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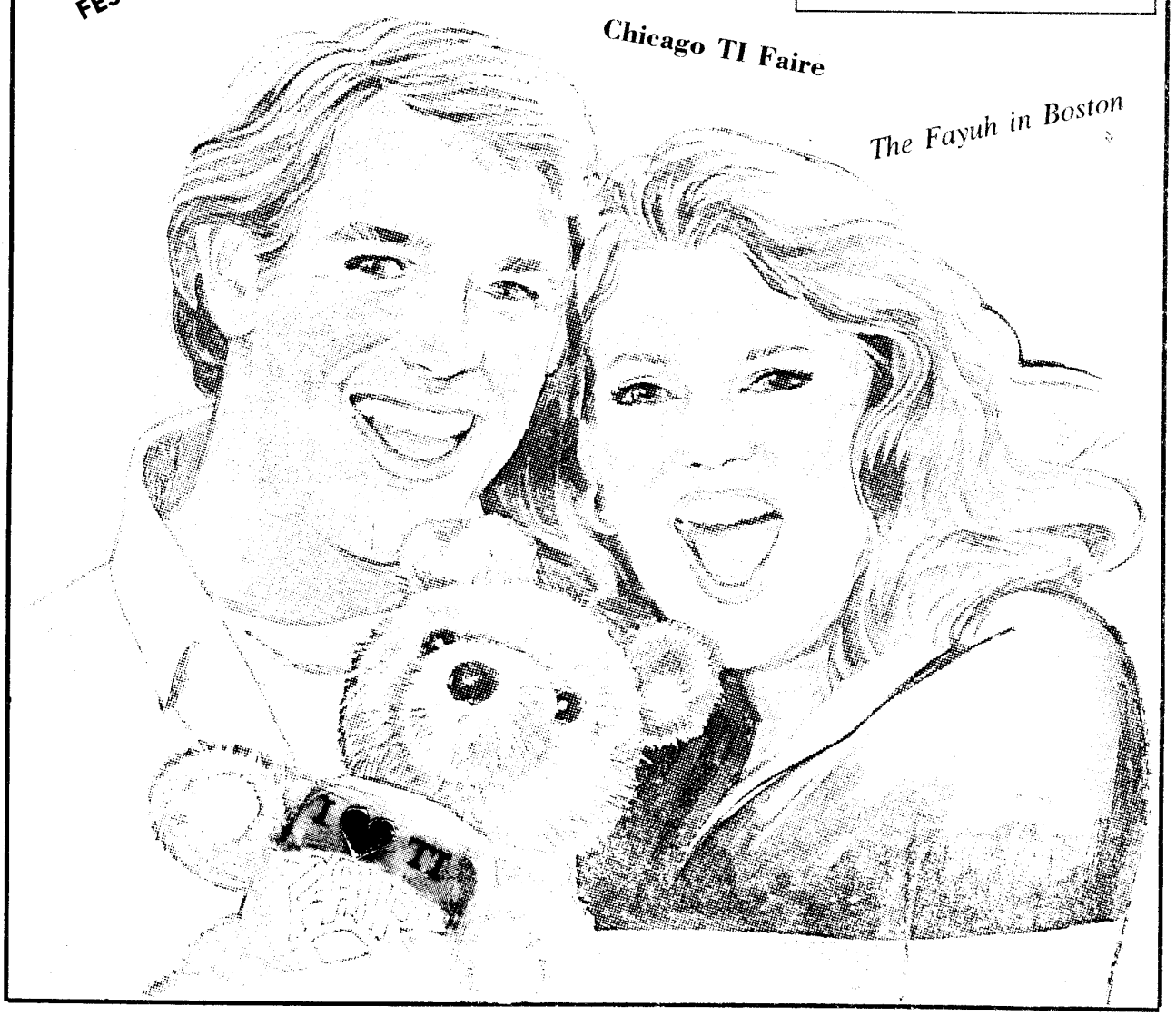

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Programming conventions

Here are some tips to help you when entering programs from MICROpendium:

1. All BASIC and Extended BASIC programs are run through Checksum, the numbers that follow exclamation at the end of each program line. Do not enter these numbers or exclamation points. Checksum was published in the October 1987 edition.
2. Long XBASIC lines are entered by inputting until the screen stops accepting characters, pressing Enter, pressing FCTN REDO, cursoring to the end of the line and continuing input.

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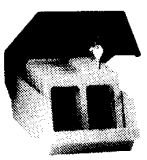

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Comments

Fairs keep things interesting

Attendance at a number of TI fairs across the country this fall seems to indicate an abiding interest in the TI. This year MICROpendium attended two of them — in Dallas and Chicago. Attendance was around 200 at the former and exceeded 500 at the latter. While Chicago is the biggest of the annual TI fairs, others around the country routinely report attendance by hundreds of visitors.

It's clear after speaking with Don Jones and Marcy Brun of the Chicago TI User Group that organization is the key to a successful fair. Marcy began planning the fair last January and as the fair date found little trouble enlisting the help of other club members to head committees. Putting on a fair is a big job, especially if you want to attract a large audience and plenty of vendors. But it's a task that many user groups do perform and we have them to thank for keeping the TI calendar of events going.

To help with this, MICROpendium will begin a monthly column of listings of special TI events and fairs throughout the country. This will be a permanent listing each month and will include the sponsoring group's name, the location, date and times. To do this we need your help. As soon as you have a firm date for an event, drop us a line so we can post it in MICROpendium throughout the year.

Of course, this listing isn't meant to replace the articles and newsbytes detailing fair schedules and activities. We will continue to publish this information separately on a timely basis.

As an aside, we'd like to thank Jane LaFlamme and the Ottawa TI99/4A Users Group for the award she presented to MICROpendium at the Chicago TI Faire. We hope our readers continue to enjoy MICROpendium now and in the years to come.

A FEW NOTES

I didn't have time to finish the concluding installment on telecommunications services for this issue. It will be published in the December issue.

We've substituted our regular c99 column with an article by Warren Agee. There is a second part to Warren's article that will run in December, after which we will resume publication of Charles Kirkwood's *Trials of a c99 beginner.*

We just ran out of time and room to put a Myarc Q&A in this month. (Going to Chicago really affected our production schedule.

YET ANOTHER QUESTION

And just to throw a monkey wrench into the works — I am aware that MICROpendium doesn't always survive the mailing process in good shape. Covers and pages are frequently torn or crumpled, and sometimes the postal machinery just mangles the magazine beyond repair. I don't know how widespread this problem is (I know of some subscribers whose copies always arrive in pristine condition) but one alternative is to have each of the copies slipped into 9x12 envelope prior to being labeled and mailed. Of course, this would raise the cost of a subscription because we'd have to pay a company to do the inserting and sealing of the envelopes. This would also increase the weight of each copy so the postage costs may go up. So, to do this we would have to pay for envelopes and printing on the envelopes, inserting and sealing and extra postage. I estimate that this would add about 50 cents per month to the cost of MICROpendium.

The question I have is, is it worth it to the vast majority of our readers in the continental United States to do this. (Postage prices for Canadian, foreign and first class delivery to Hawaii would increase substantially because of the increased weight so for now we're only considering U.S. subsribers.) The benefit is that the magazine would arrive flat and untouched by post office equipment. No torn corners, no torn pages. No covers obliterated by machines.

To measure the depth of feeling on this proposal, I'm asking readers to send us a post card with the word YES or NO written on it. Yes if you would pay $6 for mailing envelopes, No if you wouldn't. (Those who still have many months left on their subscriptions would be billed for these increased costs on a pro rata basis.) We will count the yes and no votes and will go to envelopes only if the vast majority of readers vote Yes. Also, we need to see a lot of postcards. If only 5 percent of our readers respond, then it would seem that this isn't as big of an issue as it is sometimes made out to be.

Ready. Set. Go. Send those postcards in. We'll tabulate the vote on Dec. 31.

—JK

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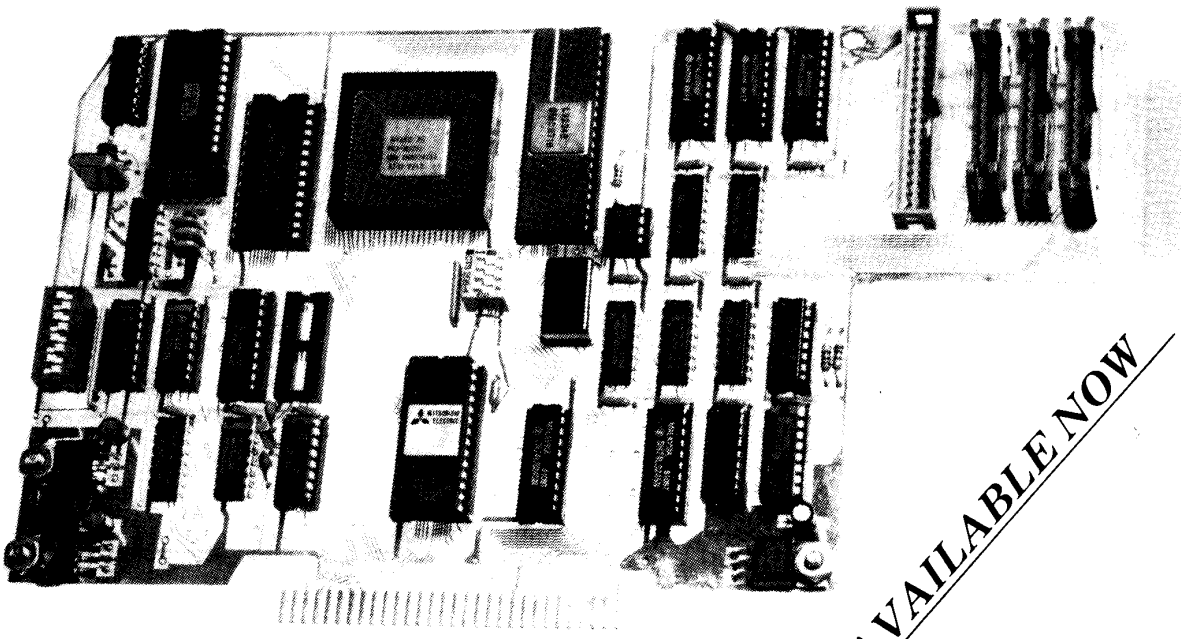

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Feedback

Send new instructions

I feel compelled to write you for the benefit of your readers who have the Geneve and Hard Disk Controller.

I have had the Geneve and only recently was able to get the hard disk drive. As your readers will know, there are numerous difficulties in setting it up, formatting the disk, etc., and unfortunately the manual accompanying the hard disk is not helpful and somewhat confusing. However, by calling J. Riley, he put me through steps as should be written in the manual and, without exaggeration, on two occasions spent more than an hour with me on the phone working the computer and not only solved the problems, but set it up correctly. For those who have set it up correctly, it is a delight and pleasure to work with the setup. I suggest that J. Riley should set up instructions, step by step, which should be included with the equipment when delivered.

Gerald F. Perry
Muttontown, New York

Library suggestion

Our users group has done something I think is unique. Most libraries will not stock computer magazines dedicated to one machine. This is especially so of an orphaned computer. The library in Champaign, Illinois, is no exception. I had suggested they carry MICROpendium and they rejected it. However, our users group offered to purchase them a group subscription and they accepted.

We will be generating stickers to put on the issues noting that our group donated it, and when and where we meet and possibly a telephone number to call for more information.

We hope this will benefit all. You will get exposure and possibly get some more subscribers, we could pick up some new members, and the TI community will benefit by, we hope, more people discovering that the TI99/4A is not dead. I strongly suggest that other users groups consider contacting local libraries and making similar offers.

Marc C. Levine
President, WW99ers
Champaign, Illinois

Book available

Here is something I discovered the other day: The book *Learning TI-994/ Home Computer Assembly Language Programming*, by Ira McComic, is still available directly from the publisher (Wordware Publishing).

You can get price and ordering information by calling 1-800-231-7467.

Dan H. Eicher
Indianapolis, Indiana

Book not available

I recently received a letter from a gentleman asking about the book *Dynamic Games for Your TI*, mentioned in my published TP99 article, asking where he could get a copy.

He cannot. I am not aware of any publisher at present with books listed for the TI99/4A.

I cannot afford to reply to everyone who sends queries. A dollar note will ensure that even the daftest letter is responded to! Two International Reply Coupons, available from any Post Office, will also do the trick!

Stephen Shaw
Stockport, England

Reply to review

I would like to say a few words in response to Harry Brashear's review of my program Graphic Lister (Sept. 1988).

The difference between reviewers of this program is quite amazing. Ron Albright (June 1988 *Computer Shopper*) was really positive about it and urged his readers to get it. Harry Brashear not only didn't like it but was able to tell me what language it should be rewritten in, which parts of it could be "blown away" and just what the program should be able to do.

First, let me clear up some inaccuracies: 1) Program "THREE" will not do everything ONE and TWO will. ONE and TWO print their five lines of text within a *1-inch label size format*. THREE prints its five lines of text within a *1.5-inch label size format*. 2) TWO does not do everything ONE does. ONE prints text in graphic fonts only, while TWO prints in printer font only plus a 7-row x 5-col instance. 3) There is no earlier version of Graphic Lister. Compatibility with the *mailing lists* of a previous BASIC program (Labelmaker) is all that's provided. 4) In the latest version, the autoload program is not "Beaxs" but a public domain c99 program loader.

Some responses to points made:

1) The three printing programs (ONE, TWO, THREE) could possibly be reduced to one but were not for several reasons: the programming code was simplified, the goal of each is slightly different, I wasn't sure there was sufficient memory to do it all in one program, and I opted to provide three programs with simplified menu options as opposed to one program with menu options necessarily more complex from the user's standpoint.

2) c99 does tend to produce large program files. Just a one-line program coupled with the library files needed to run these programs results in a 26-sector program file.

3) No, the program is not "bulletproof" (but why would anyone want to shoot bullets at it anyway?). For example, if you type in your name when it asks for how many labels you want to print, the program crashes. This has been corrected in the latest version. I have used all three programs to print out a 120-name mailing list in all the options (labels, 3x5 and 4x6 cards, 8½x11 sheets) using many different fonts and graphics, yet I have never come up with a blank screen. Nor has any person who has bought the program written to me complaining of this problem, either.

4) The solution is not to rewrite the program in XBASIC (which has a track record of unacceptably slow graphics printing), but to add more error-trapping and chances to "back out" of an option selection. Again, the latest version (which has been sent to Mr. Brashear) does this.

5) My c99 programming ability can't be all that bad, since a previous c99 program (Designer Labels) has been purchased by Texaments and is now included in their TI-Artist support library.

6) In response to Mr. Brashear's suggestion, I have included in the latest version (1.2) a program called "Message Printer" which prints out a TI-Writer file (of appropriate size) on fanfold 3x5 and 4x6 cards. This may be in your printer font or one of the 1x1 TI-Artist fonts.

(See Page 10)

TI ARTIST Support Software

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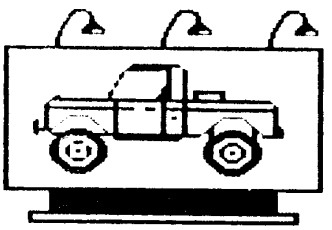

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Designer Labels was created to allow TI Artist users to design and print instances repetitively in a number of standard mailing label sizes, and on 3x5" and 4x6" index cards. It is very useful for creating personalized return mailing labels, warning labels, holiday greeting labels, and the like. And with the new Designer Labels Companion products you can add some "spice" to such labels, and help eliminate most of the guesswork involved in creating these labels using TI Artist.

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Feedback

(Continued from Page 8)

I write for the TI as a hobby. I enjoy it and hope something worthwhile is being contributed to the TI community. In a day when fewer and fewer people are writing software for the TI, it would behoove anyone reviewing new software to lace his comments with a bit of "grace," even if he feels it needs improvement. I'm sorry Harry was frustrated in using the program. But the review struck me not so much as a balanced summary as an opportunity to vent the reviewer's irritation. That sort of "encouragement" does not foster continued software development.

Paul Coleman
Nameloc Software
Portland, Oregon

'Do-it-yourself'

In regard to Mr. Thomas Spillane's letter in the October Feedback column concerning my article on the Yamaha 9938 video chip, I'd like to reiterate and emphasize some important points concerning the "do-it-yourself" section of the article.

Although DIJIT Systems and Myarc have spent considerable effort in developing 9938 based circuits that can either emulate the /4A video environment, or replace the 9918A chip in the /4A, the "simple" design mentioned in my article is clearly described as a *peripheral* device. This means that it is accessed like other I/O devices (RS323, disk drive, etc.) in a DSR location. It would not replace the display generated by the 4A; it would be capable of producing a concurrent display on a monitor separate from the one used by the 4A. The circuit shown in Figure 4 is not intended to be used as the main display of the 4A, but rather to allow for a simple prototype for hackers to work with the 9938 chip.

Admittedly, this would have severe limitations, but the purpose of including the circuit diagram and description was to stimulate interest in further development of 9938 based products by "demystifying" a rather complex chip. After all, if DIJIT and Myarc had not hacked on the 9938, we would not have their fine products available today.

Since my articles were geared almost exclusively towards the hardware aspects of the 9918A and V9938 video chips, hackers should note Tom's extremely valid point: without the software for the interface, any of these cards are nothing more than hi-tech paperweights. And the software can indeed take upwards of 90 percent of the design effort for a complex project like the Geneve or the AVPC. However, since the "simple" design presented in my article makes *no* attempt at compatibility with the /4A display, software development effort should be considerably reduced.

In any case, whether you want to try to "do-it-yourself", or just want to get more from the existing 9938 products, I encourage all interested readers to jump right in there and let's see what exciting and useful applications we can come up with for the V9938 and the TI community.

Tony Lewis
Raleigh, North Carolina

Driving a Model A

There are so many rumors that the TI99 interest is waning, that sometimes I feel like I'm driving a Model "A" and should in a new Buick. Is there anything to these rumors?

Leo F. Letourneau
Mountain Home, Arkansas

Maybe somewhat — but a Model A is a "classic" while a Buick is just another car. — Ed.

Not biting the hand

Though it'll seem like I'm biting the hand that fed me (a four-star MICROreview of my Infocom Game Rapid Loader Oct. '88), I must object to Harry Brashear's first MICROreview. His idea is a good one but his execution was way off base.

He emphasized he doesn't intend to review "the big guys with the big programs" and implied he intends to give a helping hand to "the guys and gals who are coming up through the ranks," then reviewed programs from a few "unknowns," such as CorComp (Writerease Update), Mike Dodd (M-Copy) and Asgard (Disk of Dinosaurs, written by Ken Gilliland). If he calls these professional people and companies "unknowns," who are his "big guys"?

It's possible that Mr. Brashear simply didn't have any other material available to launch his "series," but I think MICROpendium should lay a few ground rules for any future MICROreviews. Consider this: These people and companies he "capsulized" spent time developing the program. That got them three or four paragraphs apiece. I feel they deserve much more, because these professionals are the ones who are keeping the TI alive and well for us all!

In all fairness, I stress that I'm not complaining for myself, even though Mr. Brashear did rename my Rapid Loader as Fast Loader. After all, he did get the price and my name and address right, which was helpful. I also point out that I did not send him Rapid Loader to review for me and I would prefer to give another writer a shot at reviewing my latest fairware release, Artcon+. (I feel I'm "famous enought now, so I really don't need all THAT much "help.") Yes, I would like to see more MICROreviews, but I hope, in the future, Mr. Brashier limits his enthusiasm to those people who specifically request his help and have sent him software for a possible review. As for the rest of this first MICROreview, well . . . the best I can give it is two stars (needs improvement, but workable).

Ray Kazmer
Sylmar, California

Film and book critics are not limited to reviews requested by studios or publishers; software is similar — Ed.

School will take TI donations

I am writing concerning your article "A Man on a Mission" (Comments, Oct. 1988) about the idea Jim Horn has. As an administrator of a Christian school, I can truly say that we will and can use any TI99 computers, hardware or software that anyone wants to donate. We have one fully expanded TI99 that we use with our students. But with 170 students, one does not go very far. If you or Jim know of anyone that would like a tax deduction for TI99 equipment, please inform them of us.

