



Texas Instruments
USERS GROUP
TORONTO

FOR THE TI-99/4A COMPUTER

J A N U A R Y 1 9 8 5

NINE T NINE USERS GROUP

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FULL MEMBERSHIP	\$25.00 / year
ASSOCIATE MEMBERSHIP	\$12.50 / year

All memberships are household memberships. An associate membership is only for those who live beyond the consulting 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

The meetings are held on the last Tuesday of each month. The January meeting is on the 29th. The next meeting will be on February 26, 1985 at Shoreham Public School, 31 Shoreham Drive in Downsview, starting at 7:30 PM. Shoreham Drive runs east / west from Jane Street, north of Finch. The entrance to the school is a few hundred yards east of Jane on the south side of Shoreham.

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 7½")	\$40.00
HALF PAGE	(6" x 3½")	\$20.00
QUARTER PAGE	(3" x 3½")	\$10.00

Please have your ads camera ready and paid for in advance. You may contact the treasurer for more information.

Don't forget, that any member wishing to place ads, may do so free of charge as long as they are not involved in a commercial enterprise.

NEWSLETTER ARTICLES

Members are encouraged to contribute to the newsletter in the form of articles, mini programs helpful tips, jokes, cartoons or even questions. Any article may be submitted in any form except TI-WRITER, which I don't have as yet. We welcome the reprinting of any article appearing in this newsletter providing credit is given to the author and to 9T9. If more information is required, call Gary Willert.

DISCLAIMER

Opinions expressed in this newsletter are those of the writers and are not necessarily those of the 9T9 USERS' GROUP. 9T9 cannot assume liability for errors or omissions in articles, programs or advertisements.

EDITORIAL

As everyone who attended the December 11th, 1984 meeting of the Nine T Nine Users Group in Toronto understood, there are to be some changes in personell made to the Executive. As well, there is a new editor for your newsletter, myself, replacing Dave Huggett, who has done, in my opinion, an amazing job in bringing the newsletter to the members.

David will be a tough act to follow, but, having been given reassurances that I will be assisted, at least for the first couple of issues, I don't see any reasons for the quality or content of your newsletter to suffer.

Before I ramble on and on, I would like to tell you a bit about myself. For starters, my name is Emile Verkerk and I'm a confirmed TIaholic. I am also a student at Devry Institute of Technology aiming for a degree in Computer Science My final goal along these lines is to become a technical writer, one of those who translates technical gibberish into understandable English.

Introductions aside, let me begin by hoping that all of you had a Merry Christmas and a Happy New Year and that You've kept all those resolutions we inevitably make. My Christmas was quite exciting as we welcomed a baby girl to our family on Christmas Eve. This being the first issue of the new year I would like to take this opportunity to expand on the directions that I would like our newsletter to take.

First of all, a newsletter is only as good as the members it serves, so to this end, PLEASE CONTRIBUTE. Whether you write a Letter to the Editor a detailed program, or a review of a piece of hardware or software you've discovered, send it in. This newsletter is your forum, not my platform.

HERE'S HOW, a column by Gary Willert, will certainly continue as long as Gary keeps writing. Dave has also offered to give us more articles about Assembly Language. Starting in this issue I've started PROFILE, with an indepth look at a new piece of hardware, a 128K Memory Card that sits very comfortably in my PE Box.

Since becoming editor, a few of you have come up to me and have asked if there is a possibility that I reprint older tutorials. Since I have acquired all of the newsletters ever printed, as long as the response is favourable, I'll try to sneak in a reprint now and again. (probably when I'm wondering how to fill up the newsletter). EXTENDED EXAMPLES, by David Huggett, printed somewhere in this issue is a good example. (no pun intended)

We do serve members of differing backgrounds and expertise so I'd also like to see a section which covers your questions, or just supplies handy tips, from Basic to Assembler. BITS & BYTES, debuts on the back page.

If you have something you wish to sell to other members, be it a piece of hardware or a collection of software, call me, and I'll place your ad free of charge. Unfortunately, this is limited to members in good standing who do not make a living selling TI material. If you're a commercial venture, I will accept your ad for a nominal fee. The fee structure is listed on the inside front cover and all classified ads for non-members are \$10.00.

Letters to the Editor, having never had a permanent home in our newsletter, does deserve better. We need your input, to show us our shortcomings and to improve your newsletter. Give me your best and I'll do my utmost to give you mine.

