HOCUS

Home Computer Users Spotlight

A monthly publication of the Milwaukee Area 99/4 Users Group
AUGUST, 1984

COULD THIS BE THE LAST HURRAH FROM TI??

Last month we received 3 diskettes from William Barniea. Manager of Home Computer Software at TI. On the diskettes were fixes and enhancements for TI-Writer and Multiplan as well as the source code for TI FORTH. In his letter he stated that "This will be the last letter you will be receiving from me". He went on to say that he was transferring to another division within TI. It sounds to us like this is it for any further TI authored enhancements to 99/4 software.

Enhancements recieved for TI-Writer include true lower case characters for the Editor and the elimination of extra line feeds output from the Formatter.

Those of you who have Multiplan will want to know that the supplied enhancements provide for faster processing and an auto-repeat feature for moving the cursor around on the screen.

TI FORTH connoisseurs and Assembly Language gurus should be quite excited with the 2 diskettes of the source code for TI FORTH. Written in Assembly, this should offer our best opportunity at understanding the 99/4A's inner workings. Jim Vincent has already looked at a portion of the source and has discovered a byte in lower CPU RAM that can identify whether a console is a 99/4 or 4A.

Copies of all of these diskettes can be obtained by talking to our librarian at any one of our meetings. -TK

SOME INTERESTING ITEMS ABOUT DISKETTE FILES AND RECORDS

Now that many more members have disk drive systems, there may exist more of a need than ever to clarify (correct !!!) some aspects of diskette filing on the TI Home Computer. These few items below, summarized now and to be explained in detail at our meeting, if needed, may help to keep you from feeling as if those drives are trying to drive you crazy! (Anyone out there about to consider going back to cassette files for good?)

ITEM #1: If you have a multiple disk drive system, you must take care not remove a diskette from one drive while another still operates. Even though only one red light will be on, ALL drives will spin simultaneously, even if you have separate power supplies! (The drives also operate whenever you return to the Master Title Screen, but NO LED's ARE LIT). That is, you may grind away files as the drives grind to a halt!

ITEM #2: When an OPEN statement is executed which has a large number of records specified, that many "dummy" records are written to the diskette instantly --- or an error results if there are too few sectors free.

ITEM #3: Contrary to the TI EXTENDED BASIC Owner's Manual (p. 139), you will get an I/O error when writing to your diskette any string or numeric variable whose length equals or exceeds the length that was specifed in the FIXED clause of the OPEN statement. It will NOT be truncated! However, the TI BASIC manual does properly inform you (page II-132).

ITEM #4: The EOF function is only useful when reading records of an already established, open file. When writing to a diskette, it will not avoid the error of running out of space (physical end of file) on that diskette! Also, the TI BASIC manual states (p. II-129) that "the EOF function cannot be used with RELATIVE files ..."! Look to the EXTENDED BASIC manual (p. 82) for proper info this time!

ITEM #5: Your disk system needs at least ONE SECTOR for its housekeeping pointers for each file on a given diskette, and it takes it immediately. This "get-reserve" operation is performed even if you have an unsuccessful attempt at writing to the diskette (but not if you had a syntax error in the OPEN statement itself).

ITEM #6: There is a default value of less than 170 records for any file. In one case you can surpass it (i.e., by opening then closing the file for each access), in another you cannot. Also, the computer will process two files, whose characteristics differ only by the number of records being specified, as the same file.

ITEM #7: If you need to fit as many records as possible into a given number of sectors, don't rely upon the "ideal" multiples of 255 (for fixed, 254 bytes for variable records) whenever specifying record lengths. The disk system needs at least one byte in each record for its housekeeping pointers.

-By Abdallah Clark

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MEMBERSHIP INFORMATION

Membership is open to individuals and families who are interested in using and programming the Texas Instruments 99/4A Home Computer. The membership includes access to both this newsletter and to the user group library. Annual dues are: Individual, $8.00; Families, $12.00. To join, see the Treasurer at any of our monthly meetings.

