

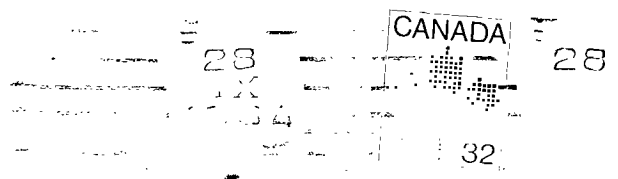
Texas Instruments
USERS GROUP
TORONTO

FOR THE TI-99/4A COMPUTER

SEPTEMBER 1984

NINE T NINE USERS GROUP

**55 CORDELLA AVE.
TORONTO, ONTARIO
M6N 2J7**



SEP 28 1984

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FULL MEMBERSHIP	\$25.00/year
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All memberships are household memberships. An associate membership is only for those who live beyond the commuting distance of Toronto but who wish to receive our newsletter and have access to our library. You are welcome to visit one of our general meetings before joining the group. If you wish more information contact our secretary in writing at the club address on the front cover or call and leave a message with his answering machine.

NEXT MEETING

Remember that the Editor's answering machine will be operative in the announce mode, after 4:00PM on the day of the meeting. This will inform members of any pertinent information should they wish to call.

The meetings are held on the last Tuesday of each month. This month's is Sept 25 and the next one will be Oct 30 at Shoreham Public School on 31 Shoreham Drive in Downsview, starting at 7:30PM. Shoreham Drive runs east and west off of Jane street. The entrance to the school is a few hundred yards east of Jane on the south side of Shoreham Drive.

COMMERCIAL ADVERTISING

Any business wishing to reach our membership may advertise in our newsletter. The rates are as follows, (width by height);

FULL PAGE (6" X 7.5")	\$40.00
HALF PAGE (6" X 3.5")	\$20.00
QUARTER PAGE (3" X 3.5")	\$10.00

Please have your ads camera ready and paid for in advance. You may contact the Editor for more information, but leave a message on the machine.

NEWSLETTER ARTICLES

Members are encouraged to contribute to the newsletter in the form of articles, mini programs, helpful tips, jokes, cartoons or even questions. A short article may be submitted in any form but if you don't have II-WRITER it may be better to type the longer ones into your computer using REM statements, and submit the cassette or disk, which will be returned. We welcome the reprinting of any article appearing in this newsletter providing credit is given to the author and to 919. If more information is required, call the Editor and please leave a message with the machine.

DISCLAIMER

Opinions expressed in this newsletter are those of the writers and are not necessarily those of the 919 USEPS GROUP. 919 cannot assume liability for errors in articles, programs or advertisements.

EDITORIAL

A lot has happened over the summer. Cy Leonard, originally from Toronto, came up from Florida in August and brought his complete system and library of over eight hundred programs on diskette. Many of them were the latest most powerful utilities or fast acting bit mapped arcade games in assembly language. Some could run from Extended Basic, and some required the Editor Assembler. We swapped our library and everything else we had but it didn't compare to his. Thank you, Cy Leonard, and I hope you enjoy receiving our newsletter.

Speaking of the Editor Assembler, many people believed for under forty dollars it was the best buy in TI modules, but most didn't buy it because they thought it was only for writing assembly language programs which they weren't ready for. It included a 470 page manual, three ring binder, module and diskette. It is an excellent word processor having most of the features of the TI-Writer editor and more powerful than most dedicated word processors for other home computers. It includes; tabs, move, copy, mass insert and delete and find, show or replace string, using a forty column window on an eighty column screen. With the editor assembler you can also write and run assembly language programs. There are many games and utilities that will only run with this module. One of the most interesting is TI-Forth, though I hear that a company in the States has just come out with a program that will run Forth from Extended Basic. The Forth language was invented in 1969 by Charles Moore and I hear that it got its name because it was the fourth computer language at that time and the "U" was dropped because the computer used could not save a program name longer than five characters. Almost every computer has a Forth language available to it. TI-Forth is a new language developed by Texas Instruments for our computer and put in public domain by sending the manual and diskette to all of the user groups. Well we didn't receive anything, but we got a copy from Cy Leonard and Mike Mattos managed to dig up a copy of the documentation.

Forth is about a hundred times faster than basic. It can do anything that assembly can do, and is almost as fast. It is much easier to learn than assembly and has many built in utilities including COPY that can back up diskettes with proprietary and other protections. It has a built in 64 column screen which looks great on a monitor. Imagine being able to type the numbers from 0-9 then the alphabet twice without getting to the edge of the screen. If someone were to write a word processor in Forth using this screen then you could have over fifteen hundred characters on the screen at once. If you wished an eight character margin on either side of your document when it is printed then (except for the margins) "what you see is what you get".