Robert J.C. Driggers
Winder, Georgia

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BASIC

A computer Christmas greeting

By REGENA

First, a response to Mike Dodd's "Feedback" in the September 1988 issue of MICROpendium. As Mike knows, I am strictly a BASIC programmer and don't really know how a computer works — just what commands make it work. He says using lower line numbers (such as in NUM 1,1) does not save memory. I'm sorry to have misled you in my August 1988 column!

On some other computers (such as VIC-20 and Commodore 64), the length of the number does make a difference. Actually, the line number itself doesn't increase memory, but when you reference the line number from another line, it does. For example, on such computers, 100 GOSUB 3550 really is three bytes longer than 100 GOSUB 3 because the length of "3550" is longer than "3". However, that appears not to be the case for the TI.

Let me give you just one example of how lower line numbers can save memory on the TI. Let's suppose you let the computer choose a random number from 1 to 29, then use GOSUB to draw one of 29 different graphics and return to the main program. (For example, this could be used in drawing the 29 counties of Utah.) Using low line numbers, this can be done with a statement such as:

```
200 ON N GOSUB 10,15,20,25,3
0,35,40,45,50,55,60,65,70,75
,80,85,90,95,100,105,110,115
,120,125,130,135,140,145,155
```

If you have longer line numbers (higher numbers), you cannot fit as many line numbers into our line length for a statement, and the same procedure needs to be programmed slightly differently, which does take more memory:

```
2010 IF N>19 THEN 2040

2020 ON N GOSUB 3000,3050,31
00,3150,3200,3250,3300,3350,
3400,3450,3500,3550,3600,365
0,3700,3750,3800,3850,3900

2030 GOTO 2050

2040 ON N GOSUB 3950,4000,40
50,4100,4150,4200,4250,4300,
4350,4400

2050 (program continues)
```

By the way, another difference in the way the computers work, as far as BASIC programming techniques go, concerns the placement of subroutines. Many magazines in the early days of home computers emphasized that placing the

subroutines at the beginning of the program was faster — and put the most used subroutines before lesser used ones for better speed. The theory was that the computer would always start at the beginning of the program when looking for a referenced line number, and GOSUB 10 would be found more quickly than GOSUB 4000, for example. On some computers this is true (such as early TRS-80), but on our TI computers most of us could not detect any noticeable time differences; the subroutines could be placed anywhere. Once again, though, if the subroutines are placed at the beginning the line numbers would be shorter and fit on long lines better (or cause less typing for those of you who look for every way to save typing strokes).

It has been three years since I published a computer greeting card for Christmas, so this month my program is "Silent Night." Actually, I started this program with a segment published in *COMPUTE!*, December 1983. All it did was demonstrate some graphics with the first phrase of the song. That graphics turned into a star later used with "We Three Kings" in December 1985. I traced a stencil onto graph paper to get the three kings (I'm no artist). This time the graphics came from a lace net darning pattern. Remember, filet crochet, cross stitch, and needlepoint patterns are great sources for computer graphics.

This program is written in TI BASIC and uses graphic characters in sets 15 and 16, so you may use Extended BASIC to type in the program, but not to run it.

If you want to save typing effort, send $4 to *REGENA, P.O. Box 1502, Cedar City, UT 84720.* Be sure to specify the name of the program, "Silent Night," and that you need the TI version. Also specify disk or cassette. By the way, notice that I am now accepting $4 and I will pay the postage and provide the cassette or diskette. I think this will work better than your sending $3 plus a blank cassette or diskette and a stamped, self-addressed mailer. It will save postage and possible damage by sending the product one way only.

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BASIC

```
100 REM SILENT NIGHT !0067
110 CALL CLEAR !2009
120 T=400 !113
130 CALL SOUND(T*1.5,392,4,3
30,8,131,10) !0091
140 CALL CHAR(96,"0000000000000
001010") !136
150 CALL CHAR(97,"1018383058
4C1418") !0002
160 CALL SOUND(T/2,440,4,349
,8,131,10) !252
170 CALL COLOR(1,16,1) !225
180 CALL SOUND(T,392,4,330,8
,131,9) !0016
190 CALL CHAR(98,"383C7C77D3
91287C") !0071
200 CALL SOUND(3*T,330,4,262
,6,196,9) !212
210 CALL SCREEN(2) !147
220 CALL CHAR(99,"0000000808"
) !115
230 CALL CHAR(100,"0001010300
60401010") !235
240 FOR J=5 TO 16 !116
250 CALL COLOR(J,16,1) !049
260 NEXT J !224
270 CALL SOUND(T*1.7,392,4,3
30,8,131,10) !0093
280 CALL HCHAR(1,1,88,64) !18
4
290 CALL VCHAR(1,1,88,72) !19
7
300 CALL VCHAR(1,30,88,72) !2
48
310 CALL HCHAR(23,1,88,64) !2
37
320 CALL SOUND(T/2,440,4,349
,8,131,10) !252
330 CALL CHAR(101,"DED79EDC7
E7E3AD3") !194
340 CALL SOUND(T,392,4,330,8
,131,9) !0016
350 CALL CHAR(102,"808") !111
360 CALL CHAR(103,"0303070E0
80810F1F") !0053
370 CALL SOUND(3*T,330,4,262
,6,196,9) !212
380 CALL CHAR(104,"FDFF5730F
6FFFF17") !191
390 CALL CHAR(105,"80808000R
0200A0C") !0031
400 CALL CHAR(106,"B2E95B1E3
D6B4747") !132
410 CALL CHAR(107,"D9EEFF5D9
1DCFEFF") !245
420 CALL CHAR(108,"C060020B0E
0E08") !164
430 CALL CHAR(109,"1EBCFB730
F8DFC78") !186
440 CALL SOUND(2*T,587,2,349
,4,247,8) !223
450 CALL HCHAR(8,28,96) !0017
460 CALL HCHAR(9,28,97) !0019
470 CALL HCHAR(10,28,98) !0061
480 CALL HCHAR(10,29,99) !0063
490 CALL CHAR(110,"B7197EFFD
B90101") !0070
500 CALL SOUND(T,587,3,349,5
,247,9) !0036
510 CALL CHAR(111,"60E0C020E
0C") !0063
520 CALL SOUND(3*T,494,3,294
,6,196,9) !227
530 CALL HCHAR(11,27,100) !09
4
540 CALL HCHAR(11,28,101) !09
6
550 CALL HCHAR(11,29,102) !09
8
560 CALL HCHAR(12,27,103) !09
8
570 CALL HCHAR(12,28,104) !10
0
580 CALL HCHAR(12,29,105) !10
2
590 CALL HCHAR(13,27,106) !10
2
600 CALL HCHAR(13,28,107) !10
4
610 CALL HCHAR(13,29,108) !10
6
620 CALL HCHAR(14,27,109) !10
6
630 CALL HCHAR(14,28,110) !09
9
640 CALL HCHAR(14,29,111) !10
1
650 CALL SOUND(2*T,523,5,330
,8,131,12) !246
660 CALL CHAR(112,"0000010303
0303038AC") !0028
670 CALL CHAR(113,"0307000010
10306005") !248
680 CALL CHAR(114,"F47EEBA59
FFE7E27") !194
690 CALL CHAR(115,"0306F0F1F1
E3D7148") !103
700 CALL SOUND(T,523,6,330,8
,196,10) !066
710 CALL CHAR(116,"DBECF7EBF
DDE3F87") !244
720 CALL SOUND(3*T,392,5,330
,7,131,11) !249
730 CALL CHAR(117,"C2C2B040R
0A0B0C") !0036
740 CALL CHAR(118,"0000000000
0010H0F") !012
750 CALL CHAR(119,"3C3D7D7FF
BFDDE3F") !221
760 CALL CHAR(120,"61E0FDFF9
F47F9FC") !193
770 CALL CHAR(121,"C070038E8E
8F0789C") !125
780 CALL CHAR(122,"0602030273
F1F0F") !214
790 CALL SOUND(2*T,440,4,349
,7,262,9) !214
800 CALL HCHAR(18,8,112) !0054
810 CALL HCHAR(19,7,113) !0055
820 CALL HCHAR(19,8,114) !0057
830 CALL HCHAR(19,9,99) !0021
840 CALL HCHAR(20,7,115) !0049
850 CALL HCHAR(20,8,116) !0051
860 CALL HCHAR(20,9,117) !0053
870 CALL SOUND(T,440,5,349,8
,262,10) !0067
880 CALL CHAR(123,"7FFFEFE7E
2C5BF") !100
890 CALL HCHAR(21,8,120) !0047
900 CALL SOUND(1.5*T,523,4,4
40,8,175,10) !0097
910 CALL HCHAR(21,7,119) !0054
920 CALL HCHAR(21,6,118) !0052
930 CALL HCHAR(21,9,121) !0049
940 CALL CHAR(124,"FFFBE7DF7
FFDF8") !125
950 CALL SOUND(T/2,494,4,392
,8,247,10) !011
960 CALL CHAR(125,"F6FAF81D6E
7FCBC") !100
970 CALL SOUND(T,440,4,349,7
,262,9) !0024
980 CALL HCHAR(22,8,124) !0052
990 CALL HCHAR(22,7,123) !0050
1000 CALL SOUND(1.5*T,392,4,
330,6,131,10) !0089
1010 CALL HCHAR(22,6,122) !04
8
1020 CALL HCHAR(22,9,125) !05
4
1030 CALL CHAR(126,"000007F3E
3E3E3E2") !048
1040 CALL SOUND(T/2,440,4,34
9,7,131,10) !251
1050 CALL CHAR(127,"0000000000
0001020C5") !235
1060 CALL SOUND(T,392,4,330,
```

(See Page 16)

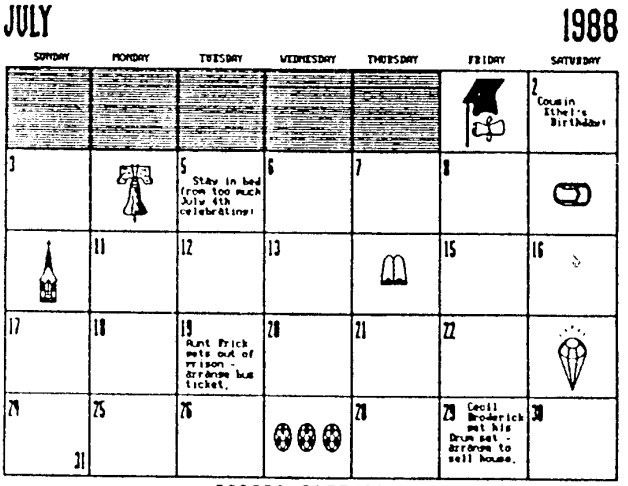
CALENDAR MAKER 99

Calendar Maker 99 is the only program that allows you to create large, detailed, picture calendars on a TI-99/4A or Myarc Geneve 9640!

Ideal for the teacher, student, business person, office worker, or anyone else that wants to create a calendar, CM99 will let you create customized calendars quickly and easily.

CM99 has the following features:

- Create a calendar a month or a year at time for any year between 1600 and 2400!
- Put small pictures or text notes on any individual day of the calendar. CM99 lets you zoom in on a day and type a note or place a picture.
- Define the border style, all the typefaces and calendar headers.
- Print month calendars with or without a half-page picture and a 3-13 line user-definable message!
- Print year calendars 2 months to a page.
- Easy-to-use, even an adult can use it!
- Use TI-Artist Instances on the days.
- A complete library of small pictures, typefaces, borders and example files are provided with the program - get started right out of the box!
- Fast.
- Extensive documentation included.



ASGARD SOFTWARE
Box 10386
Rockville, MD 20858

CALENDER MAKER 99 can be used to create customized calendars for any application. If you use calendars, and don't want to pay the high printing and typesetting costs of creating a custom calendar for your business, work , school or home, then **Calendar Maker 99** is for you! Requires: 32K, TI Extended BASIC, Epson or compatible (Panasonic, TI, NEC, HP, IBM, etc.) printer, and a disk system. Functions fine with a single drive but two are recommended. The **Picasso** drawing program is also recommended, but not required . Available for only:

$19.95 and $.75 S&H

ASGARD SOFTWARE
P.O. BOX 10306
ROCKVILLE, MD 20850
(301)559-2429

BASIC

(Continued from Page 14)

```
6,131,9)!Ø14
1ØØØ CALL CHAR(128,"ØF1B2D5E
BF7FFFFF")!218
1ØBØ CALL CHAR(129,"FFFFFFFF
7FBFDFEF")!Ø47
1ØCØ CALL SOUND(2.5*T,33Ø,4,
262,6,196,1Ø)!Ø97
11ØØ CALL CHAR(13Ø,"FFFFFFFF
FFFFFFFF")!Ø61
111Ø CALL CHAR(131,"8ØCØEØFØ
F8FCFEFF")!194
112Ø CALL CHAR(132,"ØA162E5E
8Ø7F7F72")!115
113Ø CALL CHAR(133,"BDBDBDBD
81FFFF7E")!245
114Ø CALL CHAR(134,"777B7D7E
ØØFEFF4E")!174
115Ø CALL CHAR(135,"FFFFFFFE
6BFFFFC9")!Ø29
116Ø CALL CHAR(136,"FFFFFFCE
67FFFFE4")!Ø13
117Ø CALL SOUND(2*T,44Ø,3,34
9,6,262,8)!211
118Ø CALL CHAR(137,"FFFFFFFB
61FFFFF2")!Ø26
119Ø CALL CHAR(138,"8Ø4ØAØ1Ø
E8F8E868")!123
12ØØ CALL CHAR(139,"7272727F
72727272")!Ø66
121Ø CALL CHAR(14Ø,"7E7E7EFF
7E7E7E7E")!2Ø6
122Ø CALL CHAR(141,"2E2E2EFE
2E2E2E2E")!171
123Ø CALL SOUND(T,44Ø,4,349,
7,262,9)!Ø24
124Ø CALL CHAR(142,"C9C9FFC9
C9C9FF7F")!225
125Ø CALL CHAR(143,"E4E4FFE4
E4E4FFFF")!226
126Ø CALL SOUND(1.5*T,523,3,
44Ø,7,175,9)!Ø54
127Ø CALL CHAR(144,"F2F2FFF2
F2F2FFFF")!222
128Ø CALL CHAR(145,"6Ø6ØØØ6Ø
6Ø6ØFØF")!Ø16
129Ø CALL CHAR(146,"7F7F7F7F
72727272")!124
13ØØ CALL SOUND(T/2,494,3,39
2,7,247,9)!224
131Ø CALL CHAR(147,"FFFFFFFF
3E3E3E3E")!245
132Ø CALL SOUND(T,44Ø,3,349,
6,262,8)!Ø21
133Ø CALL CHAR(148,"FEFEFEFE
4E4E4E4E")!246
134Ø CALL CHAR(149,"1FØFØ2Ø1
")!143
135Ø CALL SOUND(1.5*T,392,3,
33Ø,5,131,9)!Ø46
136Ø CALL CHAR(15Ø,"FFFFFFDF
677F7F6B")!236
137Ø CALL CHAR(151,"FFFFFFBD
CEØ7Ø776")!2Ø5
138Ø CALL CHAR(152,"FCFEFBEF
73FFFFBF")!Ø17
139Ø CALL CHAR(153,"ØØØØ8ØCØ
7ØCØCØC")!Ø12
14ØØ CALL SOUND(T/2,44Ø,3,34
9,6,131,9)!2Ø8
141Ø CALL CHAR(154,"7F727200
EØFFFFØ3")!13Ø
142Ø CALL SOUND(T,392,3,33Ø,
5,131,8)!Ø11
143Ø CALL CHAR(155,"FF3E3EØ2
Ø2E3F8FF")!166
144Ø CALL CHAR(156,"FE4E4E4E
4EFEØØFF")!2Ø3
145Ø CALL SOUND(2.5*T,33Ø,3,
262,5,196,9)!Ø54
146Ø CALL CHAR(157,"6B7F6B6B
7F7F")!193
147Ø CALL CHAR(158,"76Ø7Ø6Ø6
Ø7Ø7")!Ø81
148Ø CALL CHAR(159,"FFFFFFFF
FFFF")!Ø44
149Ø CALL CHAR(35,"CØCØCØCØC
ØC")!Ø45
15ØØ CALL SOUND(T/2,9999,3Ø)
!182
151Ø CALL SOUND(2*T,587,2,34
9,6,247,8)!225
152Ø FOR J=1Ø TO 16 !161
153Ø CALL HCHAR(12,J,122+J)!
133
154Ø NEXT J !224
155Ø CALL HCHAR(11,1Ø,127)!Ø
95
156Ø CALL HCHAR(11,11,128)!Ø
97
157Ø CALL SOUND(T,587,3,349,
7,247,9)!Ø38
158Ø CALL HCHAR(11,12,129)!Ø
99
159Ø CALL HCHAR(11,13,13Ø,2)
!Ø1Ø
16ØØ CALL HCHAR(11,15,131)!Ø
95
161Ø CALL SOUND(1.5*T,698,1,
349,6,294,9)!Ø74
162Ø FOR J=1Ø TO 16 !161
163Ø CALL HCHAR(13,J,129+J)!
141
164Ø NEXT J !224
165Ø CALL SOUND(T/2,587,2,34
9,6,247,9)!227
166Ø CALL CHAR(36,"F1")!Ø26
167Ø CALL SOUND(T,494,2,349,
6,196,9)!Ø36
168Ø CALL CHAR(37,"FE")!Ø47
169Ø CALL CHAR(38,"FØ7F")!15
4
17ØØ CALL HCHAR(1Ø,11,126)!Ø
94
171Ø CALL SOUND(3*T,523,2,33
Ø,6,196,8)!2Ø9
172Ø FOR J=1Ø TO 17 !162
173Ø CALL HCHAR(14,J,136+J)!
14Ø
174Ø NEXT J !224
175Ø CALL HCHAR(15,1Ø,154)!Ø
99
176Ø CALL HCHAR(15,11,155)!1
Ø1
177Ø CALL HCHAR(15,12,156)!1
Ø3
178Ø CALL HCHAR(15,14,157)!1
Ø6
179Ø CALL HCHAR(15,15,158)!1
Ø8
18ØØ CALL HCHAR(15,16,159)!1
1Ø
181Ø CALL HCHAR(15,17,35)!Ø5
5
182Ø CALL SOUND(2.5*T,659,2,
392,6,262,8)!Ø65
183Ø CALL CHAR(64,"ØØØØØØØØØØ
71F7FFE")!Ø24
184Ø CALL HCHAR(15,9,64)!ØØ9
185Ø CALL HCHAR(16,8,37)!ØØ9
186Ø CALL HCHAR(16,1Ø,37)!Ø5
1
187Ø CALL HCHAR(16,12,36)!Ø5
2
188Ø CALL HCHAR(16,14,38)!Ø5
6
189Ø CALL HCHAR(15,28,37)!Ø5
9
19ØØ CALL HCHAR(15,29,36)!Ø5
9
191Ø CALL SOUND(T/2,9999,3Ø)
!182
192Ø T=6ØØ !115
193Ø CALL SOUND(1.5*T,523,4,
33Ø,8,196,1Ø)!Ø98
194Ø FOR J=1 TO 8 !Ø64
195Ø CALL HCHAR(5,8+J,ASC(SE
```

(See Page 17)

BASIC

(Continued from Page 16)

```
G$("SEASON'S",J,1)))!247
1960 NEXT J !224
1970 CALL SOUND(T/2,392,4,33
0,8,196,10)!003
1980 CALL SOUND(T,330,4,262,
8,196,11)!065
1990 CALL SOUND(1.5*T,392,4,
330,8,196,12)!104
2000 FOR J=1 TO 9 !065
2010 CALL HCHAR(7,12+J,ASC(S
EG$("GREETINGS",J,1)))!139
2020 NEXT J !224
2030 CALL SOUND(T/2,349,5,29
4,9,196,11)!017
2040 CALL SOUND(T,294,5,247,
9,175,11)!076
2050 CALL HCHAR(16,19,70)!05
7
2060 CALL HCHAR(17,20,82)!05
3
2070 CALL HCHAR(18,21,79)!06
1
2080 CALL HCHAR(19,22,77)!06
1
2090 CALL SOUND(6*T,262,6,16
5,11,131,13)!045
2100 FOR J=1 TO 6 !062
2110 CALL HCHAR(21,22+J,ASC(
SEG$("REGENA",J,1)))!192
2120 NEXT J !224
2130 CALL KEY(0,K,S)!187
2140 CALL COLOR(8,10,1)!226
2150 CALL COLOR(8,4,1)!180
2160 IF S<1 THEN 2130 !099
2170 CALL CLEAR !204
2180 END !139
```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The MULTI-MOD is a plug-in upgrade for owners of Triton's Super Extended BASIC module that gives you SEB, Editor/Assembler, Disk Manager III, and TI-Writer ALL IN THE SAME MODULE! It may be the only module you'll ever need!