MEETING INFORMATION

The Milwaukee Area 99/4A Users Group meets on the LAST SATURDAY of each month in the lower level of Wauwatosa Savings & Loan at 7500 W. State Street in Wauwatosa. MEETING TIME IS 1:00 TO 4:00 p.m..

SPECIAL NOTE: Due to a scheduling conflict during 1984, the DECEMBER MEETING will be held on the third Saturday of the month (Dec 15th), at our normal time and place.

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FORTH Arrays (concluded)

by J.W.Vincent

This, I promise, is my last article on arrays. Not that there aren't other things regarding arrays that we could explore (like automatic range checking). It's just that there are so many facets to FORTH, and I don't want to bore you. So, next month we'll deal with a practical application of disk I/O. More on that later...

This month we will take one last look at arrays. In case you hadn't noticed, TI FORTH is a little tight on dictionary space. The arrays we have previously defined can eat up that dictionary space real fast. Yet, in all but bit-map mode, large amounts of VDP RAM are unused. So, let's use it.

The screen below defines a set of array words that (application wise) operate identically to those defined last month. However, all of the variable space they allot is in VDP RAM. While they will operate slower, the dictionary space saved can be worth the comprimise in speed. As with the previous array words, they assume the first element to be row 1, column 1 (OPTION BASE 1 in BASIC) and using a zero is asking for trouble. Since the dictionary isn't automatically keeping track of memory allocation for us, I have defined a new variable called V_ADDR. Its function is to keep track of the next available VDP address for use in defining arrays. If your application is using some of the free VDP memory (like for I/O buffers) you must update V_ADDR so it doesn't allocate your memory area to arrays.

Since the definitions are shown in screen format, I have also illustrated use of the Conditional LOAD word to prevent this screen from loading if it has previously been loaded or if bit-map is loaded. Rather than discuss each word in detail, I encourage you to work through the definitions yourself, refering to our previous array words if necessary.

```
( VDP RAM arrays - JWVincent 6/27/84)
0 CLOAD VW! 0 CLOAD LINE ( if this or bit-map loaded  don't )
BASE->R    HEX     68 USER V_ADDR    1400 V_ADDR !    R->BASE
  ( character array words )
: VC_ARRAY <BUILDS DUP V_ADDR @ DUP , SWAP OVER VSBW
           ROT ROT * + 1+ V_ADDR !         ( r c VC_ARRAY name )
           DOES> @ ROT 1 - OVER VSBR * + + ;
: VC@ VSBR :                               ( r c name VC@ ___ b )
: VC! VSBW :                               ( b r c name VC! ___ )
  ( word array words )
: VW_ARRAY <BUILDS DUP V_ADDR @ DUP . SWAP OVER VSBW
           ROT ROT 2 * * + 1+ V_ADDR !   ( r c VW_ARRAY name )
           DOES> @ ROT 1 - OVER VSBR * + + ;
: VW@ DUP VSBR SWPB SWAP 1+ VSBR + :      ( r c name VW@ ___ n )
: VW! OVER SWPB OVER VSBW 1+ VSBW :       ( n r c name VW! ___ )
```

Next month I'll provide you with some screens which will both illustrate disk I/O and give you the useful capability of transfering screens to or from variable 80 format files. This should make exchanging FORTH screens much easier and facilitate transfering them via modem. Till next time ... Jim.

MORE HELPFUL HINTS FROM BIT BRAIN

SIMPLIFY YOUR BASIC PROGRAMS!

The following tip comes from the Hoosier Users Group. Have you ever tried to debug a program full of GOSUBS and GOTOs without a hard copy? An undocumented feature of console BASIC alows you to use a REM statement after a GOSUB or GOTO followed by the name of the routine. The name must be no longer than the rest of the screen and must end with a blank.

```
  Example: 100 GOSUB 200 REM DRAW LINE
```

IS SOME BIG OLD NUMBER BOTHERING YOU?

