadly Greek temple, avoiding traps, cobras and the feared Brotherhood. Or explore a definitely hazardous cavern to find the lost

"Borealis Bullion" while avoiding outlaws and hazards enough to test your deductive abilities to the limit. To order, send \$10 each (BASIC-cassette), \$12 (XBASIC cassette—Harder!), or \$15 (XBASIC Disk—Most Complex!). For both XBASIC adventures send \$20 (cass.) or \$25 (disk). We pay postage. FOXWARE, 167 Watt St. 60-7, Battle Mountain, NV 89820. v2n5

## TIPS FROM TIGERCUB

For TI99/4A, full disk of 50 programs,

routines, files from the well-known Tigercub Tips newsletters -1-14. \$15 postpaid. Tigercub Software, 156 Collingwood, Whitehall, OH 43213. v2n8

## PROGRAMS OFFERED

Baseball card inventory program \$19.95. Portfolio management \$19.95. Options and bond analysis \$19.95. Extended BASIC and disk drive required. Richard F. Erznosnik, 2836 Melhollin Dr., Jacksonville, FL 32216. v2n7

# FREEWARE (OR NEARLY SO)

## (Continued from Page 41)

Sprite Builder has 22 active functions which are accessed with a single key press. These functions include turning a dot on or off, setting automatic cursor movement, complete color control, retrieving previously defined sprite codes, saving sprite codes, animating up to four sprites, generating hexadecimal codes and rotating the sprite. Sprite Builder generates MERGEable CALL CHAR statements on disk that can later be merged into a program.

The design screen consists of a 16x16 block grid and four smaller blank screen areas stacked on the right side. As you create a design on the

large grid, the sprite appears on one of the small screens in actual size, allowing you to see exactly what it will look like before it is finished.

Those who wish to obtain the programs without sending disks and prepaid return mailers may do so by sending \$5 for a double-sided version or \$7.50 for two single-sided disks.

## Texnet freeware

Texnet, the Texas Instruments electronic network operating on The Source, offers some 250 downloadable programs at no charge to Source subscribers. For more information, write Texnet

at Soft Mail Inc., P.O. Box 745, Rockwall, TX 75087.

Anyone wishing to have a Freeware announcement included on this page may do so by submitting a copy and brief description of the program, and a note indicating that it is in the public domain, to MICROpendium. The notice will appear monthly, subject to approval by the publisher. Freeware announcements will continue to be published until withdrawn by the persons submitting them.

# Graphics program to come out

Great Lakes Software plans to introduce Joy Paint 99, a graphics program which the company describes as being similar to MacIntosh MacPaint.

The company plans to retail it for \$29.95. It will feature joystick and keyboard control and allow the user to draw lines, circles, boxes, fill shapes with patterns, use varying kinds of type for text and allow full-page printouts.

The company also markets Extended Business Graphs (\$24.95) and Banners (\$19.95). EBG allows users to create bar graphs, pie charts and X/Y graphs based on data input by the user. Up to a dozen variables can be used which are both labeled and named. The graphs are output to a printer. Banners allows users to printout extremely large characters (7 1/4 inches deep) to a printer. Both programs require a memory expansion, disk system and Extended BASIC.

For more information, contact the company at P.O. Box 241, Howell, MI 48843.

## GRAPHX—

## (Continued from Page 38)

The program is also exceptionally enjoyable to use, letting even those of us who can't even draw a straight line create exceptional quality pictures in 15 brilliant colors. For a mere \$50 this program exceeds the specifications of MousePaint (\$135) on the PCjr, and many other programs. If you have a professional or casual interest in graphics, this program is for you. Next to TI-Writer, I personally use no other program more.

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