The price of the upgrade kit is $22.95 and includes a manual and disk with the Editor/Assembler and TI-Writer support files. A free brochure is available on request from:

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Dallas, TX 75230

Also ask about TI RS232 and Disk Controller upgrade kits.

(Super Extended BASIC is a trademark of Triton Products Company)

Quick-Run is the ultimate Extended BASIC utility - for programmers and program users alike!

Quick-Run will allow you to shave minutes off the start-up time of any Extended BASIC program, even those with assembly language. How does it do it? It takes a "snap-shot" of a running Extended BASIC program, and saves it to disk exactly as it appears in memory. Later, you can run the saved copy and the program picks up exactly where it left off! If you have an Extended BASIC program that takes a long time to start itself up, simply have *Quick-Run* take a "snap-shot" of it after its had done all its initialization (including any calculations, screen setup, etc.) and *you will never have to wait for it to initialize again!*. You can also distribute programs saved with *Quick-Run* without worrying about royalties.

QUICK-RUN

Quick-Run is also an Extended BASIC programmers toolbox of program development essentials. With *Quick-Run* you can chain programs together and store all the variables in memory, instead of writing them to disk. *Quick-Run* will also let you run a program from any line number you would like to specify. Both of these capabilities were *impossible* before.

Quick-Run goes way beyond other speed enhancing programs - those programs only make the program start up faster or reduce the size of the program slightly. *Quick-Run* will let you forget waiting for a program to initialize - forever. Now your programs will start exactly where you want it to the moment the drive stops whirring. By Travis Watford, author of *RAM*Boot* and many other fine assembly programs.

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Send to: Asgard Software
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DATA BASE DEMO (21) A fully set up data base program designed for filing and finding magazine articles. Easy to use or modify for other applications. Sample data included!
PR BASE (58) This is a full feature DB freeware program that is rated as one of if not the best. Documentation included!

GRAPHICS

ANIMATION 99' (52) This is the one by Ray Kazmer that was featured in the July 88 Micropendium. See fantastic animation and also learn how it was done. This one is destined to be a classic.
ANIMATED XMAS CARD (11) This is the original animation by Ray Kazmer that made him an overnight superstar in the TI community. This classic is also referred to as "Woodstock" among TI'ers.
PRINTART DEMO (4) This 2-disk side collection prints well known comic and TV personalities out on your printer.
FIGURE STUDY (14) This is a collection of programs that print Playboy type centerfolds out on your printer.
MONA LISA PRINTOUT (9) This program prints a near photo quality picture of Mona Lisa on your printer. You won't believe the quality!
SPACE SHUTTLE DEMO (7) An outstanding music/graphics program that salutes the U.S. space program. Its almost like watching a film.
STAR/EPSON DEMO (15) A 2-Disk side collection of programs to show you what your printer can really do. Also a great graphics tutorial with examples!

GOTHIC PRINT DISK (10) This program lets you type a message and then prints it out in Old English style. Looks like hand lettered calligraphy. Great for invitations, announcements.
SIDEWAYS PRINTOUT (16) Lets your printer print sideways. Great for spreadsheets and banners. Includes two versions and new Multiplan enhancements.
VIDEO GRAPHS (41) This disk is sold as a backup to owners of the discontinued TI Video Graphs module. We can only legally provide it to module owners.

TELECOMMUNICATIONS

TELCO (57) This program has been rated as one of the best telecommunications programs for the TI-99/4A. A user supported program that contains everything you need to upload and download data with your modem. Supports all baud rates and protocalls.

APPLICATIONS

WILL WRITER (23) Enter your answers to a group of questions and this program writes out a complete will.
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APPLICATIONS

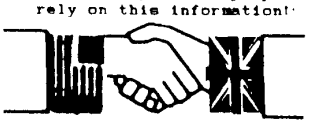
(continued)

HEBREW TYPEWRITER (66) This program converts your 99/4A from english to hebrew. A great tool for religious studies. Can be combined with a screen dump program to print out the text from the screen. A great way to learn how to do the same with other languages. To get you in the mood, we also included a music/graphics program of "Fiddler" on this disk!

ARTIFICIAL INTELLIGENCE (40) This disk includes the famous computer progam "Eliza" where the computer responde to your problems and questions in a manner that is almost human. Save a bundle on what you would pay a shrink for the same services. Also includes one of the better biorhythm programs so you can really take control of your emotional problems at one sitting.

LOTTO SELECTOR (8) This program selects numbers for use in the various state lotto games and even runs a simulated lotto game Unprotected so it is easily modified for additional games.

ASTROLOGY (22) This program is as good as the coin operated machines. Tell it your birthday and see a great color display on your zodiac sign and see historical data on what took place in history on your birthday. Great for parties or even a charity event. Many famous people rely on this information!



TI PROGRAMS FROM AROUND THE WORLD

LAPD COOKBOOK (37) A complete computer collection of great receipes compiled by an LA cop who is also a gourmet chef. Whenever he went to a top eating place he would hit the chef up for a receipe. 2 disk sides completely menu selectable.

ORIGINAL TI SALES DEMO (5) This disk given to TI dealers by TI back in 1980, includes demonstration programs with graphics, speech, PRK, TE-1, and even includes the famous game TI-TREK which we reprogrammed to run on the TE-II module instead of the discontinued Speech Editor.

UTILITIES

HACKER CRACKER (53) A collection of the top disk copy programs including the best of the track copiers. One or more of these programs will copy almost all protected disks. Both TI & CorComp compatible programs are included. 2 disk drives are required on most of these programs.

SCREEN DUMP (55) This program allows you to printout what you see on the screen while running a disk, cassette or module program. Instructions included. Requires a Star or Epson compatible printer.

DUMP1T (3) This disk lets you copy a number of TI modules to disk. Editor Assembler module and Widget (cartridge expander) recommended for best results Some programming knowledge will be helpful!

TI DIAGNOSTICS (19) This program released by TI loads into the TI Mini Memory module and then lets you test your system. Better than diagnostics on a disk since if your disk system was not working properly, you would not be able to use it. Complete with all documentation on a second disk side.

DISK MANAGER II (62) This is the TI Disk Manager II module on disk. Now if your module goes, you are protected. Sold as a backup to owners of the module. Loads with extbasic.

LOADERS & CATALOGERS (28) A collection of the best catalog and menu/loader programs we have seen. Ready to be put on your own program disks.

PROGRAMMING AIDS & UTILITIES (35) This disk contains a collection of handy files including a group of title displays and a super cross reference program. Also included is a great disk management utility that you will use over and over!

TI WRITER/MULTIPLAN UPGRADE (19) This disk released by TI adds real lower case to your TI writer and more. Also speeds up Multiplan.

TI FORTH DEMO (17) This disk released by TI demonstrates the power of the programming language Forth for music and graphics. Requires 32K and Editor Assembler Module.

FUNNELWEB FARM UTILITY (42) This program from down under puts many of the most often used application and utility programs at your fingertips. Complete with documentation on two disk sides.

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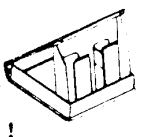

A NOTE ABOUT DEMO DISKS: TEX-COMP's demo disks are a collection of disks containing unique and entertaining features which we believe will help you get more out of your TI-99/4A. Some if not all of them are in the public domain. However, in certain cases, the author requests a contribution if you use and enjoy it. While you are not legally obligated to do so, we at TEX-COMP encourage your assisting these talented programmers if you enjoy their work. That is why we offer these disks at such a low price.

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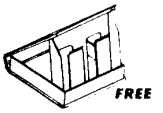

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series VI

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A fantastic space game from Germany where you have to pilot your space ship through narrow and crooked channels in space without colliding. Great graphics, selectable ship speed and music add up to one of the best we have seen. If you thing re-fueling in Parsec was tough, you haven't seen anything!

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This label progam makes labels to affix to gifts and presents. You compose the text and add graphics from a selection to fit the occasion.

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This fantastic program by Marty Kroll takes your disks and creates a library disk where you can tell what you have in your program library. Files, sorts, prints and easy to use! Now is the time to get organized and this program does it for you

#76. PROGRAMMING AIDS & UTILITIES II
A collection of aids and utilities that will be useful to everyone who uses a 99/4A. UTIL3 is a utility to convert disk and cassette programs in TI Basic to TI Extended Basic. Now you don't have to worry about the wrong calls etc. Another utility from Australia, "Merge", allows you to combine two programs. For example, two cassette programs can be made out of one that is too large to load separately. In addition, two great diagnostic utilities are included that allow you to test your keyboard and processor and see the response right on the screen.

#77. MICROdex99
This is a database program by data base expert Bill Gaskill. It allows you to file away information from magazines, for example, and access it at will. Similar in concept to our disk #21 but operates completely different. A must for those interested in database management and computer filing systems.

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Series VII

LATEST FREEWARE RELEASES

#78. ARTCON+ BY RAY KAZMER
ATTENTION ALL USERS OF GRAPHX & TI ARTIST!!!
This all new utility by the master of TI Graphics lets you convert EXBASIC garphics including sprites to TI Artist and GRAPHX pictures. A new MAX-RLE2 is also included for Artist-Graphx conversions. This is by far one of the most useful 99/4A graphics utility to come along. Ray has been good enough to put it in our freeware library to ensure maximum distribution. Thanks Ray!!!

#79 DM1000 V3.5
DM1000 is one of the most popular disk manager programs for the 99/4A. It started out as a clone from Canada of the CorComp Disk Manager and has been improved by talented users all over the world. V3.5 is the most reliable version to date. Distributed by permission from CorComp. Far superior in features to the TI Disk Manager II and supports all formats.

#80. BIRDWELL DISK UTILITY
This disk utility is a must if you are into programming and software development. It is not only a great disk manager, but it is much, much more. It has great routines for copying sectors, comparing one file with another and is menu driven with documentation.

#81. HOME ACCOUNTING SYSTEM
A complete accounting system for the home or small business. Includes a checkbook manager, budget analysis, a mailing list and a inventory program. Unprotected for easy modification for special applications. With documentation.

#82. CROSSWORD PUZZLES
This program from Australia creates a different crossword puzzle each time you run it. Fully self contained with definitions and vocabulary taken from a leading crossword dictionary. Great for crossword fun and vocabulary building.

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This is a collection of about 30 programs on 2 disk sides of useful programs for the home. A collection of the best including banking, cooking, home bar receipes, utility records, etc. Fully menu selectable and this disk has something for everybody.

#84. GALACTIC BATTLE/SPY ADVENTURE
This pair of great games from EB Software of TI RUNNER fame will provide you with hours of enjoyment. Galactic battle is a strategy game for 1 or more players based on a Star Trek type theme of control and domination of the universe. Spy Adventure is an adventure game in the Scott Adams tradition (no module req.) with a theme that runs from Bond to Kulp/Cosby to Adams. Documentation included.

#85 AUTOBOOT UTILITY
This is one of the best utility programs we have seen. It loads and runs or displays almost any thing. We tested it with Exbasic, TI Writer files, Editor Assembler Games and it loaded them all and ran them or displayed them (text) automatically. Saves hours of frustrating attemps to load and run much of the freeware passed around through groups, faires, and boards.

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De-mystifying assembly

Changing the CHARA1 file

By JOHN BIRDWELL

Before I get into this month's subject I'd like to point out a couple of corrections to prior code.

In the July issue a line was left out when the article went to print. Between the lines "JEQ ITSA4A" AND "* SETO SETS A MEMORY LOCATION OR A REGISTER TO ALL ONES (>FFFF) line add the following. MOV R0,@0 (This restores the first word OF MEMORY on a 9640).

In the October issue a line of code was left out which defines the variable FREE. This should have been placed in column 1 of the file MICRO-END just before SLAST.

To rectify this problem I will be changing the source listings so that there are line numbers for each line of code and will let you know what the total number of lines should be. This way you can tell at a glance if something has gone awry.

I'd like to put a few things in perspective with regard to the progress we are making on this program. A program such as my Disk Utilities is over 250 pages of source code and since we only have approximately 3 pages in MICROpendium each month it will take us some time to achieve a working program. As stated earlier the maximum size of this program as planned will be around 6000 bytes, which is not enough room to incorporate all of the features readers have requested but we will hopefully be able to include the major ones. I hope this does not discourage you for I feel the main objective, which is to aid you in understanding assembly, will be worth the effort and hope you feel the same way.

I have received several requests from readers wanting to know how to change the CHARA1 file for their own needs. One way to accomplish this is through the use of a sector editor. Anyone who has done it this way will I'm sure tell you that its not very easy as you must count bytes to determine where in the pattern definition is that you wish to change. Another way is to type in all the DATA statments for each character then assemble this file.

Since this is really not I very good solution I wrote a program which will convert the CHARA1 program image file into a D/V 80 file which can then be easily modified as needed. This program reads the CHARA1 file into VDP memory then reads each of the 8 bytes needed to define a character. This is then converted into the necessary data statements which can easily be modified with your Editor. This file is then assembled and the resulting object code is converted back into a CHARA1 program image file through the use of the SAVE utility. Next month I will continue with the development of MICRO-WORD.

If you would like to obtain a copy of this source code send $3 plus a blank, formatted diskette and a stamped self-addressed mailer to **John Birdwell, 1310 Kent Court, Wheaton, IL 60187.**

CHARA1 CONVERSION

```
0001  ********************************************
0002  * Convert a program image CHARA1 file into  *
0003  * source code DATA statements for editing.  *
0004  ********************************************
0005  * To convert back to a CHARA1 program image *
0006  * file after making desired changes.        *
0007  * Assemble the CHARSET file to get E/A 3    *
0008  * code.                                     *
0009  * Load the E/A 3 CODE then load the SAVE    *
0010  * utility included with your E/A disk. Save *
0011  * the file produced by SAVE as CHARA1       *
0012  ********************************************
0013  *
0014        DEF  START
0015        REF  VSBW,VMBW,VSBR,VMBR,DSRLNK,KSCAN
0016  IOVDP  EQU  >1000            * VDP address for PAB
0017  DATDSP EQU  32*3             * Display address for DATA statments
0018  CHARIN DATA >0500,>07FA,>0,>0400,11
0019        TEXT 'DSK1.CHARA1'
0020  CHROUT DATA >0012            * OPEN, D/V write
0021        DATA 0                 * Screen will be buffer
0022        DATA >5000             * Record length=80
0023        DATA 0
0024        DATA 12                * Length of device/filename
0025        TEXT 'DSK1.CHARSET'    * Output to Disk 1 filename= CHARSET
0026  DEFS   TEXT '      DEF  SLOAD,SFIRST,SLAST'   * SAVE'S DEF statements
0027  DEF1   TEXT 'SLOAD'
0028  DEF2   TEXT 'SFIRST'
0029  CHAR   TEXT '      DATA >0000,>0000,>0000,>0000'
0030        TEXT '   * CHARACTER=)'
0031  ENDTXT TEXT 'SLAST  END'
0032  COMPLT TEXT 'Complete'
0033  ERRMSG TEXT 'Error ='
0034  EXMSG  TEXT 'Press any key to EXIT'
0035  * ERROR MESSAGES
0036  ERMSG0 BYTE 15               * Length of message
0037        TEXT 'BAD DEVICE NAME'
0038  ERMSG1 BYTE 9
0039        TEXT 'PROTECTED'
0040  ERMSG2 BYTE 8
0041        TEXT 'BAD OPEN'
0042  ERMSG3 BYTE 17
0043        TEXT 'ILLEGAL OPERATION'
0044  ERMSG4 BYTE 9
0045        TEXT 'DISK FULL'
0046  ERMSG5 BYTE 8
0047        TEXT 'PAST EOF'
0048  ERMSG6 BYTE 14
0049        TEXT 'BAD DISK/DRIVE'
0050  ERMSG7 BYTE 10
0051        TEXT 'FILE ERROR'
0052  *
0053  WRITE  BYTE 3
0054  CLOSE  BYTE 1
0055  H39    BYTE >39
0056  FF     BYTE >FF
0057  SPACE  BYTE >20
0058  CHRMEM BSS  8                * CPU buffer for conversion
0059  CHR#   BYTE 0                * Character to convert
0060        EVEN
0061  SLADR  DATA 32
0062  SFADR  DATA 32*2
0063  DATADR DATA DATDSP           * VDP locations for data statements
0064  ENDADR DATA 32*5             * VDP location for END statement
0065  DSPTAB DATA DATDSP+13        * Table of display addresses for ascii data
0066        DATA DATDSP+15
0067        DATA DATDSP+19
```

(See Page 24)