If you don't have Extended BASIC and have an occasion to use a very large numer, even in exponential notation, the exponent will not be shown if it is larger than ±99. To get that exponent, use the formula: INT(LOG(T)/LOG(10)), where T is that huge number.

IF YOU CAN SQUARE A NUMBER THEN YOU SHOULD BE ABLE TO ROUND IT ALSO

Interested in a snazzy way to round a number? Then take a shot at defining the following BASIC function:

```
     DEF ROUND(N)=INT(N/RF+.5)*RF
```

This function rounds the supplied number, N, to the nearest factor, RF, specified. RF is a variable that must be set external to the function itself. The following simple, complete program illustrates how to setup and use this function.

```
     100 DEF ROUND(N)=INT(N/RF+.5
     )*RF
     110 REM ROUND TO NEAREST
     120 REM WHOLE NUMBER
     130 RF=1
     140 FOR X=.1 TO 1 STEP .1
     150 PRINT X,ROUND(X)
     160 NEXT X
     170 REM ROUND TO NEAREST
     180 REM ONE HUNDREDTH
     190 RF=.01
     200 FOR Y=.001 TO .1 STEP .0
     01
     210 PRINT Y,ROUND(Y)
     220 NEXT Y
     230 STOP
```

Here's an approach to the above for all of you Extended BASIC owners. Enter the following SUBprogram:

```
     1000 SUB ROUND(N,RF)
     1010 N=INT(N/RF+.5)*RF
     1020 SUBEND !ROUND
```

The following demonstrates the use of the above in Extended BASIC:

```
     100 N=100.129 :: CALL ROUND(
     N,.01):: PRINT N
```

- By ?????

TRIALS AND TRIBULATIONS

OF A FLOPPY NATURE

(or how to make a backup)
(copy of a cleaning disk)

The other day I had the unfortunate experience of losing a disk full of programs. It didn't happen all at once, I occasionlly couldn't load a program here and there and sometimes got the error message, "06", the error for no disk drive. In the end, all I got was a no disk drive error. Looking at the disk I found two circular gouges, one on the inside track closest to the hub and one towards the outer most track. I tried to move the disk inside it's jacket and ah ha! The problem was that of a cheap disk that jammed up. It could not even be turned by hand.

Well I had some very good programs on that disk and wasn't about to throw it out just yet. My first thought was to try Disk Fixer, after all that's what it was designed for right? But if the disk would not turn, then Fix could not even read a sector. Ok so now what?

I carefully cut out the bad disk from it's jacket and inserted it into an empty Verbatim cleaning jacket. And Voila! It worked! I quickly backed up my makeshift cleaning disk on a good disk and was tempted to turn el-cheapo into a frisbee. But I decided to save it anyway as a backup and a reminder of a great idea that actually worked.

So dig out that old frisbee and give it a try. Your trials will not turn into tribulations and you will occasionally find a use for your old useless cleaning jackets.