Forth is great for writing fast acting, bit mapped arcade quality games. It supports all 32 sprites (four more than extended basic) and all of the sprite commands but of course they work MUCH faster.

Forth has the four video modes that assembly has; Graphics, Text, Multi-Color, and Bit Mapped, plus two more. Split Mode is bit mapped with eight lines of text at the bottom and Split2 is bit mapped with four lines of text at the top. Graphics are far easier with commands such as LINE, OOI, DRAW and UNDRAW.

If you need a super fast routine that can only work in assembly (and this may never happen) then just type in the assembly code with the rest of your Forth program, and Forth will assemble it. Incredible. We will keep you informed as the group's knowledge of Forth increases.

NOISY BOX FAN : The fan in our box is more powerful than it needs to be but the hole punched grill at the back inhibits a great deal of air flow. By using a pair of end cutters I removed the grill in about 30 seconds. The air flow was increased dramatically. Our technical expert, 'See Papadimos, says that all we need is a simple triac circuit installed (he'll build one) that will slow down the fan making it quiet yet give more air flow (if the grill is removed) and use less electricity. What about safety? I stuck my finger into the moving plastic fan and the fan just stopped. Hardly any pain either.

80 COLUMN SCREEN : Pumont has it that TI has developed a new Video Chip that may be able to replace the one we have. It has seven modes instead of four including an eighty column mode. This would have to give a higher resolution or more pixels to the screen.

MORE MEMORY : We have all heard of Foundations 128K memory card but no one in our group has seen one. Mike Mattos has tried several times to contact them but has had no replies to his letters. We know that if we plug in two 32K cards that the computer only recognizes one of them. We also know that ours is a 64K computer. The CPU can only "see" 64K at once, like most big business machines. When we add the 32K card we are looking at the full 64K (including console memories.

grom port etc). To use more memory we must be able to "switch bank" or go back and forth from one to the other. This can happen so fast that it seems like we are accessing all of the memories at once. But this all takes special hardware and in many cases it isn't necessary. Just being able to instantly access more data or another program and then go back to the original or have a print spooler or buffer would be all that we need. For example it is technically possible to load say a disk manager program or the TI-Writer Editor and Formatter in the extra memory. Then with the appropriate command you could go from one to the other almost instantly without waiting for (and wearing out) your disk drives or grom port. Also if this memory didn't mount inside the box then it wouldn't have to be custom built to fit and everyone with the new Cor-Comp system could use it. (by the way I saw the Cor-Comp expansion box. It's about the size of two speech synthesizers side by side and holds the RS232 card, 32K memory, and an enhanced disk controller and needs no fan) Well Vee may have the answer. He bought a Micro Phaser and then added his own memory chips (which can be purchased anywhere) and now has another 64K of memory that he says can be expanded to 512K. This small box, the size of a Cor-Comp system, sits anywhere on your desk and plugs into the parallel or serial port of the RS232 card. The printer (serial or parallel) plugs into the Micro-Phaser. Now when you print, the extra memory loads instantly and your computer is free to use, while the printer takes its time printing. But that's not all. You can also SAVE anything to this extra memory using the SAVE or PRINT commands. Then you can load it back again using INPUT or OLD and it all happens almost instantly. The only drawback is the price. 8K models start about \$200.00 and they go up to over \$400.00 but we will check into this and see about discounts or the feasibility of building our own.

COMPUTER LOCK UPS? : Have you ever had problems with your computer locking up? If the problem is a faulty chip or component there is nothing you can do yourself (except taking it in for repairs) but it may be simpler than that. If TI BASIC works fine but the problem occurs only when you try to access a module then it could be the right angle grom port adaptor. I had this problem and took the console apart. Then I pulled the right angle adaptor in and out several times to clean the contacts and then put it all back together. I've never had the problem since.