MX01 Memory Enhancement System

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ASSEMBLY—

(Continued from Page 22)

```
0068        DATA DATDSP+21
0069        DATA DATDSP+25
0070        DATA DATDSP+27
0071        DATA DATDSP+31
0072        DATA DATDSP+33
0073        DATA DATDSP+51
0074 ERTAB  DATA ERMSG0
0075        DATA ERMSG1
0076        DATA ERMSG2
0077        DATA ERMSG3
0078        DATA ERMSG4
0079        DATA ERMSG5
0080        DATA ERMSG6
0081        DATA ERMSG7
0082 *
0083 WS     BSS  32
0084 START  LWPI WS              * Set wotkspace registers
0085        CLR  R0              * 1st clear the screen
0086        LI   R1,' '          * Use spaces
0087        LI   R2,32*24        * Display is 32 columns by 24 lines
0088 CLS    BLWP @VSBW           * Write a space
0089        INC  R0              * Next display position
0090        DEC  R2              * Decrement number to do
0091        JNE  CLS             * If not zero continue
0092 * Now load the current CHARA1 file into memory
0093        LI   R0,IOVDP        * Move  chara PAB to VDP
0094        LI   R1,CHARIN       * PAB data for load of character set
0095        LI   R2,21           * Length
0096        BLWP @VMBW           * Write it
0097        BL   @DSR            * Go do DSRLNK
0098 * CHARACTER SET NOW IN VDP
0099 * SO OPEN THE OUTPUT FILE
0100        LI   R0,IOVDP        * Now move the output file PAD to VDP
0101        LI   R1,CHROUT       * PAB definition
0102        LI   R2,23
0103        BLWP @VMBW           * Write to VDP
0104        BL   @DSR            * Open output file
0105        LI   R0,IOVDP        * Address of 1st byte of PAB
0106        MOVB @WRITE,R1       * Make operation a write
0107        BLWP @VSBW
0108 * 1st display the DEF statement and the SLOAD,SFIRST labels
0109 * then write then to file
0110 *
0111        CLR  R0
0112        LI   R1,DEFS         * Show DEF statement
0113        LI   R2,30
0114        BLWP @VMBW
0115        LI   R0,IOVDP+5
0116        LI   R1,>1E00
0117        BLWP @VSBW
0118        BL   @DSR            * Write it
0119        MOV  @SLADR,R0
0120        LI   R1,DEF1         * Show SLOAD label
0121        LI   R2,6
0122        BLWP @VMBW
0123        LI   R0,IOVDP+5      * Set output recoed length to 6
0124        LI   R1,>0600
0125        BLWP @VSBW
0126        LI   R0,IOVDP+2      * Put display address of it into PAB
0127        LI   R1,SLADR
0128        LI   R2,2
0129        BLWP @VMBW
0130        BL   @DSR            * Write it
0131        MOV  @SFADR,R0
0132        LI   R1,DEF2         * Show SFIRST label
0133        LI   R2,6
0134        BLWP @VMBW
0135        LI   R0,IOVDP+2
0136        LI   R1,SFADR
0137        LI   R2,2
0138        BLWP @VMBW           * Set the address for SFIRST label
0139        BL   @DSR            * Go write it
0140        LI   R1,DATADR       * Now point to DATA statments
0141        BLWP @VMBW
0142        LI   R0,IOVDP+5      * Set the output record length to 55
0143        LI   R1,>3700
0144        BLWP @VSBW
0145        MOV  @DATADR,R0      * Display the data statment
0146        LI   R1,CHAR
0147        LI   R2,51
0148        BLWP @VMBW
0149        LI   R3,>0800        * Character definitions start here
0150        CLR  R5              * 1st character is a null >00
0151 LOOP   SWPB R5              * Place value into high byte
0 152        MOVB R5,@CHR0        * Move for display conversion to ascii
0153        CB   R5,@SPACE       * Test is character is in display range
0154        JLT  LOOP1           * If less than space don't show it
0155        LI   R0,DATDSP+54    * Show character
0156        MOVB R5,R1           * Get it
0157        BLWP @VSBW
0158 LOOP1  SWPB R5              * Restore to correct order
0159        MOV  R3,R0           * Get address of character definition
0160        AI   R3,8            * Next character definition
0161        LI   R1,CHRMEM       * CPU memory location to put it to
0162        LI   R2,8            * Get 8 bytes
0163        BLWP @VMBR           * Move it to CPU memory from VDP
0164 * NOW CONVERT IT TO ASCII AND DISPLAY IT
0165        LI   R6,DSPTAB       * Table of display addresses
0166        LI   R7,CHRMEM       * Start of data
0167        LI   R8,9            * Loop through 9 times
0168 LOOP2  MOV  *R6+,R0          * Address to display ascii data
0169        MOVB *R7,R1          * Get a byte
0170        SRL  R1,4            * 1st do the high 4 bits
0171        BL   @CONV           * Go convert it for display
0172        MOVB *R7+,R1         * Get the byte back & inc. to next location
0173        ANDI R1,>0F00        * Now do low 4 bits
0174        BL   @CONV
0175        DEC  R8              * Done all 9 positions
0176        JNE  LOOP2           * No
0177        BL   @DSR            * Go write this record
0178        INC  R5              * Next character
0179        CI   R5,127          * Done all
0180        JNE  LOOP            * No do next
0181 * All done now put in END statement
0182        MOV  @ENDADR,R0      * Display location
0183        LI   R1,ENDTXT
0184        LI   R2,10
0185        BLWP @VMBW
0186        LI   R0,IOVDP+5      * Must now set the write record length to 10
0187        SWPB R2
0188        MOVB R2,R1
0189        BLWP @VSBW
0190        LI   R0,IOVDP+2      * Put VDP address of END statement into PAB
0191        LI   R1,ENDADR
0192        LI   R2,2
0193        BLWP @VMBW
0194        BL   @DSR
0195 * Now close the file
0196        MOVB @CLOSE,R1       * Now close the file
0197        LI   R0,IOVDP        * Write this to PAB
0198        BLWP @VSBW
0199        BL   @DSR            * Go close the file
0200        LI   R0,32*21+12     * Show complete message
0201        LI   R1,COMPLT
0202        LI   R2,8
0203        BLWP @VMBW
0204        JMP  EXIT            * Do exit routine
0205 *
```

(See Page 26)

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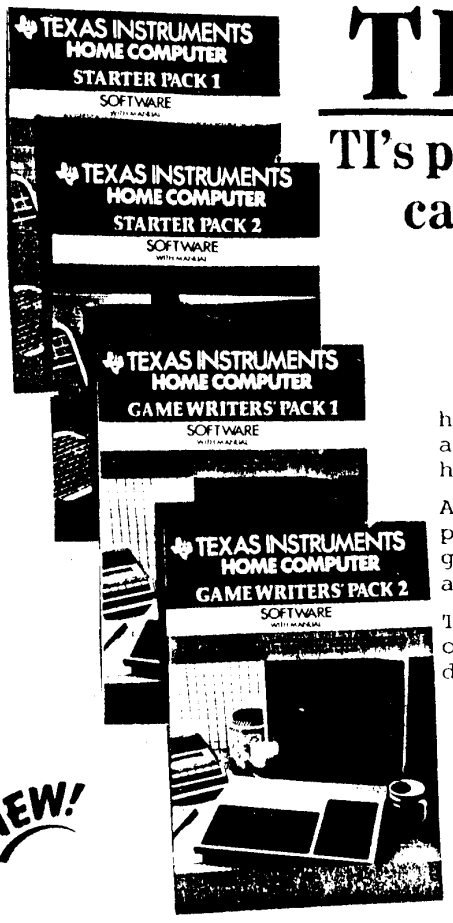

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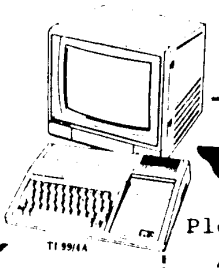

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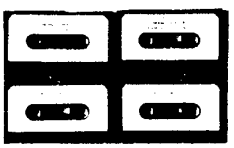

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ASSEMBLY—

(Continued from Page 24)

```
0206  DSR   LI   R10,IOVDP+9       * Pointer to length
0207        MOV  R10,@>8356         * DSR pointer
0208        BLWP @DSRLNK            * Do disk I/O
0209        DATA 8                  * Level 3 operation
0210  * If equal status bit is set there was an error during I/O
0211        JEQ  ERR
0212        RT                      * Equal not set so I/O was good
0213  *
0214  ERR   LI   R0,32*21+5         * Display error message
0215        LI   R1,ERRMSG          * Message to display
0216        LI   R2,7
0217        BLWP @VMBW
0218  * The error code is set in the high 3 bits of the 1st byte of the PAB
0219        LI   R0,IOVDP+1         * Read the 2nd byte of PAB
0220        BLWP @VSBR              * Get I/O result
0221        SRL  R1,13              * Move error code 3 bits in word
0222        SLA  R1,1               * Double code for vector into error table
0223        AI   R1,ERTAB           * Add start of error table
0224        MOV  *R1,R1             * Get the start address of message
0225        MOVB *R1+,R2            * Get the length of message
0226        SRL  R2,8               * Make it a word
0227        LI   R0,32*21+13        * Address for error message
0228        BLWP @VMBW              * Show error
0229  EXIT  LI   R0,32*23+5         *
0230        LI   R1,EXMSG           * Exit message
0231        LI   R2,21
0232        BLWP @VMBW
0233  EXIT1 BLWP @KSCAN             * Go look for a key
0234        CB   @>8375,@FF         * Is key code a >FF
0235        JEQ  EXIT1              * If so no key pressed
0236        BLWP @0                 * Bye
0237  *
0238  CONV  AI   R1,>3000           * 1st make into ascii >30-39 range
0239        CB   R1,@H39            * If its greater than >39 must be A-F
0240        JLE  CONV1              * Nope its ascii >30-39 range
0241        AI   R1,>0700           * Make character into ascii >41-47
0242  CONV1 BLWP @VSBW              * SHOW HIGH 4 BITS
0243        INC  R0                 * Next display address
0244        RT
0245  *
0246  * Entry point after the END statement causes the program to AUTO-START
0247        END  START
0248  *
=END=
```

Constructing filenames in c99

By WARREN AGEE

Note: the source code for the ***strcpy()*** *function mentioned in this article can be found in the CONV:C file included with the c99 release disk. The source code is also available in many beginner's books on the C language.*

In the past few months, Charles E. Kirkwood Jr. has run into some problems dealing with strings in his c99 column. He readily admits to some of these problems, while others are a bit more subtle. Since I have just completed a very large C project, I would like to discuss one of these problems, because it deals with some classic sticking points in the C language.

The problem I read about was Charles' difficulty in dynamically constructing a filename in the May 1988 column. By the word *dynamically* I mean the filename is constructed *by the program*, and it changes throughout the execution of the program. Specifically, the program constructs 26 dictionary files, one for each letter of the alphabet (A-Z). The name of each file is simply the letter of the alphabet that a file represents: the file for letter A would be DSK1.A, the file for letter M would be DSK1.M and so forth. Once it creates the files, the program looks up a word in the dictionary; it chooses the dictionary file to open by examining the first letter of the word in question. If a word begins with the letter G, then it opens the file DSK1.G.

This all sounds very straightforward, but in practice, especially for beginners, getting the proper results can be frustrating. That's because C has no built-in string-handling facilities whatsoever. You cannont simply concatenate two strings together as you can in BASIC. One of the virtues of C, however, is the many ways you can accomplish the same thing.

Using arrays

There are two basic methods to approach this problem. In this article, I will deal with only one: using arrays.

There is no such thing as a string data type in C. Instead you must use a character array, dimensioned to be the maximum length of the string. Each element of a character array is one byte in sixe, and it can hold one letter of a string. Consecutive letters in a string reside in consecutive elements of an array. The first byte of the string is in element 0, the second is in element 1, the fifth is in element 4, and so on. Additionally, every string should end in a NULL; this means that the array element following the very last letter in the string should contain a zero. The NULL allows C to find the end of the string.

To solve our problem of constructing a filename in the form DSK1.? (where ? is the letter that changes), let's first take a look at how a hypothetical filename would be stored in its final form:

```
  0   1   2   3   4   5   6
-------------------------------
| D | S | K | 1 | . | A | 0 |
-------------------------------
```

Each box represents an array element, and the numbers above indicate the position of each element.

As you can see, elements 0-4 make up the portion of the filename that will never change; it will always be 'DSK1.' The element in position 5, however, will change depending on the word we are examining. The task before us can now be divided into three steps: declare the character array, store 'DSK1.' in the array, and change element 5 by examining the word in question. Here is the code necessary to accomplish the first in two steps.

```
char fname[7];
strcpy(fname,"DSK1. ");
```

The filename will contain a maximum of 6 bytes plus the NULL byte, for a total of 7 bytes. Therefore, dimension the array for 7 elements. Next, notice that in order to store 'DSK1.', you need to use the strcpy() function that comes on the c99 release disk. You can't simply type **fname="DSK1. "** as in BASIC. The reason will be discussed in a future article. Also notice that there is a space after the period and before the closing quote. You must reserve space to insert the letter

(See Page 28)

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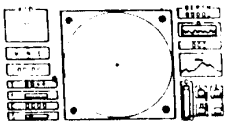

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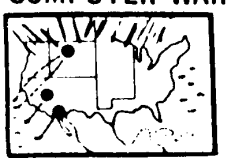

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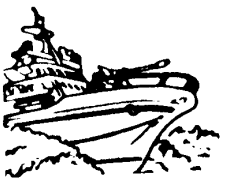

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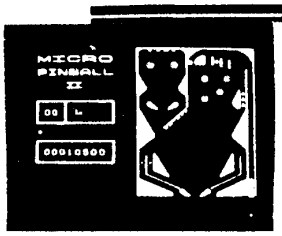

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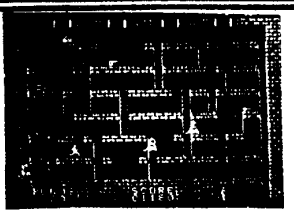

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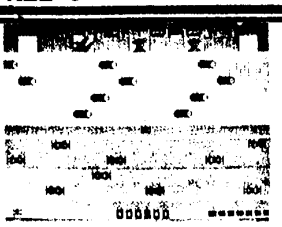

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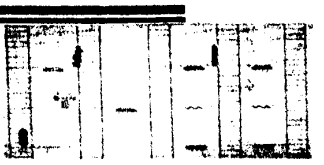

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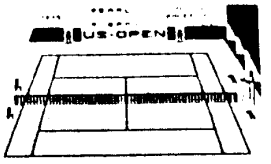

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c99—

(Continued from Page 26)

after the period; if you omit the space, the compiler would place a NULL directly after the period, in position 5. We want the NULL in position 6. The above statement will copy a space into position 5, and tack on a null in position 6.

Now that we have the filename initialized, we need not do it again, since 'DSK1.' will never change. The next task is to figure out which letter to use for the filename. This is the easy part! We already know that the first letter of the word in question will be used for the filename, so all that needs doing is to copy that first letter to our filename.

Assume that the character array **word** contains the word we are examining. The code required to complete the filename is:
fname[5]=word[0];

Simple, eh? This statement takes the letter in position 0 of **word** and copies it into position 5 of **fname.** The strcpy( ) function is not needed since we are only manipulating single characters. If we needed to copy more than one character (as we did with 'DSK1.'), you need a special function like strcpy( ).

A very simple and elegant solution to a sticky problem, don't you think. The above assignment can be placed in a loop; whenever you retrieve a new word, make the assignment to build the dictionary filename. A hypothetical fragment of code might look like this:

```
#include "dsk2.conv:c"

char word[10],fname[7];
int x,file;

strcpy(fname,"DSK1. ");          /* init filename */

for(x=0;x<10;x++) {
     gets(word);                 /* user inputs word */
     fname[5]=word[0];
     file=fopen(fname,"r");

     ...read dictionary, etc....

     fclose(file);
     }
```

Once you have a word from the user, simply copy the word's first byte (byte 0) to the filename's sixth byte (byte 5). Now you can open the dictionary file and continue processing.

Treating strings as arrays and manipulating individual bytes of the string by using subscripted array elements is an easy and straightforwoard method for string processing. However, sometimes it is difficult to access strings in this way; a much more powerful and versatile way is to use pointers. The process of using pointers to access strings will be discussed in a future article.

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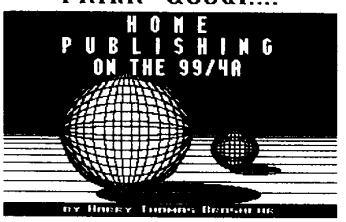

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Geneve

T&J Software releases two programs

By MIKE DODD

Two new Geneve programming tools have been announced recently. Tom Freeman has completed an MDOS-mode version of DISkASSEMBLER. The new version incorporates many new features.

The original DKA was considered by many to be the hallmark of disassemblers for the 99/4A. Unfortunately, the program would not run on the Geneve, depriving the 9640 community of this fine program. For quite some time now, Freeman, with some assistance from Jim Lohmeyer, has been working on the MDOS-version of DKA. Freeman was nice enough to provide me with a pre-release version for review.

This article is not intended to review all all features of DKA — only those new to this version. For a review of the original DKA, read J. Peter Hoddie's article in the January, 1987 issue of MICROpendium.

The first thing you notice about the program is that it is now totally in 80 columns. It has several color choices, easily changed by pressing <CTRL>-1, but there appears to be no way to change the initial default, which is white on dark blue. That is fine for people with RGB monitors, but monochrome owners will be quick to change it.

At any time in the program, pressing <CTRL>-C will allow the user to perform a disk catalog. You can enter a drive number, letter (e.g. 2, A:, or C:) or full pathname for winchester access (e.g. WDS1.UTIL.SOURCE.). The catalog displays all information except the time and date stamp in three columns across the screen.

At the first input prompt ("Enter filename or null for memory"), there are several special commands you may use. They are selected by entering a colon followed by a letter and any other pertinent information. For example: you can load a series of PROGRAM files and disassemble them all at once. This would allow one to, say, disassemble Fast-Term as one file instead of two or three separate files. This is the B command (for batch). For example: you could use :BC:FTG to disassemble all files that make up the FTG program on drive C.

Another useful new feature is the M command. This allows the user to load memory pages so as to allow disassembly of the entire range of memory. You can load up to two pages at once, which are loaded into the >A000 and >C000 pages. The only problem with this scheme is that if you wanted to disassemble a page of memory that normally resided, say, in the >2000 area, then the addresses, and, consequently, the labels generated by DKA, will be wrong. If you are merely printing a first pass disassembly, you can mentally adjust the address as you read it, but it is an inconvenience. If, however, you wish to generate labels (a second pass

(See Page 30)

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GENEVE—

(Continued from Page 30)

disassembly), it becomes impossible. DKA is shipped on an unprotected disk.

In conclusion, I recommend DKA to the 9640 enthusiast. It is not a perfect program (are any?), but it comes closer than any other. It is well worth the cost. DKA is available for $22.95 from: T&J Software, 515 Alma Real Dr., Pacific Palisades, CA 90272. Owners of the original DKA from MG can receive a $5 discount by mailing the warranty page of the original manual with their order.

The other new programming tool is Jim Lohmeyer's debugger program. It is an extensive enhancement of TI's internal debugger, and should prove a useful tool for all MDOS programmers. It is available for $18.50, also from T&J Software.

CONTROL CODES

There are several control codes that can be passed to the WriteTTY command in MDOS. They are:

>01	Home cursor to row 0, column 0
>08	Backspace
>09	Tab (every eight characters)
>0A or >0B	Line feed
>0C or >1A	Clear screen
>0D	Carriage return
>1B,>43,>2f,>2b	Set colors -- f is foreground, b is background
>1B,>3D,>2r,>2c	Set row and column -- r is row, c is column

PICTURE TRANSFER

Genial Computerware is releasing Paul Charlton's Picture Transfer program for the 9640. It reads GIF, MY-Art, RLE, TI-Artist, and GRAPHX picture formats and will save in GIF and MY-Art formats. It supports batch file processing, allowing the user to create slide shows. The programs runs from MDOS mode. Charton says that each copy will be personalized for the purchaser.

VIRUSES

There has been much talk in the news recently about computer viruses. Recently, a computer scientist created a virus that infected ARPANET, clogging the system and slowing down operations everywhere.

All viruses must reproduce. They usually do this by "infecting" the operating system. This is done by adding code to the end of the OS that contains the virus. Since the virus now controls the OS, it in turn re-infects other programs that are loaded into the computer. These programs then infect systems that they come into contact with, and so on. The viruses are often spread by having an infected file sent to another user via the modem. Once there, it can infect that system.

There are three main types of action a virus will take.

1. The time bomb. This is a virus that is set to activate at a certain date. After activation, one of two actions usually occur. The first is erasure of all floppy and hard disks currently attached to the system. The second is non-destructive, choosing instead to write a message on the screen or some other such passive action.

2. The logic bomb. This type waits for a certain value to appear somewhere in memory. The value may have some significance, or it may be totally random. After the program detects it, it activates.

3. The last type does not have any designated name that I am aware of. This is the type of virus that infected ARPANET. That particular virus wreaked its damage by taking up processor time — it didn't actually damage anything. Rather, it worked by duplicating itself at an awesome speed, which took more and more time from the computer. The net result was that other tasks running on the system began to run slower and slower. That type of virus would be ineffectual on the 9640 system, as multi-tasking is not used.

Having said this, I must also point out that writing a virus on the 9640 would be extremely difficult. First, there is the issue of attaching itself to the OS. MDOS is already a full 90K in length. Any additional code would require more than a SS/SD disk to hold. Even if the user had a larger disk size and did not notice the change, the memory change would probably be noticed. With the advent of MDOS 1.08, RAMdisk sizes are limited. Many users take up all of memory with the TIMODE and RAMDISK commands. A missing page (a page is 8K in length) would be quickly noticed.

The second part of a virus is infecting other programs. This too is difficult. To date, there are few MDOS-mode programs. Many of them are very small, and an addition of a few K would be easily noticable. On the IBM and other computers, where a "small" program may be a 100K in length, a few extra K is not easily spotted. Not so on the 9640, where a 24K program is considered long. Infecting GPL programs would be even more difficult. Not only is the small size of them still a factor, an additional problem is brought into play by the limited memory. Many GPL-mode programs take up all available memory for either the program or data storage. A virus would be hard pressed to find space to reside.

I should also note that all of the above also applies to the 99/4A, but more so. Memory is even more limited, and the operating system is ROM-based.

CORRECTION

Bruce Hellstrom informed me that there was a minor bug in my program last month to change the palette registers for the colors. In the GETNUM routine, starting with line 121, the code reads:

```
0121    SB   @H30,R0        Minus ASCII offset
0122    CB   R0,@H39        '9'
0123    JH   ERROR          Not a number -- error
```

Line 121 should be moved after line 123, producing:

```
0121    CB   R0,@H39        '9'
0122    JH   ERROR          Not a number -- error
0123    SB   @H30,R0        Minus ASCII offset
```

That will correct the problem.