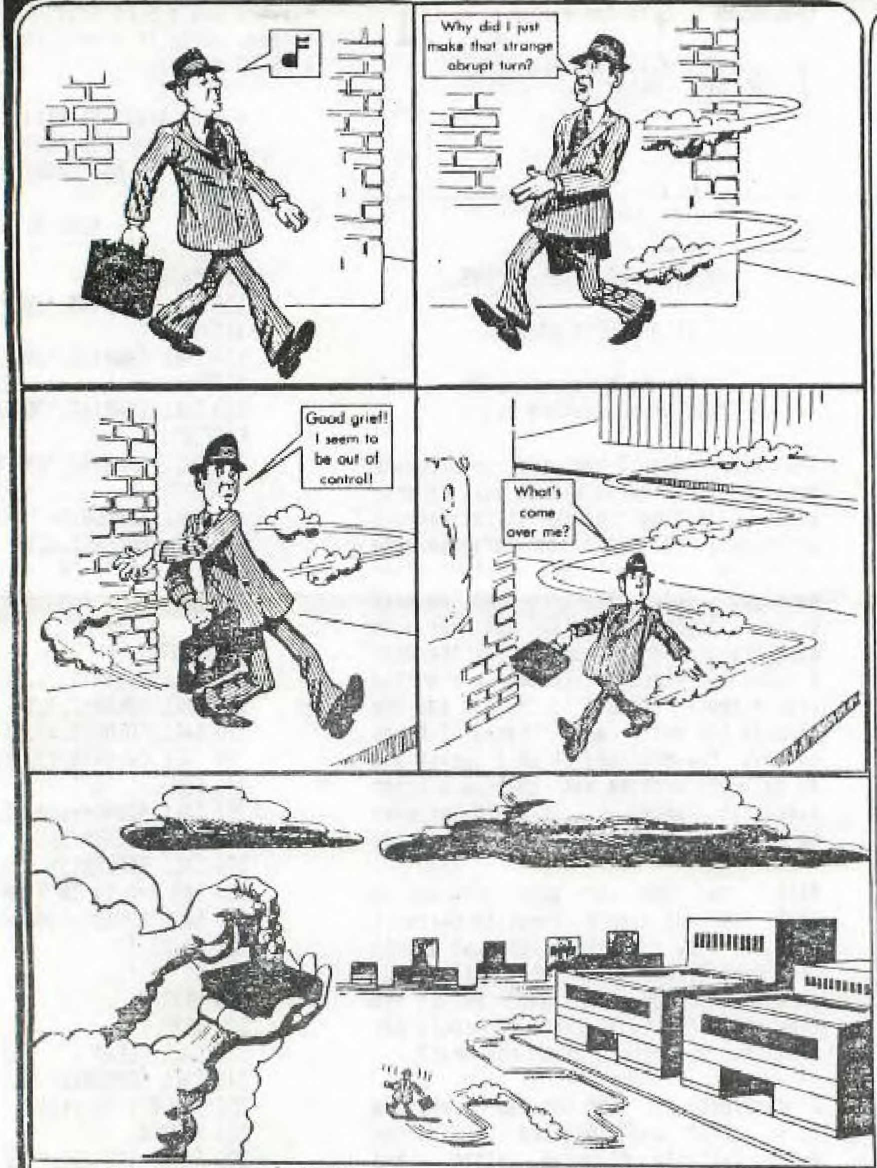
- JERRY TRINKL

THIS MONTHS PROGRAM

Here is a program that was taken from the Northwest Ohio 99'er News. It was written by a member of the New Horizons 99/4A Users Group based in that area. The program starts out by simulating rain and thunder, followed by sunshine, flowers and a bird that flys across the screen. Give it a try, it's not bad for a BASIC program.

```
     40 REM ***********************
     50 REM GRAPHICS PORTION OF
     60 REM THE MAY DRAWING PGM
     70 REM
     80 REM    By Mike Wilmoth
     90 REM
     100 CALL CLEAR
     110 CALL CHAR(49,"1010101010
     10101")
     120 CALL CHAR(33,"10102B4444
     4438")
     130 CALL CHAR(63,"3C7EFFFFFF
     FF7E3C")
     140 CALL CHAR(42,"B5FFFFFFFF
     FF7C18")
     150 CALL SCREEN(5)
     160 CALL COLOR(1,1,1)
     170 FOR X=1 TO 24
     180 PRINT "!  ! !  ! !  !  !
      !  !   ! "::
     190 NEXT X
     200 CALL COLOR(1,16,1)
     210 CALL COLOR(2,7,1)
     220 CALL COLOR(3,13,1)
     230 CALL COLOR(4,12,1)
     240 FOR Z=1 TO 3
     250 CALL SOUND(-100,-5,0)
     260 CALL SCREEN(16)
     270 CALL SCREEN(5)
     280 FOR X=0 TO 30 STEP 2
     290 CALL SOUND(-1000,-6,X)
     300 PRINT "!  ! !  ! !  !  !
      !  !   ! "::
     310 NEXT X
     320 NEXT Z
     330 CALL CLEAR
     340 CALL SCREEN(6)
     350 FOR D=1 TO 1000
     360 NEXT D
     370 PRINT TAB(22);"?": : : :
      : : : : : : : : : : :
     380 PRINT "  *  * *  *  * *
      *  * ** * ":"  1  1 1  1  1
      1  1  1 11 1 "
     390 PRINT."  1  1 1  1  1 1
      1  1 11 1 "
     400 PRINT "11111111111111111
     11111111111"
     410 GOSUB 500
     420 FOR X=1 TO 31
     430 CALL HCHAR(12,X,127+X)
     440 CALL CHAR(127+X,"1018181
     BFE")
     450 CALL CHAR(127+X,"0")
     460 CALL CHAR(128+X,"0000000
     3FE18181")
     470 NEXT X
     480 GOSUB 500
     490 GOTO 490
     500 REM  BIRD CALL
     510 FOR X=1500 TO 2000 STEP
     250
     520 CALL SOUND(-100,X,10)
     530 NEXT X
     540 RETURN
```