NEW KEYBOARD : Our computer is just as fast and powerful as most business computers, maybe even faster than some. I wrote a simple assembly language program, my first one, that counts on the screen from one to ten thousand in 2.3 seconds. I heard that a more advanced programmer has done the same thing in .8 seconds. I hope to do a comparison with the I.B.M. PC in the future. The advantage of the I.B.M. is that it has an eighty column screen, more memory and a multi function alpha-numeric keyboard. If we acquired eighty columns (the new chip) and more memory (the Micro Phaser) then all we would need is a business keyboard to have a powerful business computer. This may even be easier than it sounds. Most computers have "matched" keyboards, that is they have electronic components in the keyboards that are compatible with the computer. Therefore no other keyboard will work without extensive modifications. Our keyboard contains only the key switches and plugs directly into the motherboard where all of the decoding is done. Therefore any simple keyboard where we have access to each key switch will work. For example the console could be mounted under, on, or behind the expansion box, or maybe even taken apart and the mother board installed inside? Then a new alpha-numeric keyboard with a phone-type cable would plug into the mother board. Anything is possible, we just have to see what is practical. There is a great deal of power in this computer that Texas Instruments locked out (no peek or pole in basic, use of groms etc) and we are just beginning to unlock. It was so ahead of its time that years later it still has more power than the home computers just coming out today. It is a well known fact that the Atari games translated for our computer run better on ours than on the Atari's that they were originally written for and I understand that they still don't use all of the power that our computer is capable of. For these reasons it will probably remain state of the art for many years to come.

DAVID HUGGETT

FOR SALE

One RS232 stand alone unit, \$100 or best offer. Call Tim Bartoo, 232-0581

One expansion box system with 32K memory, controller card and one Shugart double sided drive. Also Editor Assembler, Mini Memory, Extended Basic, some games etc. Best offer, Call Zelwko Odorcik, 741-4778.

HERE'S HOW

by GARY WILLERT

How often have you heard me say: "There is always more than one way to do it!"? Probably often. With the different options available on the TI-99/4A, this could mean different languages (BASIC, EXTENDED BASIC, ASSEMBLER, PASCAL, FORTH), but it usually is a reference to the versatility of BASIC. While all computer languages offer the capability to perform tasks in different ways at the whim of the user, BASIC is particularly noted for the relative lack of restrictions placed upon the programmer.

One of the areas that I always try to emphasize with beginning programmers is the importance of original thinking. Once you have defined the task and decided on the approach that you will use to perform it, the actual programming is mere detail.

While I was doing some housekeeping this summer, I came across the following two programs. Each performs the same task - providing an electronic BINGO caller - but the approach taken is radically different.

"BINGO" uses a simple, head-on method for choosing the numbers. A flag array (A\$) is created; as each number is picked, it is tested against the appropriate element of the array to determine whether it has already been used; replacement numbers are chosen as necessary until one has been found that has not been used. This method is simple to program, but it has a feature that could be frustrating: as the numbers are used up, it becomes necessary to repeat the loop more and more often to find an acceptable number; in fact, it is theoretically possible for the loop to keep repeating forever towards the end of the game. Display information is also stored by means of arrays; the numbers are stored as strings in the second column of A\$ and positions are stored as co-ordinates in PS. This method allows for very fast access to the information, but uses a lot of memory; this is acceptable in this case since more than enough memory is available. Note that I used quotation marks in each element of the DATA statements; these are, in fact, only required for the first nine(?) entries to secure the space as part of the string.