Send correspondence to: **Mike Dodd, 116 Richard Dr., Oliver Springs, TN 37840.** ***Personal replies cannot be guaranteed.***

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MICROpendium Index

A guide to find your way through 1986

This is the fourth installment of Elton Schoolings's BASIC index of MICROpendium. Other installments were published in the April, June and October 1988 editions. Readers who use this index must have the above editions available.

The index data for 1986 starts at line 350, with the program preceding it. The program to run the index was published in the June 1988 issue and should be merged at the top of the data statements for each year's index.

Readers who discover any errors in the data statements are encouraged to provide corrections so that we may pass them along to others.

1986 Index

```
350 DATA DISCHEM FEEDB 1/86/
8,MEM FEEDB 1/86/10,TINYCALF
IX CALENDAR FEEDB 1/86/10,DI
GMUS 1/86/12,DRINFO FEEDB 1/
86/8 !113
360 DATA CALENDAR TINYCALFIX
 1/86/8,MUSDIG 1/86/12,BATTL
I 1/86/32,FILESAMPLERTIWR US
NO 1/86/42,TIWRMULTICOL USNO
 1/86/44 !226
370 DATA MULTICOLTIWR USNO 1
/86/44 !013
380 DATA MONCOLOR 1/86/30,LI
BATT 1/86/32,COPIERSPEEDS 1/
86/35,GRAPHBITMAC REV 1/86/3
7,STARCROSS GA REV 1/86/38,F
REEW 1/86/39 !031
390 END !139
400 DATA NUMINTOTXT USNO 1/8
6/42,TIWRFILESAMPLER USNO 1/
86/42,TIWRSUM USNO 1/86/43,M
ULTTIWR 1/86/44,LIBATT FEEDB
 2/86/8,CTRLU FEEDB 2/86/8 !
197
410 DATA BATTLI FEEDB 2/86/8
,LANGTI 2/86/12,FANPEB (2 AR
T) 2/86/22,SPELLCHECK PROOF
2/86/28,ASSEMBLSOUND 2/86/35
,SOUNDASSEMBL 2/86/35 !021
420 DATA XLATE FEEDB 2/86/10
,TILANG 2/86/12,PEBFAN (2 AR
T) 2/86/22,FREEW 2/86/25,PRO
OF SPELLCHECK 2/86/28,HOR RA
MDSK 2/86/25 !021
430 DATA NIGHTMISSION GA REV
 2/86/36,BAWRWDPROC REV 2/86
/38,BASTOXBAS USNO 2/86/42,D
/V80TO PRNTR USNO 2/86/42,BA
SHNCHM USNO 2/86/43 !081
440 DATA PERIPHDIAG DIAGTOOL
 REV 2/86/37,DIAGTOOL PERIPH
DIAG 2/86/37,WDPROCBAWR REV
2/86/38,DRSET 2/86/43,SEARCH
VAR USNO 2/86/44 !153
450 DATA DSKDRSET USNO 2/86/
43,DRSWEEP USNO 2/86/43,VARS
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6/8,FUNLWR 3/86/8 !250
460 DATA TIWRXLIT FEEDB 3/86
/10,CTRLU FEEDB 3/86/10,DSKD
R FEEDB (4 ART) 3/86/12,COPY
R 3/86/14,BASXBAS 3/86/16,TR
IPTSWITCH 3/86/22 !209
470 DATA SWITCHTRIPT 3/86/22
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480 DATA ASSEMBLPEB 3/86/26,
PEBASSEMBL 3/86/26,99WESTFES
T REP 3/86/31,TIFORTH 3/86/3
2,FORTHTI 3/86/32,GENIE 3/86
/34 !152
490 DATA DSKCOPY SUPERDUPER
REV 3/86/35,SUPERDUPER REV 3
/86/35,BUSGRAPHS99 GRAPH 3/8
6/37,ASSEMBLSUBR USNO 3/86/4
3 !030
500 DATA TOD ED  GA REV 3/86
/36,GRAPH BUSGRAPHS99 REV 3/
86/37,TIWRSUM USNO 3/86/42,S
UBRASSEMBL USNO 3/86/43,CHAR
SET USNO 3/86/43,GRAPHPAP US
NO 3/86/43 !006
510 DATA DSKINIT FEEDB 4/86/
8,LIBATT FEEDB 4/86/8,BASXBA
S 4/86/14,DSKHDASSEMBL 4/86/
18,USNOTIFORTH 4/86/28,STRUC
TBAS 4/86/22 !087
520 DATA ASSEMBLJOYST USNO 3
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6/43,FORTHTI USNO 4/86/28,TI
FORTH USNO 4/86/28,TXTXFER 4
/86/36 !162
530 DATA FREEW 4/86/34,MODEM
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38,WDCOUNTTIWR USNO 4/86/43,
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10 !002
550 DATA DSKINIT FEEDB (2 AR
T) 5/86/8,FREEW FEEDB 5/86/8
,TIWR FEEDB 5/86/10,KEYB 5/8
6/12,BASXBAS 5/86/24,BUGS 5/
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560 DATA TIFORTH 5/86/30,FOR
THTI 5/86/30,4AFLYER REV 5/8
6/37,GRAMCRACK REV 5/86/39,A
RTISTSCOMPANION REV 5/86/41,
ACCEPT USNO 5/86/43 !049
570 DATA STRUCTBASPROGR 5/86
/32,BASPROGRSTRUCT 5/86/32,C
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580 DATA TIBOING USNO 5/86/4
4,BOINGTI USNO 5/86/44,LABEL
 USNO 5/86/45,BASCONV USNO 5
/86/45,WDCOUNT USNO 5/86/46,
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590 DATA 4AFLYER FEEDB 6/86/
8,TRIPT FEEDB 6/86/10,FREEW
6/86/12,CAD 6/86/14,XBAS 6/8
6/22,BASXBAS 6/86/26,STRUCTB
AS 6/86/32,TIFORTH 6/86/34 !
255
600 DATA FORTHTI 6/86/34,MYA
RC DSKCTRLMYARC REV 6/86/38,
MAXIMEM REV 6/86/39,XBCTRL U
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620 DATA TRIPT USNO 6/86/43,
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8,PRNTR FEEDB 7/86/10,ASSEMB
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30,TIFORTH 7/86/31,FORTHTI 7
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640 DATA VPEEKASSEMBL 7/86/1
2,CALCTI 7/86/30,KITRAMDSK F
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33,OLDDARKCAVES GA REV 7/86/
35,WDPROCFUNLWR REV 7/86/36,
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```

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670 DATA TIWRDEFAULTS USNO 7/86/44,XBASCAT USNO 7/86/44,CONVBAS USNO 7/86/45,MMMTIPS USNO 7/86/45,DSKLIST USNO 7/86/46,LABELFIX USNO 7/86/46 !034
680 DATA MEMFULL USNO 7/86/46,ZEROSLASH USNO 7/86/46,GP100TI FEEDB 8/86/8,ASSEMBLA0COL 8/86/12,BASXBAS 8/86/28,FORTHMYARC128K 8/86/33 !082
690 DATA OVERLAYS PRINTSTRIP 8/86/34,BOOKTI99/4AINTERN REV 8/86/35,GPLLINKER REV 8/86/35,NUMWIDSFIX USNO 8/86/43,PUTDOT CAD 8/86/43 !139
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720 DATA AXIOM100TI USNO 8/86/46,DSKSLEEVES 9/86/12,WYCFORTH 9/86/18,FORTHWYC 9/86/18,GPLASSEMBL 9/86/26 !065
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740 DATA PRNTRBUFF 10/86/44,BUFFPRNTR 10/86/44 !214
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890 D=N !080
900 D=INT(D/3)+1 :: FOR I=1 TO N-D :: IF N$(I)<=N$(I+D)THEN 930 :: T$=N$(I+D):: J=I !191
910 N$(J+D)=N$(J):: J=J-D :: IF J<1 THEN 920 :: IF T$<N$(J)THEN 910 !124
920 N$(J+D)=T$!100
930 NEXT I !223
940 IF D>1 THEN 900 !130
950 SUBEND !168

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Chicago Faire attracts over 500 visitors

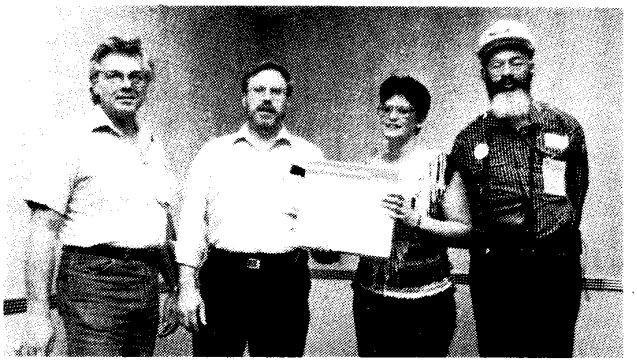
Although the most anticipated software release of the fourth quarter of 1988 wasn't ready for sale at the 1988 Chicago TI Faire, TIers who attended weren't disappointed. There were, afterall, some 32 vendors with wares spread across 53 tables in the exhibit hall, and hours and hours of seminars just down a hall to keep everyone occupied.

The fair site this year was moved from Triton College to a Holiday Inn. This turned out to be a welcomed change as the exhibit hall while large was better layed out and the seminar room was just a few steps down the hall. Out-of-towners who spent the two days at the hotel site never had to venture into the chilly, rainy weather to see the show.

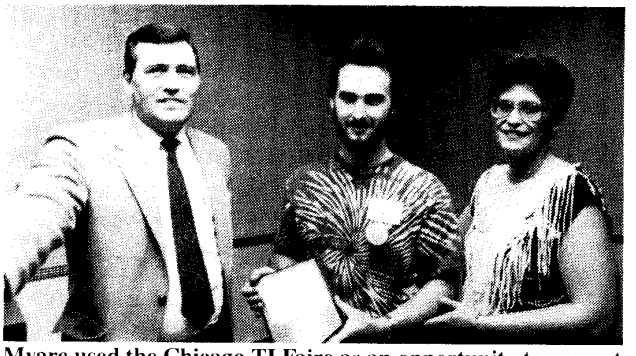
The official count of visitors stopped at 525, a turnout that will assure another fair next year, according to this year's fair director Marcy Brun.

As for what didn't happen at the fair, Press, the new word processor by Charles Earl, wasn't finished. Asgard Software, the distributor, demonstrated an unfinished version of the program to a packed-house, and then took scores of prepaid orders of the program for later delivery. What visitors did see of Press they liked. The demo included editing functions but no I/O.

Myarc didn't show any new products during its seminar but demonstrated its Hard & Floppy Disk Controller on a Geneve. Visitors saw a preliminary version of GEME, a windowing, multitasking environment and an abortive attempt to run Myarc Advanced BASIC. GEME will allow users to run up to four programs simultaneously, but not just any programs. Only programs that are specifically written or rewritten to utilize GEME will be able to take advantage of GEME. Company spokesman Jack Riley wasn't certain that the Myarc BASIC would work as he had downloaded it via modem the night before. While MAB could be loaded, it locked up the computer when trying to run a FOR-NEXT loop.



Michael Mickelsen (second from left) was the lucky winner of a Myarc HFDC at the Chicago TI Faire. Pictured with the winner are, from left, Hank Ellermann, president of the Chicago group, Marcy Brun, fair coordinator, and Don Jones, Chicago UG officer.



Myarc used the Chicago TI Faire as an opportunity to present programmer Paul Charlton (center) with a plaque for his efforts on behalf of the TI community. Pictured with Charlton are Jack Riley, Myarc marketing director, and Marcy Brun, fair coordinator.

DataBioTics eyes GROM port option board

DataBioTics is considering development of a 32K option board that would plug into the GROM port of the TI99/4A for use with its Grand RAM. This would allow Grand RAM buyers to "use it if you wanted to free up a slot in the P-Box or if you didn't have one," according to Bill Moseid of DataBioTics.

Cost would depend on the cost of 32K static RAM chips. No deadline for development was given.

Meanwhile, Moseid said, purchasers of the Grand RAM "might be better (off) to buy a Grand RAM without memory and put in memory as they can afford it."

He says some Grand RAMs are being delivered but that delays in part are because of tariffs on Japanese chips.

He says the tariffs have the effect of increasing the price of chips to the persons who make products, causing them to take their products off the market or increase their prices.

OTHER PRODUCTS

DataBioTics' fall preview flyer lists the Grand RAM as being available only at zero RAM until the market on RAM recovers. Grand RAM with zero RAM is $136.95. If the realtime clock is purchased at the same time, it is $19.95; purchased separately, the clock is $29.95.

"Some people ask me when the Grand RAM will be compatible with the Geneve, and I tell them it will be when they finalize the specifications for the external DSR."

Planned is a memo program in a cartridge which allows the user to put a memo in for each day of the month and move the cursor to the day's window to read or edit it. Moseid calls the program "neat for people with the console only" and says it will sell for $20-$25.

New cartridges by DataBioTics include the games Beyond Parsec, Star Trap, D* Station I and D* Station II, and Micro-Tennis, retailing for $19.98; the Sorgan II

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SUBINDEX: a subprogram library in XB

By JERRY L. STERN
© 1988 J.L. Stern

One of the great advantages of TI Extended BASIC over console BASIC is the ability to write, use and merge subprograms. A subprogram is a group of statements that is written to perform any programming task, and is "cailed" or executed by a main program.

Although the use of subprograms is fairly straightforward, most programmers do not take advantage of the ability to merge a subprogram into another program. Over and over again they type in that same old sort routine, or the few lines of code that just make the computer pause until a key is pressed. With the use of merged subprograms, there is no need to rewrite, or even retype, these common program segments. Each of these can be set up a separate file on disk and just inserted as necessary into whatever project needs them.

ADVANTAGES OVER SUBROUTINES

Subprograms have several advantages over subroutines: First, the variables in a subprogram are not the same variables as in the main program. This means that you may use a variable called "T9" in your main program, and use the same variable name again in a subprogram, or in several subprograms. The computer stores each set of variables independently of the others, and these variables with the same names will have no effect on each other. So what? So this makes debugging a program easier. As a program is written, it frequently grows beyond the ability of the author to keep track of all the variables that have been used for one thing or another — until the program won't run because the variable "FL" was used twice as a flag and now one portion of the program is interfering with another.

Secondly, by dividing the program into subprogram chunks, what may appear to be a programming project of terrible complexity has become a combination of several smaller programming solutions. This a step toward building programming "module," which is good programming practice, and much easier to debug as well. Since the program has been broken up into chunks which work independently, this encourages us to save each of these chunks separately to use again in other projects. (Why work harder than you have to?)

Carried to a logical extreme, one could easily end up with programs that look like this:

```
100 CALL TITLE :: CALL PAUSE
 :: CALL CLEAR
110 DIM X(100):: CALL INFO(X
()):: CALL CLEAR
120 CALL SORT(N,X()):: CALL
MEDIAN(N,X())
130 FOR L=1 TO 100
140 PRINT X(L);
150 NEXT L
160 PRINT :"MEDIAN= ";M
170 END
```

This program is not complete. It needs to be followed by the subprograms TITLE, PAUSE, INFO, SORT and MEDIAN, each of which may have been left over from some other project! We have a program that inputs a hundred numbers, sorts them, calculates their mathematical median, and almost no programming has been done! However, this takes organization and preparation.

GUIDELINES

There are some guidelines to follow when setting up a set of subprograms so that you will be able to use them easily later on.

1. When you store a subprogram, use MERGE format. This is easily done: just add , ***MERGE*** to the end of your SAVE statement. Example: SAVE DSK1.PAUSE, MERGE

2. Store each subprogram separately, but all on the same disk or set of disks. This will make using your subprogram library much easier.

3. Use lots of remarks in the subprograms, especially to tell what the variables being used in the SUB statements are, and what actions the subprogram performs. This will save you from having to figure out, a year from now, what a subprogram you called CRUNCHER is supposed to do.

4. Before saving each of your subprograms, resequence them to different line numbers than any of your other subprograms. The easiest way to do this is to make a list of your subprograms as you save them, and their line numbers. For example, save PAUSE as your first subprogram after resequencing it to start at line number 25000. If its last line is 25060, start your next subprogram at 25070. Why? Because this allows you to quickly add as many subprograms as you want to any programming project. First, check that the highest program line in the main program is less than 25000, then type, for each subprogram you need:

MERGE DSK1.PAUSE
MERGE DSK1.TITLE

and so on. Why work?

5. A subprogram may call other subprograms, but it may not call itself. Recursion techniques like those used in Logo cannot be done in Extended BASIC using subprogram technique.

A HELPFUL PROGRAM

SUBINDEX will help you to keep track of your collection of subprograms. The program will read the listings of each subprogram that you've stored on a disk in merge format, and print out an index list of every subprogram it finds. The index alphabetically lists the Sub statement, all remark lines, and the line number range of each subprogram. The program is set up for the TI printer, but it will run on most Epson and Star Micronics printers and many others without changes. Just in case it doesn't work on your printer, there are conversion notes to help you switch it over to use the control codes required by your printer.

When the program runs, it first looks at the directory placed on the disk by the disk controller. It makes a list of all the files stored in the DISPLAY,VARIABLE 132 merge format. Next, it scans each one of these files, looking for and printing out the first line, last line, and full comments lines of each subprogram. The subprogram UNCRUNCH converts these lines from the internal notation used by Extended BASIC merge format to a printable format.

PROGRAM HINTS

Some hints to get results from this program: First, store all your subprograms on the same disk or set of disks and save them in MERGE format. If you have saved anything on this disk in this format which is not a subprogram, unpredictable results will occur because UNCRUNCH will leave it in internal crunch format, and your

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SUBINDEX—

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printer will interpret some of the strange ASCII codes as printer instructions.

Second, if you have more subprograms than will fit on a disk, store them in an organized way when you split them onto multiple disks. That is, when the time comes for you to switch to multiple disks, save those subprograms whose names start with A to M on one disk, and N to Z on a second disk. When you run SUBINDEX on these disks the results will be a pair of listings which together will be an alphabetical listing of your entire library of subprograms. This option may be helpful for a few programmers, but will probably not be needed by most readers, since a TI SS/SD disk can hold up to 128 files of varying length. Since most subprograms are short, it will probably take about 90 of them to fill the disk.

Finally, when you store a subprogram in your library, use as a disk storage name the same name that you gave to the subprogram. When you look at the SUBINDEX printout and see a subprogram called PAUSE, you will then not have to look what other name was used to store the file, but instead just type:

MERGE DSK1.PAUSE

That should get you started with subprograms. During the next few months, I hope to have ready for you more program utilities and subprograms which will help to make programming on the TI even fast and still easier then it is now. Happy MERGEing!