Sydney News Digest


Why did I just make that strange abrupt turn?
Good grief! I seem to be out of control!
What's come over me?

MICRO was a real-time operator and dedicated multi-user. His broad-band protocol made it easy for him to interface with numberous input/output devices, even if it meant time-sharing.

One evening he arrived home just as the sun was crashing, and had parked his Motorola 68000 in the main drive (he had missed the S100 bus that morning), when he noticed an elegant piece of liveware admiring the daisy wheels in his garden. He thought to himself, "She looks user-friendly, I'll see if she'd like an update tonight".

Mini was her name, and she was delightfully engineered with eyes like COBOL and a Prime mainframe architecture that set Micro's peripherals networking all over the place.

He browsed over to her casually, admiring the power of her twin, 32-bit floating point processors, and enquired "How are you Honeywell?". "Yes, I am well", she responded, batting her opitcal fibres engagingly and smoothing her console over her curvilinear functions.

Micro settled for a straight line approximation. "I'm stand-alone tonight", he said. "How about computing a vector to my base address, I'll output a byte to eat, and maybe we could get offset later on".

Mini ran a priority process for 2.6 milli-seconds then transmitted "8K, I've been dumped myself recently, and a new page is just what I need to refresh my disks. I'll park my machine cycle in your background and meet you inside. "She walked off, leaving Micro admiring her solenoids and thinking, "WOW, what a global variable, I wonder if she'll like my firmware."

They sat down at the process table to a top of form feed of fiche and chips and a bucket of baudot. Mini was in conversational mode and expanded on ambiguous arguments while Micro gave occasional acknowledgements although, in reality he was analysing the shortest and least critical path to her entry point. He finally settled on the old "would you like to see my bench-mark subroutine", but Mini was again one step ahead.

Suddenly she was up and stripping off her parity bits tor eveal the full functionality of her operating system software. "let's get BASIC, you RAM", she said. Micro was loaded by this stage, but his hardware polling module had a processor of its own and was in danger of overflowing its output buffer, a hang-up that Micro had consulted his analyst about. "Core", was all he could say.

Micro soon recovered, however, when she went down on the DEC and opened her device files to reveal her data set ready. He accessed his fully packed root device and was just about to start pushing into her CPU stack, when she attempted an escape sequence.

"No, no!" she piped. "You're not shielded".

"Reset, baby", he replied. "I've been debugged".

"But I haven't got my current loop enabled, and I can't support child processes", she protested.

"Don't run away", he said, "I'll generate an interrupt".

"No that's too error prone, and I can't abort because of my design philosophy".

Micro was locked in by this stage though, and could not be turned off. But she soon stopped his thrashing by introducing a voltage spike into his mains supply, whereupon he fell over with a head crash and went to sleep.

"Computers", she thought as she compiled herself", "all they ever think of is Hex".

(reprinted from Sydney UG 6/84)