"BINGO CALLER" has almost nothing in common with the older program except for the task it performs. Picking and display of numbers happens in LINES 520 to 710. Note that only one single-dimension array (NBR\$) is used to hold the string value of the numbers; no flags are required and display positions are calculated at the time of use. This is made possible because of the radically different way of dealing with the elements of the array. Each time a number is picked, the element of NBR\$ corresponding to the chosen number is displayed in the appropriate position. THEN each element of the array, from the chosen element to the end, is shifted forward one element and the parameter on the random number generator is decremented to compensate. This method has the feature of limiting the number of loops that will be required; it also has the desirable (in this case) feature of performing the most time-consuming part of the task AFTER displaying the required information. Incidentally, it was not necessary to create a blank character of character 43("&"); this was done for your benefit, so that you could key the DATA statement more easily and accurately. The option of using the FIRE buttons of the joysticks is "free"; it is accomplished by using appropriate KEY-UNITS in LINES 420 and 460.

```
100 :M *****
110 :M * BINGO CALLER *
120 :M *****
130 :M
140 :M BY GARY WILLERT
150 :M
160 :M FEB 1984
170 :M
180 CALL CLEAR
190 CALL SCREEN(7)
200 FOR A=3 TO 8
210 CALL COLOR(A,2,12)
220 NEXT A
230 CALL CHAR(43,"")
```

```
540 PICK=INT(RND*N+1)
550 X=VAL(NBR$(PICK))
560 Y=X-1
570 CALL HCHAR(9,8,ASC(SEG$("BINGO",INT(Y/15)+1
),1)))
580 CALL HCHAR(11,7,ASC(SEG$(NBR$(PICK),LEN(NB
R$(PICK))-1,1)))
590 CALL HCHAR(11,8,ASC(SEG$(NBR$(PICK),LEN(NB
R$(PICK)),1)))
600 CLM=INT(Y/15)*3+17
610 ROW=((Y/15)-INT(Y/15))*15+4
620 CALL HCHAR(ROW,CLM-1,ASC(SEG$(NBR$(PICK),L
EN(NBR$(PICK))-1,1)))
630 CALL HCHAR(ROW,CLM,ASC(SEG$(NBR$(PICK),LEN
```

```

240 CALL CHAR(35,"FFFFFFFFFFFFFF")
250 CALL CHAR(91,"")
260 CALL COLOR(1,10,1)
270 OPTION BASE 1
280 DIM NBR$(75)
290 CALL CLEAR
300 N=75
310 FOR A=1 TO 9
320   S(A)=" "&STR$(A)
330 NEXT A
340 FOR A=A TO N
350   NBR$(A)=STR$(A)
360 NEXT A
370   ' MORE 730
380   ' A=1 TO 23
390 READ A$
400 PRINT A$
410 NEXT A
420 CALL KEY(3,K,S)
430 IF K=13 THEN 290
440 CALL KEY(1,K,S)
450 IF K=18 THEN 480
460 CALL KEY(2,K,S)
470 IF K=18 THEN 500 ELSE 420
480 CALL CLEAR
490 END
500 CALL HCHAR(9,6,32,4)
510 CALL HCHAR(11,6,32,4)
520 RANDOMIZE
530 IF N=0 THEN 290

```

```

100 REM *****
110 REM * BINGO *
120 REM *****
130 REM
140 REM BY GARY WILLERT
150 REM
160 REM FEB 1982
170 REM
180 CALL CLEAR
190 OPTION BASE 1
200 DIM A$(75,2),PS(75,2)
210 FOR N=1 TO 75
220   READ A$(N,2)
230   A$(N,1)=" "
240 NEXT N
250 FOR N=1 TO 15
260   PS(N,1)=16
270   PS(N+15,1)=19
280   PS(N+30,1)=22
290   PS(N+45,1)=25
300   PS(N+60,1)=28
310   PS(N,2)=N+4
320   PS(N+15,2)=N+4
330   PS(N+30,2)=N+4
340   PS(N+45,2)=N+4
350   PS(N+60,2)=N+4
360 NEXT N
370 CALL SCREEN(15)
380 FOR N=1 TO 8
390   CALL COLOR(N,7,1)
400 NEXT N
410 GOTO 480
420 REM *** PRINT <-----
430 FOR I=1 TO LEN(M$)
440   CODE=ASC(SEG$(M$,I,1))
450   CALL HCHAR(Y,X+I,CODE)

```

```

(NBR$(PICK),1)))
640 C=76-N
650 FOR A=1 TO LEN(STR$(C))
660   HCHAR(15,4+A,ASC(SEG$(STR$(C),A,1)))
670   ' A
680   A=PICK TO N-1
690 NBR$(A)=NBR$(A+1)
700 NEXT A
710 N=N-1
720 GOTO 420
730 DATA ++++++#####+++++
+++++IBLIIICNCGLOW,+++++
+++++
740 DATA ++++++#####
750 DATA +++last+++++N,++number
+++++
+++++
760 DATA +++#####+,+++++
+++++
+++++
770 DATA +++#####+,+++++
+++++
+++++
780 DATA ++++++#####+,+0[++++
+++++#####+,+numbers+++++
+++++
790 DATA ++called+++++
+++++#####
#####
800 DATA ,new game-----ENTER,quit-----Do

```

```

660 Y=10
670 GOSUB 420
680 CALL HCHAR(12,6,42,6)
690 CALL VCHAR(13,6,42,6)
700 CALL HCHAR(18,7,42,5)
710 CALL VCHAR(12,11,42,6)
720 REM *** ENTER CHOICE <--
730 CALL KEY(1,K,S)
740 IF K=13 THEN 990
750 IF K=78 THEN 790
760 IF K=81 THEN 1070
770 GOTO 730
780 REM *** PICK NUMBER <----
790 RANDOMIZE
800 CALL HCHAR(14,9,32)
810 CALL HCHAR(16,8,32,2)
820   COUNT=COUNT+1
830 IF COUNT>75 THEN 1000
840 NBR=INT(RND*75)+1
850 IF A$(NBR,1)<" " THEN 840
860 M$=SEG$( "BINGO",INT((NBR-1)/15)+1,1)
870 X=8
880 Y=14
890 GOSUB 420
900 A$(NBR,1)=A$(NBR,2)
910 M$=A$(NBR,1)
920 X=7
930 Y=16
940 GOSUB 420
950 X=PS(NBR,1)
960 Y=PS(NBR,2)
970   ' B 420
980   ' I 730
990 REM *** NEW GAME <-----
1000 FOR N=1 TO 75
1010   A$(N,1)=" "