```
12-11-1987
32230  SUB BUSY(N)
32235  !  BUSY SIGNAL SOUND EFFECT FOR N SECONDS:JLS 9/1985
32250  SUBEND
32295  SUB DOORBELL(N)
32300  !  DOORBELL SOUND EFFECT RUNG N TIMES JLS 9/85
32310  SUBEND
32410  SUB DOORCHIME
32415  !  DOORCHIME SOUND EFFECT JLS 11/85
32425  SUBEND
30820  SUB PAUSE
30840  SUBEND
29645  SUB SUM(A(),N,X)
29650  !  SUM(ARRAY,# OF ELEMENTS IN ARRAY,RETURN VARIABLE FOR SUM OF VALUES;JLS 1/88
29660  SUBEND

SUBPROGRAMS IN FILE RANGE FROM  29645  TO  32425
```

SUBINDEX

Program explanation

100-170 — Program header

180 — Setup array to hold names of subprograms on disk.

190 — Formula to convert line numbers from crunch format.

200-260 — Make list of subprograms on disk.

(See Page 36)

SUBINDEX

```
100 REM ********************* !002
110 REM *     SUBINDEX      * !176
120 REM ********************* !002
130 REM BY JERRY STERN !173
140 REM!154
150 REM!154
160 REM TI EXTENDED BASIC !074
170 REM CREATES AN INDEX OF SUBPROGRAMS ON A DISK TO RS232 !186
180 DIM A$(127):: ON WARNING NEXT !026
190 DEF LN$(T$)=STR$(ASC(T$)*256+ASC(SEG$(T$,2,1)))&" "&SEG$(T$,3,LEN(T$)-2)!046
200 OPEN #1:"DSK1.",INPUT ,RELATIVE,INTERNAL !236
210 I=1 :: H=0 :: L=40000 !207
220 INPUT #1:A$(I),X,Y,Z :: IF A$(I)="" THEN 250 ELSE IF ABS(X)<>2 THEN 220 !250
230 T$=" "&STR$(Z):: IF SEG$(T$,LEN(T$)-2,3)="163" THEN I=I+1 !241
240 GOTO 220 !043
250 CLOSE #1 :: OPEN #2:"RS232.DA=8.BA=4800",DISPLAY ,VARIABLE 132,OUTPUT :: PRINT #2:CHR$(15);CHR$(27);CHR$(48);CHR$(27);CHR$(67);C
HR$(88);CHR$(27);CHR$(78);CHR$(3)!205
260 DISPLAY AT(22,1):"DATE?" :: ACCEPT AT(23,1)SIZE(18)BEEP:Q$ :: PRINT #2:Q$ !250
270 FOR N=1 TO I-1 :: OPEN #3:"DSK1."&A$(N),INPUT ,DISPLAY ,VARIABLE 163 !161
280 LINPUT #3:C$ :: IF ASC(SEG$(C$,3,1))<>161 THEN 320 ELSE CALL UNCRUNCH(C$):: PRINT #2:LN$(C$):: PRINT #2:CHR$(27);CHR$(70);!084
290 L=MIN(L,ASC(C$)*256+ASC(SEG$(C$,2,1)))!066
300 IF EOF(3)THEN 320 ELSE LINPUT #3:C$ :: T=ASC(SEG$(C$,3,1)):: IF T=154 OR T=131 THEN CALL UNCRUNCH(C$):: PRINT #2:LN$(C$)!243
310 T=ASC(SEG$(C$,LEN(C$)-1,1)):: IF T=168 THEN PRINT #2:LN$(SEG$(C$,1,2))&" SUBEND" :: H=MAX(H,ASC(C$)*256+ASC(SEG$(C$,2,1))):: GOT
O 320 ELSE 300 !036
320 CLOSE #3 :: NEXT N :: PRINT #2: :"SUBPROGRAMS IN FILE RANGE FROM ";L;" TO ";H !016
330 CLOSE #2 !152
31325 SUB UNCRUNCH(D$)!172
31330 ! TRANSLATES CRUNCH FORMAT STATEMENTS TO STRAIGHT ASCII !106
31335 ! ONLY SUB,SUBEND,REM, AND ! WILL BE TRANSLATED-USE FOR SUBPROGRAM INDEXING !022
31340 T=POS(D$,CHR$(161)&CHR$(200),3):: IF T=0 THEN 31365 !169
31345 D$=SEG$(D$,1,2)&" SUB "&CHR$(14)&CHR$(27)&CHR$(69)&SEG$(D$,6,LEN(D$)-6)!157
31350 T=POS(D$,CHR$(183),7):: IF T=0 THEN 31355 ELSE D$=SEG$(D$,1,T-1)&"("&SEG$(D$,T+1,LEN(D$)-T):: GOTO 31350 !022
31355 T=POS(D$,CHR$(182),9):: IF T=0 THEN 31360 ELSE D$=SEG$(D$,1,T-1)&")"&SEG$(D$,T+1,LEN(D$)-T):: GOTO 31355 !034
31360 T=POS(D$,CHR$(179),9):: IF T=0 THEN 31365 ELSE D$=SEG$(D$,1,T-1)&","&SEG$(D$,T+1,LEN(D$)-T):: GOTO 31360 !053
31365 T=POS(D$,CHR$(130),7):: IF T=0 THEN 31370 ELSE D$=SEG$(D$,1,T-1)&" :: "&SEG$(D$,T+1,LEN(D$)-T):: GOTO 31365 !187
31370 T=POS(D$,CHR$(131),3):: IF T=0 THEN 31375 ELSE D$=SEG$(D$,1,T-1)&" ! "&SEG$(D$,T+1,LEN(D$)-T)!153
31375 T=POS(D$,CHR$(154),3):: IF T=0 THEN 31380 ELSE D$=SEG$(D$,1,T-1)&" REM "&SEG$(D$,T+1,LEN(D$)-T)!104
31380 SUBEND !168
```

Horizon RAMdisk project

Cheaply add a disk drive (under certain circumstances)

By JACK H. MILLER

If you have a Horizon RAMdisk and at least one disk drive, here is a minor hardware modification that allows shifting your number one disk drive to a higher numbered drive. When the RAMdisk has been switched to the number one position to run TI- Writer or other programs requiring loading from disk one, the physical DSK1 drive is out of service unless a disk name is searched for.

This will work only if the total number of disk drives you have is at least one less than your disk controller's maximum. In other words, this will work if you have a TI controller card and a maximum of two drives, so that the number one drive can be switched to drive three. If you have a CorComp or Myarc controller, the maximum is four.

The following instructions apply to the TI controller and original TI (Shugart) SS/SD drive as drive one. Other combinations and drives will work, but it is impossible to give exact directions on all the brands of drives in use. If you have another drive than the Shugart SA 400 L, as originally supplied by TI, the idea will work but you will have to get information on the exact configuration of the shunt pack in your particular drive.

The parts cost should be about $4. The adapter plugs into the shunt pack socket instead of the original shunt pack. DSK1 must be removed from the PEB and its case and then reassembled, but no cutting is required unless you want to mount the control switch on the front plastic panel of the disk drive as I did; otherwise, you can thread the new wires out the back of the PEB and mount the switch on the front or side of the PEB. If you do drill a hole in the plastic front of the disk drive, you must be careful to keep the plastic chips out of the drive and the location must not interfere with proper operation of the drive or door. I mounted mine in the upper right-hand corner of the drive face when vertical.

The parts required are as follows (Radio Shack part numbers are shown but others will work):

1 #275-613 SPDT Submini toggle switch

1 #276-1980 16-position DIP component carrier (only 14 pins are used)

8-24 inches of three-conductor wire (length depends on final switch location) — three individual lengths may be used but make sure you get small, flexible wire.

The wiring is shown in Fig. 1 and 2. Fig. 1 is for a 1 to 3 switch if you now have two disk drives. Fig. 2 is for a 1 to 2 switch if you now have only one drive. Solder the three wires to the DIP carrier as shown in the appropriate drawing.

Take DSK1 out of the PEB. Locate the shunt pack as shown in Fig. 3. The shunt pack looks like the other integrated circuits on the board, except you can see little silver bars connecting the first two positions toward the front of the drive. The silver bars have something of an hour-glass shape and only the first two will be complete. The others will have the center punched out or three will be nothing at all plugged in except for the first two locations.

Remove the original shunt pack and plug in the DIP carrier as shown in Fig. 4, leaving the extra pins on the DIP carrier protruding at the back of the socket. Do not try to use the cover of the DIP carrier as there will be no room for it. Cut the wire to the proper length to reach your switch mounting position.

SWITCH MOUNTS

If the switch is to be mounted on the front of the drive, solder the wires to the switch. Make sure that the wires go to the proper terminals. The hole should be drilled and the switch mounted. Observe the precautions of not interfering with the door operation or getting drilling chips in the drive. Check by inserting a disk and closing the door. Also, double-check your wiring. Put a piece of electrical tape over the top of the DIP carrier as an added precaution and make sure the new wiring cannot get into the drive's operational path or short on a sharp edge. Then place the drive in the PEB and test (see below).

If the switch is to be located externally, do not solder the switch on yet but mark the wires so that you can identify them after assembly. Put a piece of electrical tape over the DIP carrier and reassemble the drive into the PEB, threading the wires out one of the holes in the back of the box. Solder the wires to the switch and mount the switch in the desired location. Tape or otherwise protect the switch terminals from shorting together or to the PEB or another metal case, then test.

TESTING

First, the RAMdisk should be moved to disk position 4 by using CALL DN(4) from BASIC to isolate it from drive testing. Testing should be done with a blank disk at first. *Switching your new drive switch when data is being read or written may destroy the data on the disk!* Switching with a disk in place and the door closed will not hurt the disk or the drive, but data may be

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SUBINDEX—

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270-330 — Open each file, identify lines to print, convert to print format.

31325-31335 — Subprogram header.

31340-31380 — Identify statements in crunch format, and convert.

CONVERT TO OTHER PRINTERS

250—Insert the name of your printer (PIO, RS232, etc.)

CHR$(15) — Condensed characters

CHR$(27);CHR$(48) — Set line spacing to 8 lines/inch.

280 — CHR$(27);CHR$(70) — Turn off emphasized printing.

31345 — CHR$(14) — Print enlarged characters.

CHR$(27);CHR$(69) — Turn on emphasized characters.

Note: if your printer does not turn off enlarged character printing automatically at the end of a line, you will need to turn it off manually. Add this to the last print statement in line 280.

Optionally, for those who do not want the fancy printout which this program produces for each of reference, just delete each of the CHR$ references in the line listings above (ONLY THESE) and change the open statement in line 250 to OPEN #2:"RS232",OUTPUT. This will give you a vanilla flavor printout, but with all the information as the original program.

RAMDISK—

(Continued from Page 36)

permanently messed up. Always switch with the drive door open.

Try calling your new setup from BASIC with the switch in the 1 position. Use OLD DSK1.XXXX. You won't get anything since the disk is blank, but the drive should run and the light should come on. Then, try switching to the 3 (or 2) position and do the same thing with OLD DSK3.XXXX or OLD DSK2.XXXX. No other drive, other than the one being called, should have its light turn on. Try calling DSK1 when in the 3 (or 2) position, and vice versa. No drive light should come on.

Then testing can be done with the RAMdisk moved to position 1, at which time a call to DSK1 should not run any drive and calls to your switched drive should work only in the position it is switched to. If it doesn't work correctly, turn everything off and check the wiring for shorts or connection to the wrong terminals.

You now have as many disk drives are you originally had, even with the RAMdisk as drive 1.

A note for the technically knowledgeable: For other drives and disk controllers the switch can be installed if the drive selection lines can be located. It is also possible to modify the DSK1 cable for the switch connections if the proper cable wires are located and spliced. The switch must be configured so that only one drive is selected at a time. There are usual conventions for disk drive cables and this should not prove difficult.

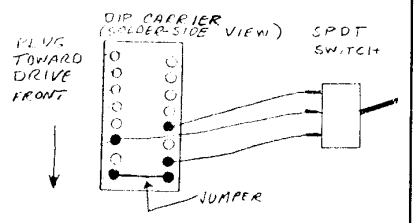


Fig. 1 (1—3)

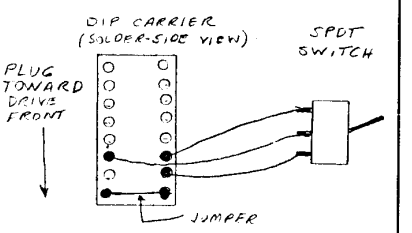


Fig. 2 (1—2)

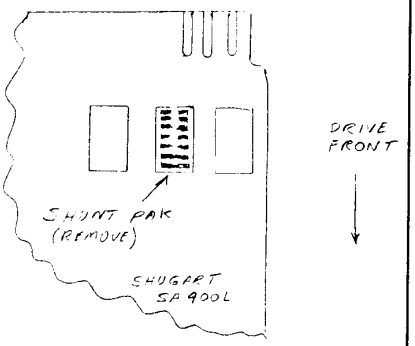


Fig. 3: Shunt pack location

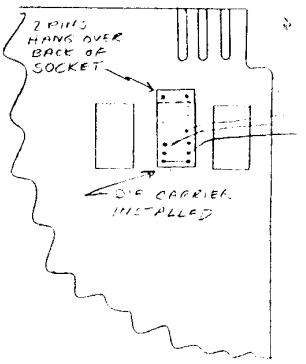


Fig. 4: DIP carrier installed

Reader to reader

Jonathan Luke Lester, 61 Three Forks Rd., Jolo WV 24850-9439 wants information on where he can get the following:

— a stepper motor for the DS/DD disk drive sold with the CC9900 Micro-Expansion System.

— card edge connectors for the expansion port of the TI99/4A.

— card edge connectors for the cartridge port.

Paul Lambert says he recently downloaded a CompuServe file called "Home Mortgage Loan Amortization. The description said it needed an additional file called 40 Column Pack by Richard Minutillo to work. It stated the 40 Column Pack should be called XB40.

Lambert writes, "I have never had any success in getting this program to work. I have tried everything I could think of with no success. I also downloaded a couple files callsed X40OBJ.1 and XB40OBJ.2 which I am guessing are the 40 column pack files, but I can't make it work.

Anyone who can help him get a working copy of the program is asked to write him at 570 West Victoria St., Rialto, CA 92376.

Jim Brown is interested in finding a program to load Editor/Assembler option 3 programs using the Extended BASIC cartridge. He has Barry Boone's program for loading Editor/Assembler option 5 programs for using Extended BASIC. Anyone who can help is asked to write Brown at 1145 Skyline Dr., Vallejo, CA 94591.

Dan Eicher says he recently purchased a Morning Star 128K card. He is not sure if it works. It did not come with a manual.

He asks anyone who has one of these cards and would be willing to copy the manual for him to contact him at P.O. Box 17401, Indianapolis, IN 46217.

Richard Horn wrote to Bob Ulrich, author of the "Lost Treasure of the Aztec" adventure game, but his letter was returned, address unknown. Horne wants to know how to get by the snake on the path, where to find what he needs to cut the trees in the Balsa Forest and where he can find the missing stone for the charm bracelet. Write him at 530 South Maine, Route 1, Markesan, WI 53946.

Exploring your printer

ESCape to six font sizes

By LOU BORELLI

The following is the third of a series of articles the author wrote for CIM 99, the monthly newsletter of the Montreal TI user group. Other installments appeared in the May and June 1988 editions of MICROpendium.—Ed.

Welcome to Part 3 of *Getting the Most* out of your printer with the use of TI-Writer in the Editor mode. The time has come to expand on the use of printer codes.

One of the most frequently used printer control codes is the ESCape code. As you will recall from Table 1 (June 1988), ESCape has the ASCII value of 27 in decimal or 1B in hex. In order to make use of ESC with TI-Writer, you must key in CTRL U, FCTN R, CTRL U. Remember that CTRL U puts you in the "special printer codes" mode, which is signified by the underline cursor. Pressing CTRL U again takes you out of this mode.

The object of this intallment is to demonstrate the use of six fonts. Table 3 gives a general overview. "CPI" stands for characters per inch.

Let's look at the fonts and control codes to get a full understanding of their functions.

CONDENSED — This is the smallest font available with the Gemini 10X. (Subscript and superscript are smaller but aren't being considered here.) You can print 17 CPI, which is equivalent to 136 columns on a standard 8½-inch wide sheet of paper. Condensed can also be accessed by using SI by itself or ESC SI.

ELITE — This is a nice-looking font which can be used when you need to squeeze just a few more words onto one sheet of paper to avoid a second page just for a few lines. (It is the font used in MICROpendium program listings.) It prints at 12 CPI or 96 columns on a standard page. Elite can be accessed only by using ESC B STX

STANDARD — This is the font that we normally see in the printing of documentation. This is also the font selected as default when the printer is powered-up. The access code of ESC B SOH is used only when we want to get out of the other special font modes. Another method used to cancel a special font mode previously set is the comand ESC @. The purposeof the ESC @ setting is to reinitialize all parameters to the power-on condition. You'll find this code used in most software as the first printer command.

TABLE 3

NAME	CPI	CONTROL CODE
Condensed	17	ESC B ETX
Elite	12	ESC B STX
Standard	10	ESC B SOH
Double Condensed	8.5	ESC W SOH ESC B ETX
Double Elite	6	ESC W SOH ESC B STX
Double Standard	5	ESC W SOH ESC B SOH

DOUBLE CONDENSED

To understand the next three fonts — Double Condensed, Double Elite and Double Standard — let's examine what happens with the printer code ESC W SOH. This command basically does the same thing as SO (discussed in the June installment). The only difference is that Double Width is not cancelled when encountering a carriage return. As is noted in Table 3, ESC W SOH is placed before the codes for the main three fonts, thus doubling each size as well as the number of fonts available to us.

TABLE 4

CPI	Turn 'on' in the TI-Writer Edit Mode
17	CU/Fn R/CU/B/CU/Shift C/CU U
12	CU/Fn R/CU/B/CU/Shift B/CU U
10	CU/Fn R/CU/B/CU/Shift A/CU U
8.5	CU/Fn R/CU/W/CU/Shift A/Fn R/CU/B/CU/Shift C/CU
6	CU/Fn R/CU/W/CU/Shift A/Fn R/CU/B/CU/Shift B/CU
5	CU/Fn R/CU/W/CU/Shift A/Fn R/CU/B/CU/Shift A/CU

After you've keyed in these codes a few times you'll see that it's not as complicated as it appears.

What do you think of TI-Writer now? Quite an impressive word processor, isn't it? Combining the information from the three installments thus far, it's amazing what this word processor can do, all in one mode.

The next installment will focus on Italicizing.—Ed.

FONT SAMPLES

Double Standard
Double Elite
Double Condensed

DATABIOTICS—

(Continued from Page 33)

program, which "turns your keyboard into a piano or organ and lets you play chords, triads, arpeggios and other sound effects," Moseid says.

Also new is Wordwriter Xtra, which he calls "the same fantastic Wordwriter but with a formatter added. It has all the commands the TI formatter does with the exception of Mail List." The cartridge, which requires an RS232 interface and printer cable or PIO plus interface and printer, has a suggested retail price of $44.95.

For further information, contact DataBioTics, P.O. Box 1194, Palos Verdes Estates, CA 90274, or call (213) 867-0481 or (213) 925-2120.

Co-founder of LA 99ers dies

George Steffen, one of the founders of the L.A. 99ers (and a frequent contributor to the group's TopIcs newsletter), died Sept. 29 of cancer.

An accomplished programmer, he co-wrote the Gram Kracker utility software among many other programs. Several of his programs appeared in MICROpendium.

Shortly before his death, the LA 99ers, at the urging of Teresa Masters, one of its officers, financed a trip to New York so that Steffen could visit his daughter.

TI-BASE

Cheers for this database

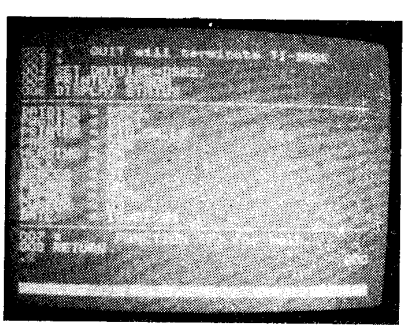
By BILL GASKILL

If you read the TI-Base V1.0 "First Look" article in the June 1988 MICROpendium you will recall that TI-Base is the first command language driven data base manager written for the 99/4A. (Refer to that article for details on the many major features offered).

By the time that you read this, Texaments will have released V2.0 of the program, which contains some major enhancements over all previous releases and updates. The newest release contains over a dozen additional data management tools, a much faster loading scheme, improved error trapping, a few bug fixes and improved documentation. The enhancements in V2.0 make TI-Base much easier to use than before, while still adding new an useful dimensions to the data management function.

EASIER DATA ACCESS

In V1.0 and subsequent version one updates, TI-Base users were required to learn the command language to accomplish many of the data management tasks involving access to more than one record. While the command language interface is a powerful tool for the accomplished data base user, it probably left some potential TI-Base buyers a little wary of having to learn the inner workings of the program. The new data access capabilities in V2.0 provide find-and-display and find-and-print routines that search multiple fields using both logical and relational operators. That means that an entire data base can be searched in a single command issued from the dot prompt. Thus no programming is needed to use those information retrieval capabilities.



TI-Base setup up file displayed.

Review

Report Card

Performance	**A**
Ease of Use	**B**
Documentation	**A**
Value	**A**
Final Grade	**A-**

Cost: $24.95, plus $1.50 S&H
Manufacturer: Inscebot Software, P.O. Box 291610, Port Orange, FL 32027.
System Requirements: Console, monitor or TV, one single-sided drive and Extended BASIC, Editor/Assembler or Mini-Memory.

For example, assume that an indexing data base with the following fields has been loaded for use: SUBJECT SOURCE TYPE DATE PAGE. With V2.0 you can isolate both the search parameters and the displayed or printed output in the same single command: DISPLAY SUBJECT SOURCE DATE PAGE :FOR SUBJECT = "DISK DRIVES" .AND. SOURCE = "MICROPENDIUM" .OR. DATE = "MAR88" This command, which would actually appear on a single scrolling line in TI-Base, will search a sorted or unsorted file and display only those records containing "DISK DRIVES" in the Subject field that also have "MICROPENDIUM" in the Source field or "MAR88" in the date field. Any number of other combinations is possible such as PRINTing of the output, including additional parameters to make the search more specific or even directing the output to a disk file for subfile creation. All with no command file programming required. Any single command may be up to 255 characters long! How's that for flexibility and ease of use?

SETUP FILE CHANGES

The SETUP file is the first piece of information TI-Base looks for after you enter the current date. It contains the data that customizes TI-Base to your hardware. New to V2.0 is the addition of a cursor speed value. You may control the responsiveness of your cursor by setting it to lightning fast with a zero or iceberg slow with a 99. Eleven different parameters may be controlled to make TI-Base fit your computer.

NEW PRINTER SUPPORT

One of my complaints with V1.0 was the inability to exercise any control over my printer when seeking to produce reports. One of the major V2.0 enhancements is the built in support for several of the most popular printers, plus the ability to create custom printer drivers of your own. This means that you have complete flexibility to mold TI-Base printed output both to your brand of printer (even Axioms) and to the kind of features you want to use in your TI-Base reports. When I say complete, I mean "complete." You need only open your printer manual to locate the coding that the printer requires to perform a particular font or mode of output, include that as its own record in the PRINTER file (see illustration of sample driver for Epson printers) and you are ready to go. Using the drivers is simply a matter of including the desired function name in a command to PRINT something from a data file.

For example, you could type in the command: PRINT ALL (BOLD) SUBJECT (RESET) SOURCE (SMALL) TYPE (RESET) DATE PAGE and have a report that would contain SUBJECT data printed in bold type, SOURCE data printed normally, TYPE data printed in compressed mode and DATE and PAGE data printed normally. V2.0 now lets the printer device name be changed to a DSK#.FILENAME so that data can be printed to disk also. The disk file can be printed too, using the new LIST directive.

FILE IMPORTS

An extremely powerful directive named CONVERT has been added to V2.0 that allows data files from other programs to be imported into TI-Base. For example, if you had a mailing list file that you wished to change over to a TI-Base file you would type in the word CONVERT at the dot prompt and TI-Base would ask for the

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TI-BASE—

(Continued from Page 39)

name of the file to be converted. Then it would ask for the same information on the TI-Base file that is to be created during the conversion. With that information entered, TI-Base's CREATE screen appears and you design the format of the new file. When the new file has been created in the desired format the conversion takes place. Once all records have been read into the new file the TI-Base RECOVER directive is used to build the file index for the new file and you are done. That's it! You have just turned countless hours of re-typing into a few minutes work, all without creating a single line of command file code.

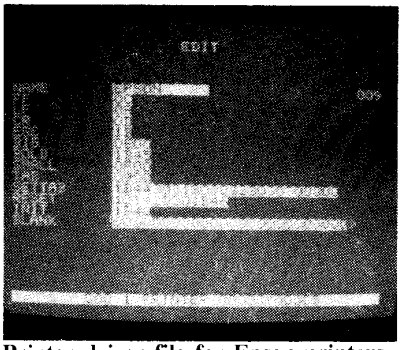