A last point that I would like to make is that for now, the format of your newsletter is going to have to change slightly from the one we all know and love because of equipment problems. I have acquired a modem (at least one that works) so it is possible to send me articles over the telephone. However, if you look closely at the print in this issue you will notice that is has been typed. (on my trusty 15 year old IBM Selectric) This is necessary because 1) I don't have a word processor (this is being formatted on the Editor/Assembler) and 2) the printer I have here only accepts an RS432, not the RS232 that my system has and needs to be modified. If anyone out there can assist me on any of the above two

points, it would make my effort here a lot easier.

Running over a page, so I should stop as the articles in this month's issue are more interesting than this diatribe. Happy Computing and see you all next month.

Emile Verkerk

There were no contributions this month so it became a tossup whether to print an apology and a blank page or a reprint. As you can see, the reprint won out.

EXTENDED EXAMPLES

BY DAVID HUGGETT

These short programs illustrate the flexibility and power of the TI home computer with extended basic. While not as fast as most computers in jumping from one program line to another, the TI extended computer has many built in subprograms and other abilities that make it more powerful than the others and in specific cases this power even makes it faster, ... much faster. For example, the following program clears the screen and fills it with the letter A. Then it fills the screen with the letter B and so on through the alphabet. Most computers take from 20 to 30 seconds to go from A to Z but the TI does it in less than five seconds.

```
10 FOR X=65 TO 90 :: CALL CHARPAT(X,C$)
20 CALL CHAR(32,C$) :: CALL CLEAR:: NEXT X
```

The following shows the simplicity with which a three dimensional box is drawn in an area of 256 pixels and set in motion at one of 256 speeds. Any characteristic of the box (color, speed, size, shape, direction) can be changed simply by changing the appropriate numbers. Of the few computers with this ability, none can do it nearly so easily.

```
10 CALL CHAR(96,"0F102040FFB0B0B0B0B0B0B0B0B0")
   FFFF030509F111111111111111121418F0")
30 CALL SPRITE (#1,96,2,90,1,0,20)
40 CALL MAGNIFY(3):: GOTO 40
```

The next program places every letter of the alphabet on the screen and moves them all at different directions and speeds. No home computer comes close to this feat, let alone in three simple lines.

```
10 CALL CLEAR :: FOR X=65 TO 90
20 R=INT(RND*30)-15:: C=INT(RND*30)-15 :: Y=Y+1
30 CALL SPRITE(#Y,X,2,85,125,R,C):: NEXT X
40 GOTO 40
```

As you type, this program places a character and its mirror image on the screen to create a "shadow" effect.

```
10 FOR X=9 TO 12 :: CALL COLOR(X,5,8):: NEXT X
20 FOR C=97 TO 122 :: CALL CHARPAT(C,A$)
   :: FOR L=15 TO 1 STEP -2
30 C$=C$&SEG$(A$,L,2):: NEXT L
40 CALL CHAR(C,C$):: C$=N$ :: NEXT C
50 DISPLAY AT(8,3)ERASE ALL BEEP:"READY
   FOR MIRROR TYPING"
60 FOR X=1 TO 28
70 CALL KEY(0,K,S):: IF S=0 THEN 70
80 DISPLAY AT(12,X):CHR$(K):: IF K=32 THEN K=0
90 DISPLAY AT(13,X):CHR$(K+32):: NEXT X
```

Try that with a Digital Delight computer, and these examples are just the tip of the iceberg.

PROFILE

Profile is a new section of our newsletter, which will hopefully answer some or all of your questions concerning new and maybe some old peripherals for the TI 99/4A and how you can get the most out of them should you decide to expand your system. This month PROFILE takes you into my expansion box to investigate a 128K Memory Card produced by Foundation Computing in Tiburon, California.

Manufacturer: Foundation Computing
74 Claire Way
Tiburon, California
USA, 94920
(415) 388-3840

Products made for the TI 99/4A:
32K Memory Card
128K Memory Card
Z80A Card
80 Column Card

Of the four Cards currently made by Foundation Computing, the only one in my possession so far is their 128K Memory Card so unfortunately, that is the only one I can review now. Should the opportunity present itself so that I can acquire a Z80A Card and an 80 Column Card you will be the first to hear about it in an upcoming review.