```


HARD COPY

by MIKE MATTOS

What does "Stack Free or Program Space Free" mean? Your system has three main memory areas. VDP RAM in the console, and two areas in the 32k card. Console Basic and the screen display (sprites, character definition) use the 16k VDP RAM. X Basic programs are stored in the program space, and the current values of your variables are stored in the stack space. By using assembly language, you can use ALL the various memory areas, for a total of about 52K with mini memory.

Can I use two 32K cards? Yes, BUT it requires both hardware and software modifications. Better to use two disk drives, and treat one of them as your extra memory and better still to use a Micro Phaser. (see editorial) When I use X BASIC, what is my console 16K ram doing? Very little! However, with some assembly language routines, you can store multiple screens there and enhance your graphics. In BIT MAP mode, your 16K contains colour data for each pixel on the screen, and uses up about 6K of the 16 available. BASIC is just not fast enough to process this amount of screen data.

CABLE STUFF

I recently borrowed an AMBER monitor, and tried it out on my 99. The results were excellent, except that I had no sound. To solve that, I grabbed an old stereo from the basement, attached cables and speakers, and WOW! real HI-FI SOUND. The results were excellent; obviously the RF modulator is reducing the quality of sound. If you want to do the same, you can buy a 5 pin DIN cable assembly at Radio Shack that splits the TI video plug into 4 RCA female plugs. The black is Video, gray is Sound. Alternately, inside your modulator the pins are identified, so you can simply run wires from the sound and shield cable to a stereo amp. Plug into the AUX, not the Phono input.

ADOPT A PEN PAL

Many out of town TI owners have written to us since our club was mentioned in the Home Computer Magazine. They will receive some copies of our newsletter, but I think that some of you might like to start a computer pen pal network. Next month I will try to start listing info on out of town members who are interested in this, with any info they supply on their interests. If you are an out of town member and do NOT want to participate, please drop me a line.

ADVENTURE LIBRARY

On behalf of the club, I am organizing an ADVENTURE library. Anyone who contributes (either a new adventure type game, or some work') will be entitled to borrow our back-up library copies. These are currently on DISK, so one work project will be to make them available on cassette. At present, we have Pirate Adventure, Adventureland, Golden Voyage, Voodoo Castle, the Count, and Pyramid of Doom. You must supply your own Adventure module, but hopefully in the fall we will be able to lend to members both the games and module in both cassette and disk formats.

DAMAGED DISK?

If you have a damaged disk that contains valuable programs or data, do not despair. 919 now owns a Navarone disk fixer, that can transfer the good stuff from your damaged disks. This is a moderately difficult task, so I recommend you discuss the repair with the executive to arrange a help session.

BOOKS PLUS DISCOUNT A 20% is being offered to us on computer books by SAMS publishing. Titles include B TI specific books, plus general computer topics. Catalog at the Next meeting.

GROUP GRAPEVINE

Thanks to the 99/4A Users of Canada in Strathroy, for this Music tip, in BASIC, for a victory refrain: 10 I=250 20 G=392 30 E=330 40 HE=459 50 HG=784 60 V=5 70 CALL SOUND(T,196,V,G,V,HG,V) 80 CALL SOUND(T,262,V,523,V,1047,7) 90 CALL SOUND(T,E,V,1319,V) 100 CALL SOUND(T,G,V,HG,V,1568,V) 110 CALL SOUND(125,110,30) 120 CALL SOUND(125,E,V,HE,V,1319,V) 130 CALL SOUND(500,G,V,HG,V,1568,V)

Thanks to TIGERCUB software for this: Use Call Sound(D,N,V,N*I.01,V) to get arcade effect music for games.

TI Professional Computer Owners: John Reinbergs, 416-746-4422 is trying to get a group started. HOME COMPUTER MAGAZINE

Still good coverage on the 99, and lots of software and hardware suppliers are advertising.