The same combination of CONVERT and RECOVER could also be used to merge multiple files into a single data base. Except for really oddball programs like TI's PRK and Statistics modules, which save data in program image format, virtually any type of file from any program can be converted to TI-Base format, including PR BASE V1.0, 2.0 and 2.1.

MULTI-LEVEL SORTS

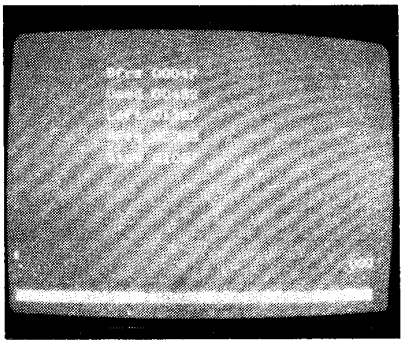
Where V1.0 supported sorts on only one field, V2.0 supports data file sorts that can be nested five fields deep. The creative TI-Base user will also discover that multiple index files can be created for the same data base by sorting the file and then using the TI-Base COPY directive to clone the index file under another name. The data base can then be sorted by another field and another cloned index file COPYed. When you wish to change the sort field of a data base, COPY is then used to write one of the clone files over the existing /S index file and the data base is now sorted by another field. You should make sure that you have CLOSEd the main data base before doing either of the cloning operations. If you do not, you may end up with some corrupted data.

FASTER LOADS

Another of the complaints I had of V1.0 was the time it took to load the program. A full two minutes was needed to get TI-Base operational when the Extended BASIC loader was used. With V2.0 that time has been cut in half and additional loaders have been added to boot. Previous versions allowed TI-Base to be loaded from FunnelWeb, XB, the Load and Run option of the Editor/Assembler module and from



Printer driver file for Epson printers.



Memory monitor display.

Mini-Memory. Version 2 also allows the E/A option 5 loader to be used as well as the Run Program loader on John Johnson's Horizon Ram Disk menuing system. V2.0 also sports a timer bar on the title screen that graphically displays how close the program is to being loaded. It gives you something to watch as it increments from left to right when each segment of TI-Base is booted into memory.

NUMBER CRUNCHING

One of the features that really sets TI-Base apart from the pack is its ability to handle number-crunching. Because so many math functions are supported I have no doubt that an entire home or small business accounting package could be written in TI-Base. To further enhance the program's ease of use in this area, author Dennis Faherty has added a SUM directive that allows any valid numeric field to be totaled throughout the file. Another added feature useful for accounting or personal finance purposes is access to the date. V2.0 now allows the current date that you type in at program startup to be accessed and read into a local variable for use in command file processing. Thus you now have the ability to link date sensitive data such as bills due or past-due to some programmed operation that you might want to create.

NEW DEBUGGING TOOLS

My favorite V2.0 enhancements are the LIST and TRACE directives. Since I write a lot of command files I now have the necessary tools to debug my command file programs. LIST FILENAME (where FILENAME is any valid data or command file) will printout the contents of the file. With TRACE ON the command interpreter will direct each executable statement in a command file to the printer just prior to actual execution. So I can now record each operation as it occurs and then go back to the printout and quickly inspect what has happened in my command file.

A SNAP (SNAPshot) directive has been added to V2.0 that does a dump of the screen contents to the specified printer device. This means that anything on screen at the dot prompt can be sent to your printer. I find this extremely useful when I want a hardcopy of a structure file for one of my data files. I just type in DISPLAY STRUCTURE and then SNAP and I've got it.

MEMORY MONITORING

As with many sophisticated applications written for the 99/4A, available memory is always a concern and TI-Base is no exception. While the program reads and writes data from disk it still depends upon dynamic memory to hold LOCAL variable values and other information that is needed during active data processing. V2.0 has a MEMORY directive built in that displays the number of empty buffers, the number of bytes currently being used, the number of bytes still available, the number of fragments the available memory is broken into and the size in bytes of the largest fragment.

PERIPHERAL LOADING DEVICES

Although many may not find this of interest, owners of the Myarc HFDC and a hard disk will like knowing that TI-Base simply blazes on a hard disk environment. The average load time from start to the time that the date prompt appears is 6 seconds! That's right. Six seconds. The Extended BASIC loader is a little slower. It takes about 20 seconds.

SUMMARY OF NEW DIRECTIVES

CONVERT

(See Page 43)

MICROreviews

An a-maze-ing program

By HARRY BRASHEAR

The following comments do not necessarily reflect the views of MICROpendium Magazine or its staff.

Ratings for the software reviewed in this column will be based on a star system as follows:

★ Leave it alone, back to the drawing board.

★★ Needs improvements, but workable.

★★★ A good program, worth trying.

★★★★ Send your money and buy it.

★★★★ 3D-Maze

This is one of the most remarkable exercises in game programming I have seen since TI-Runner or Pheta. I don't know where these people come from but thank heavens for them. The game is fairware by Glenn Schworak and the amount you send is left open, but make sure it's at least five bucks and a disk to put it on.

Here's how the game works: The maze is like one of those ones you pencil your way through in kids playtime books. The drawing of the maze only takes a few seconds because the whole thing is done in assembly, and every one is different. Somewhere, randomly placed on the grid-work, is a "Y" (for where you are), a "K" (for a key which is required for getting out of the exit door), and an "M" (for map). Once you press a key, you enter the maze and the grid disappears. Getting through the maze puts me in mind of the Tunnels of Doom graphics, except that they are in color and use the full screen. You use the arrow keys for direction and believe me, you fly. The walls and step grid change in the blink of an eye. I was amazed at the speed and fluid motion of the programming. This guy is good!

Anyway, you should try to get to the map because once you have it, you can look at the first screen as often as you like to find out where you are. Until you have the map, you are stuck with roaming around, unless you cheat and draw the grid before going into the maze.

Let's keep Glenn on our side folks, go for it!: Glenn J. Schworak, 1191 7th Street NW, Salem OR, 97304

★★★★ Macflix

Peter Hoddie has opened a new world of graphics to the TI by allowing us to grab off MacIntosh clips and pictures.

Needless to say, the resolution of the Mac creates some problems for us but Peter has been able to come up with a great way around it. All you have to do is load the whole picture into memory and then just scan your way around it. You can do this in big chunks or just a few rows of pixels at a time, depending on your needs. Any time you have a screen you like, you can save it to a TI-Artist picture file for future reference. If you would like to see the whole picture at once, you have the ability to dump it to the printer and it will be just like a Mac-dump.

One of the neater wrinkles in this program is the addition of a file called PCT/MACFLIX. This file can be used in conjunction with PC-TRANSFER to unload the pictures directly from an IBM disk. That will save you a lot of time since most of the pictures you find will be off of various PC clones. There are a great many Mac pictures to be found on Delphi, Genie, and other PC BBSs as well, so look around.

One problem does occur with Mac files and that is their size. A lot of them exceed 100 sectors. About 90 to 100 sectors will fit comfortably into our system but that's it. However if you use a SuperCart with the program it will accept a much larger file. The alternative is losing the bottom part of the picture to control type characters, both on the screen and the printer. The cost of the program is $10 plus a buck for shipping. Well worth the money for you graphic lovers.

Send your money to: Genial Computerware, P.O. Box 183, Grafton MA, 01519.

★★★ Disk Labeler 99: V2.0

Ever since God and Texas Instruments allowed us to look at the file names on a disk, people have been trying to send those names, and all the information that goes with them, to a label. This has been accomplished many times, in an infinite number of configurations, sizes, and with varing degrees of file statistics. THROW OUT EVERYTHING YOU HAVE TO DO THIS! This should allow you to retrieve quite a few program disks, and, with the ten bucks you save by doing this, send for Disk Labeler 99. It does it all in one program, and as a matter of fact, the docs claim there are more than 4,600 possible label combinations to be found in this one little program. I have no intention of telling you about all of them because this is supposed to be a mini-review.

The docs are beautiful, over 100 sectors worth, and the program is VERY friendly. There is also a separate file to tell you every printer code used in the program and what line it can be found on. No matter how substandard your printer might be, the program will handle it. Everything you need to do, from the date, to the print style and label size, is handled from one screen menu. If you are like me and have a bad time lining up labels, there is a test stage to do this with.

To top everything off, you can save your own configuration to disk as well as a specific label file. And did I mention, you can print as many duplicate labels as you like. At one stage, you can add comment lines to the labels which will print out with the "one across" option ... as opposed to the two or three across options. Then, there is condensed, superscript, pica ... all with or without stats on the top line, or lines as the case may be... one-inch labels, 1½-inch labels, paper only ... etc., etc., times 100 to the 25th power.

Honestly folks, you can't go wrong with this one. I really liked it. The only reason I didn't go four stars on it was that it seemed like label overkill.

Send $10.00 to: Paul E. Scheidemantle, 2762 Lovington, Troy, MI., 48083

Rag Assembler sought

Here's one I need your help on, folks. Some time ago, a program called the RAG ASSEMBLER starting showing up here and there. Not being an A/L type of person, I didn't pay much attention to it. Now, I am seeing all kinds of neat little utilities showing up with the traditional red and yellow title screen of the RA. The latest is a pro-

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Newsbytes

TI-Fest West '89 set

TI-Fest West '89 is scheduled for Feb. 18-19 at the Clarion Hotel at Balboa Park, 2223 El Cajon Blvd., San Diego, California.

Times are 9 a.m. to 6 p.m. both days. The event is sponsored by the Southern California Computer Group of San Diego in conjunction with the Los Angeles 99er User Group and assisted by the Tucson 99er User Group.

According to Lutz Winkler of the SCCG, admission is $4 (good for both days) at the door, $3 if ordered in advance (minimum six tickets). Family members over 15 years old will be admitted for $1. Under 15, they will be admitted free, but must be accompanied by an adult at all times.

One-to-two person room rates range from $52.92 to $74.92 including tax. Persons reserving rooms should indicate that they are attending the TI-Fest, Winkler says. Reservations must be received by Feb. 1. For hotel information call 1-800-843-9988 (outside California), 1-800-423-1935 (in California) or 296-2101 (in San Diego).

Winkler says 5,200 square feet of exhibit space is available, with no charge for commercial exhibitors and user groups. To reserve exhibit space, or for an information package including hotel reservation form, write TI-Fest West c/o SCCG, P.O. Box 21181, El Cajon, CA 92021, or call the club's BBS, (619) 278-8155 and leave a private message to the sysop with your full name and address. You may also download a hotel reservation form (TEXT file #2) or an exhibit space request form (TEXT file #3) from the BBS.

Greater Tampa Bay Users issue challenge

The Greater Tampa Bay Users Group has been conducting a campaign among its members regarding fairware and is issuing a challenge to other groups to do the same, according to group president Thomas Austin.

"Either the TI community takes care of its fairware authors or pretty soon there won't be any!" Austin says.

Monies collected by the group for programs so far are $290 for John Birdwell's DSKU, 27 persons; $130, Stu Olson's Mass Transfer, 13 persons; $50, Charles Earl's Telco, three persons; $65, John Johnson's Menu, 11 persons; $330, Barry Boone's Archiver, Systex, Opt. 5 Loader, 23 persons; and $58, Herman Nieuwendall's Quad Lister, nine persons.

Austin notes that the total of $923 does not include money given by individuals to the listed authors or other authors.

For a group of 54, many new to the TI, "$923 is not bad," Austin comments. He says the group wants to know what other users groups are doing to support fairware authors.

Address of the Greater Tampa Bay TI Users Group is 2620 Tulip Tree Circle, Seffner, FL 33584.

New Graphic Lister version released

Nameloc Software has released v.1.2 of Graphic Lister.

According to Paul Coleman of Nameloc Software, the version has two main upgrades: more extensive error trapping and chances to "back out" of a menu selection and an additional program called Message Printer.

Message Printer is designed to allow the user to print out a TI-Writer file of the appropriate size onto fanfold 3x5 or 4x6 cards. It will do this in either the normal printer font or any 1x1 TI-Artist font, according to the manufacturer.

Graphic Lister is available for $10 plus $1.50 shipping and handling. Anyone having purchased a previous version may obtain the upgrade by mailing Nameloc the original disk plus return postage, or by sending $2 for a new disk (registered purchasers).

For further information, or to order, contact Nameloc Software, 3971 S.E. Lincoln, Portland OR 97214.

Not-Polyoptics sets new SPAD XIII price

Not-Polyoptics announced a new retail price of $20 for its World War I-era flight simulator SPAD XIII, now in its mark 2 production phase.

To order, or for a free catalog, write Not-Polyoptics at P.O. Box 4443, Woodbridge VA 22194.

TICOFF scheduled

The fourth annual TICOFF (TI Computer Owners Fun Faire) will be held Maarch 18 at Roselle Park High School, Roselle Park, New Jersey.

TICOFF is a nonprofit venture sponsored by the student government of the school with assistance of seven TI99/4A and IBM user groups in New Jersey, New York, Pennsylvania and Delaware.

TICOFF will feature product displays of software and hardware by well-known TI and IBM vendors, as well as "flea market" vendors.

Presentations and seminars are also scheduled for the event.

Admission is $5. Vendor tables are available at $50 for the first table, $35 for the second and $25 for additional tables. Checks should be made out to Roselle Park Student Council.

For further information, write TICOFF '89 c/o Roselle Park High School, 185 West Webster Ave., Roselle Park, NJ 07204; call Robert Guellnitz at (201) 241-4550 or (201) 382-5963 or call the 24-hour TICOFF Informational BBS at (201) 241-8902 (300/1200 baud, 8N1).

Navarone won't do repairs on TI products

Wanda Clark of Austin, Texas, forwarded to MICROpendium a copy of a letter she received from Navarone Industries, Inc., after she attempted to have her Navarone Cartridge Expander repaired.

Vincent Martel, sales manager, wrote her that the new ownership, in place since Dec. 1, 1987, manufactures hardware for the Atari-ST and Mega computers, and does not hold the rights to TI products or support them. Martel says all Navarone TI products were sold to vendors including Triton and Microsphere.

Newsbytes is a column of general information about products, services and activities relating to TI users. The publisher does not necessarily endorse products listed in this column. Vendors, manufacturers and others are encouraged to submit items for consideration.

TI-BASE—

(Continued from Page 40)

CURSOR
DATE
DISPLAY (FOR)
LIST
MEMORY
PRINT (CODE)
PRINT (FOR)
PRINTER
READSTRING
REPLACE (FOR)
SNAP
SORT (NESTED)
SUM
TRACE (ON/OFF)

DOCUMENTATION

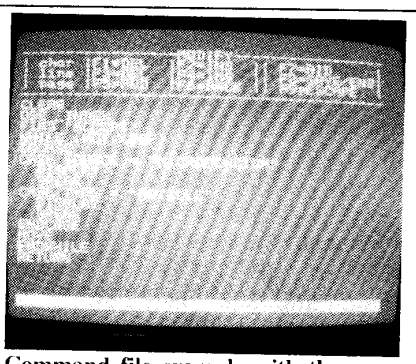
Not the least of the major improvements to V2.0 is the documentation. While the manual for V1.0 covered the basics of program setup and use, and it included a couple of confusing example command files, it lacked a user perspective into making the program really "work" and it lacked sufficient instruction on how to truly take advantage of the many powerful features TI-Base has to offer. The manual for V2.0 goes a long way toward improving previous shortcomings. It is better organized and contains much, much more detail in each area covered. It also includes a host of sample command files for data manipulation that were sorely lacking in the previous documentation.

For an explanation of what factors are considered in each of the following categories, please consult the January 1988 MICROpendium, page 6:

Performance: TI-Base is a stellar performer of "true" commercial quality. Where V1.0 contained some frustrating bugs and lack of features, V2.0 wipes the slate clean with a vengence in providing the data base user with more and easier to use tools than any other application of its kind.

Ease of Use: While V2.0 is a substantial improvement over V1.0 and its subsequent update releases, it still lacks the simplicity of a menu driven application. Nevertheless, with the improved documentation and the program enhancements on data access, it has evolved into a much friendlier application for the novice data base user, and a more flexible program for the "Power-User."

Documentation: It is simply not the same manual that appeared in the V1.0



Command file example with the command file editor help menu displayed.

packages. The new docs are simply laid out, well organized and much more helpful than the previous ones.

Value: It is difficult if not impossible to measure TI-Base against the competition since it doesn't have any competition. Thus value can only be judged based upon my subjective needs. As I am currently compiling a reference library on 99/4A and Geneve articles, programs, reviews and the like, which has grown to over 5000 records, TI-Base is of tremendous value to me. No other program available can handle that kind of data like TI-Base is able to. At $24.95 it is sensibly priced for the TI Community yet it offers a multitude of features that warrant a higher price tag.

Final Grade: The only thing that keeps TI-Base from reaching the straight "A" category is ease of use. Because author Dennis Faherty opted to design the most flexible and most powerful data base management application the TI Community has seen to date, a certain amount of user-friendliness was sacrificed in favor of user-control. From my perspective, I much prefer the user-control, but I suspect the novice data base user would not feel as strongly as I do about that approach.

CLOSING THOUGHTS

TI-Base has only been out since late May of this year. Since that time it has sold at an average of almost 6 copies per day. That has to say something for the program. Version 2.0 will likely boost those numbers considerably when the non-programming user discovers how responsive Texaments and Inscebot have been to user feedback in creating a more flexible yet easier to use data base manager. It appears that TI-Base is destined to follow TI-Artist in becoming one of the all-time success stories in the TI Community. All you have to do is sit down with it for a couple of hours to see why. It is unparallelled in power and flexibility, and at the same time it continues to improve in the ease of use arena. Were Harry Brashear to do a MICROreview of TI-Base I am certain that it would earn four stars.

MICROreviews—

(Continued from Page 41)

gram that will convert program image files over to cassette. Needless to say, this could be a real boon to the community because "just console people" could benefit greatly from this.

I need to know more about this program and the utilities that are coming out of it. Who's making them? Are they commercial or fairware? I need to know the whole story so that I can review this great stuff and tell you where to find it. Please write and let me know. Till next time.

Authors who would like their software reviewed in this column may send review copies to: **Harry Brashear, 2753 Main St., Newfane, NY 14108.** ***If the software is to be returned, include an SASE.***

GEnie service adds Education RoundTable

The GEnie service has added an Education RoundTable to its online special interest groups. GEnie (GE Network for Information Exchange) is an online consumer information service offered by GE Information Services.

Sysop for the RoundTable is Mike Hogan (GEnie mail address: HOGAN). Hogan is the business education/industry partnership coordinator for Ohio Hi-Point Joint Vocational School in Bellefontaine, Ohio. He is also sysop for the Tandy RoundTable.

Hogan says he hopes to incorporate the areas of vocational, traditional, private and special education on the RoundTable.

Sign-up fee for GEnie is $29.95 and includes a $10 usage credit, a GEnie User's manual and a subscription to GEnie's LiveWire Magazine. For further information, call 1-800-638-9636.

User Notes

Convert XB screens to TIA Instances

Here's a program that runs in Extended BASIC that converts Extended BASIC screens into DV/80 files that can be read by TI-Artist V2.0. The utility was written by Terry Atkinson of Dartmouth, Nova Scotia, and appeard in the 9T9 newsletter of the TI Users Group of Toronto.

While its primary use is to convert Extended BASIC graphics for use by TI-Artist, it will convert any Extended BASIC screen into a DV/80 format, doing this by scanning the entire screen one character at a time starting at the upper left corner and working down to the lower right. Following is Atkinson's program and explanatory text.

This program was created to ease the pain of converting TI Extended BASIC screens to a DV/80 format which can be loaded by TI-Artist 2. With this version, the process takes about 25 minutes to convert a screen to disk, depending on how many characters are on the screen. The maximum sector size the program will take is 58 sectors. (Atkinson has a second version for use with a CorComp disk controller that takes about seven minutes to convert a screen using the disk controller's "toolshed" utilities.)

There are two ways to run the program: Either as a subprogram merged within a program or as a program run from Extended BASIC at the appropriate break point. Instructions are geared toward that end.

To use this program, first run your program that contains the graphics you want to convert, BREAK the program and look at the breakpoint in the program, making sure it does not contain a FOR-NEXT loop. Replace this line with the statement "RUN DSK1.XB2ART" or whatever you have named the conversion program.

In the case of a FOR-NEXT looop, it would be better to select another line located before or after the breakpoint line.

The resultant file obtained after running this program can be loaded directly into TI-Artist as an Instance. After the Instance is altered, you can save it as a TI-Artist program file.

The filename under which the screen is saved is in line 4. You may use any filename you wish.