128K Memory Card

Introduction

The Foundation 128K Card provides 128K of high speed RAM for the TI 99/4A. Because of the nature of the computer's internal structure, the memory is addressed as four banks of 32K each. In effect this gives us the standard 32K memory expansion, with three banks of 32K or an additional 96K of built in memory. Interbank switching is performed by Communications Register Unit (CRU) instructions. Alternatively, with optional Device Service Routine (DSR) firmware, the upper three banks or the additional 96K, is available for use as either a single file, "MEM96", or as three files, "MEM96A", "MEM96B", and "MEM96C". Using these files greatly speeds the data handling capabilities and it allows the use of the lowest 32K bank for either programs or data.

Specifications

Amount of Memory	131,072 bytes
Organization	4 banks of 32K each mapped as >2000 to >3FFF and >A000 to >FFFF
Memory Technology	4164 64Kx1 dynamic RAM
Memory Speed	200 nsec. at chip level full speed at bus level (bus)
Support Circuits	series 7400 low power Schottky TTL logic and TMS4500A VSLI memory controller
Software	MEM96 file emulation with DSR option

Advantages

There have been several advantages of owning the Foundation 128K Card that come to mind quickly. The first one is that of price. In the last issue of Home Computer Magazine (HCM) which carried advertising (August 1984), Tenex was selling a 32K Card for \$110 US, Boxcar had a stand-alone 32K Card for \$129 US and

Multicom/Intellitec was selling a 32K Card for \$99 US and a stand-alone 32K Card for \$125 US. Compare this to Foundation's 128K Card, which having four times the memory was less than twice the price of the stand-alone cards. Mine cost me \$240 US in September 1984. A good deal if ever I saw one.

Another point that comes to mind is appearance. No cheap metal case for this card. Foundation has evidently reached an agreement with Texas Instruments and therefore my 128K Card arrived in a genuine TI metal case. This made my PE Box extremely happy.

The third point is performance. Having an extra 96K is just like having an extra single-sided, single-density disk drive built in. The difference being that with a disk drive there is access time measured in seconds, while with the 128K Card the access time is measured in nanoseconds. Talk about speed. It takes approximately four minutes to load a disk full of data into MEM96 but processing occurs at CPU speed. For example, to sort 1000 names and addresses, used to take me over 11 hours. With the Foundation 128K Card this same process takes a little under twenty minutes. I now use my TI for computing rather than waiting.

The fourth point is reliability. It may be too early to tell, since I've only had my card for four months, but with its solid construction (it feels quite solid), I don't anticipate any problems for the life of my system, which, if Foundation's other offerings are as good as this one, will be for a long long time.

The fifth point concerns the actual use of the 128K Card. It is totally compatible with any of the cartridges needing Memory Expansion (Editor/Assembler Logo, Extended Basic, etc.). Normally the Memory Expansion is not available to console Basic. The same is true of the Foundation 128K Card, but MEM96 is available. This allows you to use an extra 96K for data processing in Basic, something impossible with a 32K Card.

Last, but not least, any dealings that I have had with Foundation have been quite good. There is always a friendly person to answer the phone (not some answering machine) and any correspondence has been promptly answered.

Other Encounters

One of my pet peeves is documentation and I feel that all documentation should be written for the complete idiot, like me, so that it becomes understandable in at least ten readings. To be fair to Foundation, their documentation scores an 8 out of 10 and does explain simply the operation of MEM96, MEM96A, MEM96B and MEM96C. They also supply a page on installation of Memory Cards, giving appropriate warnings on the subject of static electricity. Very good!! A demo program is also included to make you familiar with the programming capabilities of the 128K Card. The only downfall is for Assembly Language programmers. The background technical information is supplied, but in my opinion, is not as clear as the rest of the documentation.

Another upsetting situation occurred as I read the enclosed literature and discovered that Foundation had also developed Disk Emulator Firmware to complement the 128K Card. I wish I had known about it when I ordered the card so that I could have had it installed as my order was being filled. As it is, I would have to send my 128K Card back to make the necessary adjustments and I don't know if I can live that long without it. From what I gather, this option is well worth the \$29.95 US, and I would recommend that anyone ordering the 128K Card get it installed.