```
1 ! Terry Atkinson, 28 Savon
a Court, Dartmouth, NS B2W 4
R1 (voice 1-902-434-1346) !1
61
2 !This program may be freel
y distributed. Please do not
 remove the author's name. !
066
3 DATA 1,24,1,32 !255
4 DATA DSK1.SCREEN !103
5 READ SROW,EROW,SCOL,ECOL,O
UT$ :: IF POS(OUT$,"_I",1)=0
 THEN OUT$=OUT$&"_I" !026
6 IF SEG$(OUT$,1,3)="DSK" AN
D LEN(OUT$)<16 THEN 8 !053
7 CALL CLEAR :: PRINT "Pleas
e check filename in DATA sta
tement in program" :: END !0
03
8 FOR E=0 TO 14 :: CALL COLO
R(E,2,8):: NEXT E :: CALL DE
LSPRITE(ALL):: CALL MAGNIFY(
1):: CALL SCREEN(8):: CALL S
PRITE(#1,32,16,1,1)!252
9 H$="123456789ABCDEF" :: OP
EN #1:OUT$ !083
10 PRINT #1:STR$(ECOL+SCOL+1
)&","&STR$(EROW-SROW+1):: FO
R F=SROW TO EROW :: FOR G=SC
OL TO ECOL :: CALL GCHAR(F,G
,H):: IF H>32 THEN I=H ELSE
I=95 !105
11 CALL LOCATE(#1,F*8-7,G*8-
7):: CALL PATTERN(#1,I):: CA
LL CHARPAT(ABS(H=31),C$)::
 GOSUB 13 :: NEXT G :: NEXT
F :: CLOSE #1 !148
12 CALL SOUND(4000,400,1):: 
CALL CLEAR :: END !015
13 FOR E=1 TO 15 STEP 2 :: D
$=SEG$(C$,E,2):: E$=E$&STR$(
POS(H$,SEG$(D$,1,1),1)+POS(H
$,SEG$(D$,2,1),1))&"," :: NE
XT E !022
14 E$=SEG$(E$,1,LEN(E$)-1)::
 PRINT #1:E$ :: E$="" :: RET
URN !073
```

Utility facilitates DATA entry

The following utility is very hand when faced with the need to enter a lot of DATA statements. The program appeared in Chick De Marti's column in TopIcs, the newsletter of the Los Angeles 99ers. The author is unknown.

The Extended BASIC program is a timesaver because it allows the user to enter DATA statements in an efficient manner. Line numbering, and entry of the word DATA to precede each statement is done automatically by the program. The user simply types in the data, including comma separators.

The program works by opening a file and, after the data has been entered, writing the information in MERGE format to disk. The DATA statements may then be MERGEd into another program.

The line number is incremented each time the Enter key is pressed. Data is written to the disk and the file closed when the Enter key is pressed twice.

```
100 ON WARNING NEXT !215
110 DISPLAY AT(10,1)ERASE AL
L:"ENTER FIRST LINE NUMBER:"
 :: ACCEPT AT(10,25)BEEP VAL
IDATE(DIGIT)SIZE(4):LN !079
120 DISPLAY AT(12,1):"ENTER
INCREMENT:" :: ACCEPT AT(12,
17)BEEP SIZE(3)VALIDATE(DIGI
T):I !011
130 DISPLAY AT(14,1):"ENTER
FILENAME:" :: ACCEPT AT(14,1
6)BEEP VALIDATE(UALPHA,DIGIT
)SIZE(10):FN$ !228
140 OPEN #1:"DSK1."&FN$,VARI
ABLE 163 !211
150 DISPLAY AT(2,6)ERASE ALL
:"PRESS ENTER TO END" :: DIS
PLAY AT(22,1):"ENTER A LINE
DATE" :: LINPUT "":D$ !088
160 IF D$="" THEN 190 !168
170 PRINT #1:CHR$(INT(LN/256
))&CHR$(LN-256*INT(LN/256))&
CHR$(147)&D$&CHR$(0)!135
180 LN=LN+I :: GOTO 150 !020
190 PRINT #1:CHR$(255)&CHR$(
255)!084
200 CLOSE #1 :: END !164
```

Editor Aid changes

The August 1988 User Notes column included an Extended BASIC programming utility by Merv Kroll of Brisbane, Australia. The program, Editor Aid, is designed to save or delete blocks of code. Unfortunately, according to Frank Geitzler

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User Notes

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of Dartmouth, Nova Scotia, there is a problem with four lines in the program that control deleting lines of source code. Here are the amended lines as provided by Geitzler.

```
590 OPEN #2: "DSK"&WRITE$,DIS
PLAY ,OUTPUT,VARIABLE 163 !1
05
630 LINE1=ASC(SEG$(X$,1,1))!
123
640 LINE2=ASC(SEG$(X$,2,1))!
125
650 LINENUM=LINE1*256+LINE2
!117
```

Modifying Q*Bert for the Geneve

This comes from Massimo Cariboni of San Donato Milanese, Italy. He writes:

Here's a tip on how to modify Q*Bert to make it run on the Geneve and the TI.

1. Copy on a blank diskette files QBERT and QBERT1 saved with GRAM Kracker or similar device or with Peter Hoddie's CS program that came with the Geneve.

2. Using a sector editor, look for the following sequence: 02200100D8008C020280880016F7045B. Change 8800 into 8700. The line to be modified on my Q*Bert version is located at sector 34 (hex 22), offset 136 (hex 88).

3. Save the modified sector back to disk and enjoy Q*Bert on the Geneve.

Easy grader

Harold C. Hoyt Jr. of Spanish Lake, Missouri, has created a program to help teachers assign grades. The program prints out a scale of numbers used to plot grades. The program prints three sets of grading scales depending on the number of questions on the test. It outputs to an Epson-compatible printer in superscript type. Plotting of grades is then done with a pencil or pen on the printed scale.

Here is the program. A sample of the output is printed at the bottom of this page.

```
1 !SAVE DSK1.GRADER !200
100 CALL CLEAR :: OPEN #1:"P
IO",VARIABLE 136 :: FOR C=1
TO 14 :: PRINT #1:CHR$(VAL(S
EG$("152765062766032792012078
30113",2*C-1,2)));:: NEXT C
!147
110 X$="      Easy Grader
          by   Harold Hoyt 10/
11/88" :: DISPLAY AT(10,7):X
$ :: FOR P=0 TO 2 :: PRINT #
1:X$:TAB(60);"# of Problems"
!080
120 PRINT #1:"  Wrong";:: FO
R C=4+32*P TO 35+32*P :: C$=
STR$(C):: PRINT #1:RPT$(" ",
3-LEN(C$))&C$;:: NEXT C :: P
RINT #1:" Wrong" !PrntHdr !1
43
130 FOR R=1 TO 34+P*32 :: R$
=STR$(R):: PRINT #1:TAB(8-LE
N(R$));R$;:: FOR C=4+32*P TO
 35+32*P :: C$="---" :: IF C
<R THEN 150 !173
140 C$=STR$(INT(100*((C-R)/C
)+.5))!238
150 PRINT #1:RPT$(" ",3-LEN(
C$))&C$;:: NEXT C :: PRINT #
1:RPT$(" ",3-LEN(R$))&R$ ::
NEXT R !135
160 DISPLAY AT(12,1):"" :: D
ISPLAY AT(12,1):"Press Any K
ey To Continue" :: CALL KEY(
0,K,S):: IF S=0 THEN 160 ::
DISPLAY AT(12,1):"Working" !
080
170 NEXT P :: CLOSE #1 !255
```

One-liner reads reads D/V 80 files

This comes from John Martin, of Las Vegas, Nevada. We recently published a one-line catalog program by him and now we've received a one-liner that reads D/V 80 files. He writes:

Since you thought by CAT program had enough merit to be published, I decided to bore you with another ONELINER I wrote. This one reads D/V 80 files and displays them on the screen. I know, there are hundreds of programs out there that do that, but to the best of my knowledge, this is the only one that does it in only one line! Actually, the program is quite useful

(See Page 46)

```
Easy Grader                by   Harold Hoyt 10/11/88

                                                # of Problems
Wrong  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 Wrong
    1 75 80 83 86 88 89 90 91 92 92 93 93 94 94 94 95 95 95 95 96 96 96 96 96 96 97 97 97 97 97 97 97   1
    2 50 60 67 71 75 78 80 82 83 85 86 87 88 88 89 89 90 90 91 91 92 92 92 93 93 93 93 94 94 94 94 94   2
    3 25 40 50 57 63 67 70 73 75 77 79 80 81 82 83 84 85 86 86 87 88 88 88 89 89 90 90 90 91 91 91 91   3
    4  0 20 33 43 50 56 60 64 67 69 71 73 75 76 78 79 80 81 82 83 83 84 85 85 86 86 87 87 88 88 88 89   4
    5---  0 17 29 38 44 50 55 58 62 64 67 69 71 72 74 75 76 77 78 79 80 81 81 82 83 83 84 84 85 85 86   5
    6-------  0 14 25 33 40 45 50 54 57 60 63 65 67 68 70 71 73 74 75 76 77 78 79 79 80 81 81 82 82 83   6
    7---------  0 13 22 30 36 42 46 50 53 56 59 61 63 65 67 68 70 71 72 73 74 75 76 77 77 78 79 79 80   7
    8-----------  0 11 20 27 33 38 43 47 50 53 56 58 60 62 64 65 67 68 69 70 71 72 73 74 75 76 76 77   8
    9-------------  0 10 18 25 31 36 40 44 47 50 53 55 57 59 61 63 64 65 67 68 69 70 71 72 73 74 74   9
   10---------------  0  9 17 23 29 33 38 41 44 47 50 52 55 57 58 60 62 63 64 66 67 68 69 70 71 71  10
   11-----------------  0  8 15 21 27 31 35 39 42 45 48 50 52 54 56 58 59 61 62 63 65 66 67 68 69  11
   12-------------------  0  8 14 20 25 29 33 37 40 43 45 48 50 52 54 56 57 59 60 61 63 64 65 66  12
   13---------------------  0  7 13 19 24 28 32 35 38 41 43 46 48 50 52 54 55 57 58 59 61 62 63  13
   14-----------------------  0  7 13 18 22 26 30 33 36 39 42 44 46 48 50 52 53 55 56 58 59 60  14
   15-------------------------  0  6 12 17 21 25 29 32 35 38 40 42 44 46 48 50 52 53 55 56 57  15
   16---------------------------  0  6 11 16 20 24 27 30 33 36 38 41 43 45 47 48 50 52 53 54  16
   17-----------------------------  0  6 11 15 19 23 26 29 32 35 37 39 41 43 45 47 48 50 51  17
   18-------------------------------  0  5 10 14 18 22 25 28 31 33 36 38 40 42 44 45 47 49  18
   19---------------------------------  0  5 10 14 17 21 24 27 30 32 34 37 39 41 42 44 46  19
   20-----------------------------------  0  5  9 13 17 20 23 26 29 31 33 35 38 39 41 43  20
   21-------------------------------------  0  5  9 13 16 19 22 25 28 30 32 34 36 38 40  21
   22---------------------------------------  0  4  8 12 15 19 21 24 27 29 31 33 35 37  22
   23-----------------------------------------  0  4  8 12 15 18 21 23 26 28 30 32 34  23
   24-------------------------------------------  0  4  8 11 14 17 20 23 25 27 29 31  24
   25---------------------------------------------  0  4  7 11 14 17 19 22 24 26 29  25
   26-----------------------------------------------  0  4  7 10 13 16 19 21 24 26  26
   27-------------------------------------------------  0  4  7 10 13 16 18 21 23  27
   28---------------------------------------------------  0  3  7 10 13 15 18 20  28
   29-----------------------------------------------------  0  3  6  9 12 15 17  29
   30-------------------------------------------------------  0  3  6  9 12 14  30
   31---------------------------------------------------------  0  3  6  9 11  31
   32-----------------------------------------------------------  0  3  6  9  32
   33-------------------------------------------------------------  0  3  6  33
   34---------------------------------------------------------------  0  3  34
```

User Notes

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because it loads and runs so fast. It has a pause feature that toggles on and off with the Enter key. It even has error checking to keep from crashing due to bad filename, no disk, etc.

Here is the listing:

```
1 ON ERROR 1 :: IF F THEN IF
 EOF(1)THEN RUN ELSE LINPUT
#1:X$ :: PRINT X$ :: CALL KE
Y(0,K,S):: IF K=13 THEN ACCE
PT VALIDATE(CHR$(13)):D$ ::
GOTO 1 ELSE 1 ELSE PRINT : :
 :"File: ";:: F$="DSK" :: IN
PUT F$:D$ :: CALL CLEAR :: O
PEN #1:F$&D$,INPUT :: F=1 ::
 GOTO 1 !BY JOHN MARTIN
```

Remember that long XBASIC lines are entered by inputting until the screen stops accepting characters, pressing Enter, pressing FCTN REDO, cursoring to the end of the line and continuing input. However, this one-liner is long enough that you will come to the end of the input a second time on the next to the last screen line. Don't panic. Just press Enter, type 1, and then press FCTN X. This will once again bring the line up to edit and you will find that you can now type beyond the last character on the screen. This program is at the limit of characters that can be accepted into one line.

Patches for TI Base

This comes from Texaments in regards to its TI Base database program.

Since TI Base has the capability of being "patched" on-the-fly by the user, simple bugs found within the program can be fixed without the need of constantly issuing updated software. This patching capability helps keep users up and running without the need to wait for manufacturer updates, and also holds the cost of updating software to a minimum.

These patches, as well as technical notes, tips and tricks, tutorials, and news covering TI Base, may be found on TI Source. TI Source is a free, multi-user bulletin board system that can be reached around the clock at 516-475-3480.

It is recommended that the following patches be inserted at the beginning of the SETUP/C file on the TI Base system disk.

CHANGE 294A 295D P1 V1.02

This patch fixes a problem where the directives FIND and SORT may accidentally overwrite portions of dynamic memory during operation.

CHANGE DEDE 0460 P2 V1.02
CHANGE DED0 FFCC P2 V1.02
CHANGE FFCC 0911 P2 V1.02
CHANGE FFCE 3C20 P2 V1.02
CHANGE FFD0 A76E P2 V1.02
CHANGE FFD2 0460 P2 V1.02
CHANGE FFD4 DED2 P2 V1.02

This patch fixes a problem where the message ATTEMPT TO READ PAST EOF appears when attempting to use a database. This might occur after sorting a database, closing it, then reusing it at a later time.

Correction on Forth 80-column screens

This comes from Michael Rittweger, of Kiel, West Germany. It concerns a Forth screen published in the June 1988 edition of MICROpendium. He writes:

The program itself seemed to work, but there were at least two errors in your listing. Without the corrections shown below the editor will not work.

The first error is in screen 38 line 12. The word "EDIT" tests the call of the word "TEXT2", which sets the variable "VDPMDE" to the value of "7". The test of this value isn't correct. With the sequence "... VDPMDE 7 = ..." you will test if the address(!) of the variable is 7. If you want to test the value stored at this address the line should read "... VDPMDE @ 7 = ...".

The second error is in screen 36 line 4. The same problem as above: with the sequence "... DO I C LOOP DROP ..." you won't get the value stored in the variable "C" but the address of it. The correct line should be "... DO I C@ LOOP DROP ..." (In this case no space between the "C" and the "@"!).

***User Notes* is a column of tips and ideas designed to help readers put their computers to better use. The information provided here comes from many sources, including TI user group newsletters. MICROpendium paya $10 for any item sent in by readers that appears in this column. Mail User Notes to: MICROpendium User Notes. P.O. Box 1343, Round Rock, Tex 78680.**

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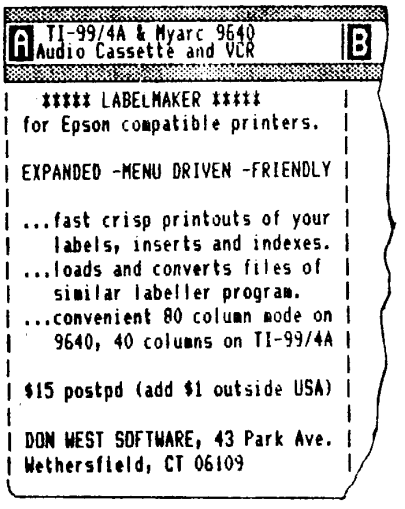

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