The last point here is that if you already have a 32K Card, placing a 128K Card in your PE Box without removing the 32K Card has a tendency to confuse your TI. If you want the 128K Card you'll have to sell your 32K Card (no great loss), but then again who wants a 32K Card with Foundation's 128K Card on the market.

Problems

The only problem encountered so far in the operation of the 128K Card is that the prescan function in Extended Basic must be carefully turned on and off. Things that I got away with just using the cartridge and console give SUBROUTINE NOT FOUND. An easily corrected mistake.

Conclusions

Overall, I am 98% satisfied with my Foundation 128K Card. I feel that it has been the best buy I have ever made to expand my system (but then again, I paid \$995 for my console). Everything aside, I salute Foundation Computing for keeping the TI dream alive with a phenomenal product and I look forward to using and reviewing any future additions that they develop because I know that they belong in my system.

NOTE: some text and specifications taken from 128K Card user manual.

P.S. If anyone out there can lend me a 32K Card so I can get my 128K Card modified with the Disk File Emulator, I'll promise to explore the DSKX. Firmware in an upcoming issue and I'll be eternally grateful.

Emile Verkerk - newsletter editor

* * * * *
* For those of you who wish to contact me, the editor, for any reason whatsoever, I am usually available after 2 pm every day at (416) 633-1451.
* For those sending articles by modem, phone, else mail them to me at the following address.
* 29 Ingleside Drive
* Downsview, Ontario
* Canada M3K 1V2
* * * * *

F O R S A L E

Complete TI system including console, two power supplies, peripheral expansion box, 32K memory card, RS232 card, two SS/SD disk drives, disk controller, Radio Shack Quickprinter II, TI writer, Multiplan, Editor/Assembler, LOGO II, Extended Basic, Mini-memory, TE II, & 20 command cartridges & books & software & 25 disks

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* * * * *

Learn Basic and Extended Basic to get the most out of your TI 99/4A. Cover everything from GOTO's and GOSUB's to data file handling. Seminars every Saturday morning (Basic) and afternoon (ExBasic). \$10.00 per session / \$15.00 for both. Reserve your seat now as enrollment is limited.

Call Emile 633-1451

----- B I T S & B Y T E S -----

Munch Man has, hidden away in its program, a Test Mode. This gives you the ability to choose any round (1-20, 21-40, 41-60), and screen (1-20), and up to nine Munch Men. To enter the Test Mode, just press within three seconds when the (Munch Man) title screen appears * # * or Shift 8, 3, 8. After this is done, RND(0-2) (what round) will appear. When You've chosen what round you want, SCN(0-19) (what screen) will appear. Then MM(1-9) (how many Munch Men). Happy Munching!!

Having problems loading tapes or disks? Move your recorder as far away from your TV or monitor or shield your disk drive with a layer of aluminum foil between it and your monitor. The magnetic field surrounding the TV or monitor can and probably will erase or scramble your tapes or disks. Also, store your tapes and disks at least three feet from any source of magnetism; that includes your computer system.

Programs written in Basic using all available memory, won't run when the disk drive is on. The drive uses approximately 2K of memory, which is enough to get a MEMORY FULL error. If you want to run from a disk, first use CALL FILE (1), then type in NEW, and then load your program. If there is still not enough memory, try removing all of the REM statements. As a last resort, rewrite your program.

How many times have you typed in OLD CS1 when you meant SAVE CS1, or visa versa. Well there is a way to get out of that mode without resorting to QUIT and losing a few hours of typing. All you have to do is press 'SHIFT E' and you're out, with your console memory intact.

A quick tip on the RUN command in extended Basic. Typing in RUN "CS1" will load a cassette and run the program in one step. Also, in both Basic and extended Basic, typing in RUN line #, will run the program starting at that line # - a handy debugging feature.

If you have any tips or other exotic bulletins, I'm quite sure that all of us would like to hear about them. If you call me, Emile at 633-1451 or write me care of the Nine T Nine Users Group, I'll make sure that I get as many into the newsletter as possible.

FOR SALE

One TI 99/4A system including console, brand new (still in box) speech synthesizer, TI joysticks, cassette recorder and Munchman cartridge. All in new condition.

\$150.00 or best offer. Call Sue after 4. 895-7351

One complete 99/4A system including console, Panasonic tape recorder, peripheral expansion box, TI printer, Multiplan, memory card, one disk drive. All in new condition.

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